Gem 3160-3 March 2012) UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEN BUREAU OF LAND MANAGEN APPLICATION FOR PERMIT TO DRILL OF REENTER OCT 65 2013* DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEN INMOCD ARTESIA 1a. Type of work: DRILL REENTER 6. If Indian, Allote or Tribe Name N/A 1a. Type of work: DRILL REENTER 7. If Unit or CA Agreement, Name and N/A 1b. Type of Well: Oil Well Gas Well Other Single Zone Multiple Zone 2. Name of Operator HUDSON OIL COMPANY OF TEXAS Superson 2000 9. API Well No. PUCKETT NORTH #18 9. API Well No. PUCKETT NORTH #18 3a. Address 616 TEXAS STREET FORT WORTH, TEXAS 76105-4612 3b. Phone No. (include area code) 817.336.7109 9. API Well No. PUCKETT NORTH #18 10. Post and Post og Exploratory State requirements.*) 4. Location of Well (Report location clearly and in accordance with any State requirements.*) 11. Sec., T. R. M. or Bik and Survey or SEC 13, T17S, R31E 4. Distance from proposed prod. zone SAME 1920 40 15. Distance from proposed location* (Also to nearest drig. unit line, if any) APPROX 600' 19. Proposed Depth 20. BLMBIA Bond No. on file BLM - NM-1055 STATEWIDE 18. Distance from proposed location* (Also to nearest drig. unit line, if any) 22. Approximate date work will start* 23. Estimated duration 15 DAYS	1 No. 5554> 122 Area 000
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I. Elevations (Show whether DF, KDB, RT, GL, etc.) 22. Approximate date work will start* 23. Estimated duration 3954' GL 24. at the level	
24. Attachments	
he following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:	
 Well plat certified by a registered surveyor. A Drilling Plan. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). Bond to cover the operations unless covered by an existing bond on Item 20 above). Operator certification Such other site specific information and/or plans as may be required 	1 file (see
Date TONY TUCKER Date 7-3-2	21013
FIELD SUPERINTENDENT	
Approved by (Signature) Name (Printed/Typed) DatSEP 3	0 2013
itle FIELD MANAGER Office CARLSBAD FIELD 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 onduct operations thereon. Conditions of approval, if any, are attached.	ARS
itle 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the tates any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.	:
(Continued on page 2) Roswell*Controlled	United
	United

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

4

2

Hudson Oil Company of Texas 616 Texas Street Fort Worth, Texas 76102-4612

OPERATOR CERTIFICATION

Well Name:Puckett North #18Legal Description:Sec 13 T17S R31E865' FNL & 1790' FEL

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein for the above captioned well; that I am familiar with the conditions that currently exist; that I have 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 I, or the company that I represent, am responsible for the operations conducted under this application. These statements are subject to the provision of 18 U.S.C 1001 for the filing of a false statement.

3' day of <u>July</u>. 2013 Executed this Bv:

Tony Tucker Field Superintendent Hudson Oil Company of Texas Office: 575.676.2266 Cell: 575.365.8064

RICT I N. French Dr., Hobb :: (575) 393-6161 F RICT II First St., Artesia, N :: (575) 748-1283 F RICT III RIC Drazos Road, A :: (505) 334-6178 F RICT IV S. St. Francis Dr., S :: (505) 476-3460 F	is, NM 88240 ax: (575) 393-(IM 88210 ax: (575) 748-9 ztec, NM 8741 ax: (505) 334-6 anta Fc, NM 87 ata: (505) 476-3	720 720 170 1505 462	Energy, M O	Standards Minerals ML CON 1220 Santa I TION A	ate of New M & Natural H ISERVATIC South St. Fr Fe, New Me	Mexico Resources Dej ON DIVISION rancis Dr. xico 87505	oartment	Re Submit on □AM	Form C-102 vised August 1, 2011 e copy to appropriate District Office ENDED REPORT
AP	Number	W EI	4332	Pool Code	GR	CAY DUTY	TACK Son	S; TRURS	-QU-GB-
3555	de H		28	5 01 P	Property Nam UCKETT N	ORTH		We	ll Number 18
OGRID N 25111	0.		HU	DSON (Operator Nam OIL COMPA	NY OF TEX	AS	E	levation 3954'
	······	<u></u>		,	Surface Locat	ion	· · · · · · · · · · · · · · · · · · ·	J	
JL or lot No. B	Section 13	Township 17-S	Range 31-E	Lot Idn	Feet from the 865	North/South line NORTH	Feet from the 1790	East/West line EAST	County EDDY
				Bottom Hol	e Location If Diffe	erent From Surface			
JL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
40 ALLOWABLE WI	LL BE ASSIG	NED TO THIS	COMPLETION UN	ITIL ALL INTE	RESTS HAVE BEEN (CONSOLIDATED OR A N	ION-STANDARD UNIT	HAS BEEN APPROVI	ED BY THE DIVISION
	 	GE ODE TIC NAD SURFACE Y=669 X=65 LAT.=32 LONG.=10	COORDINATES 27 NME 2 LOCATION 9482.4 N 7718.6 E .839439* N 3.829825* W		SEE DETAIL DETAIL 3959. 3948.5% O	→1790' 	I hereby certi complete to U that this orga unleased min proposed bot well at this for of such mine pooling agree heretofore en Signature <u>Tony</u> Printed Nat <u>E-mail Adu</u>	ify that the information h he best of my knowledge nization either owns a w eral interest in the land i tom hole location or has exation pursuant to a con- ral or working interest, o ement or a compulsory p itered by the division.	erein is true and e and belief, and orking interest or nacluding the a right to drill this tract with an owner r to a voluntary ooling order <u>7-10-2063</u> Date <u>noil.com</u>
<u>-</u>							I hereby certi was plotted f me or under and correct to Date of Sur Signature & Date of Sur Signature & Certificate Unit	ify that the well location from field notes of actual my supervision, and that o the best of my belief. FEBRUARY 04 vey Self of Profilemental Wey Self of Profilemental Northber Gatry C	shown on this plat surveys made by the same is true 2012 Surveyor:







Exhibit 3

C Anjelico/2012/Hudson 01 Company of Texas/Topo

Exhibit 4 LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR	IN	ΤE	RV	AL:	
MALJAMAR	2,	N.	М.	_	10'

NORTH

SEC. <u>13</u> T	WP. <u>17-S_</u> RGE. <u>31-E</u>
SURVEY	N.M.P.M.
COUNTYED	DYSTATE_NEW_MEXICO
DESCRIPTION	<u>865' FNL & 1790' FEL</u>
ELEVATION	3954'
OPERATOR	HUDSON OIL COMPANY OF TEXAS
LEASE	PUCKETT NORTH
U.S.G.S. TOP MALJAMAR, N.M	OGRAPHIC MAP 1.



Exhibit 5

VICINITY MAP



SEC. <u>13</u> TWP.<u>17-S</u> RGE. <u>31-E</u> SURVEY <u>N.M.P.M.</u> COUNTY <u>EDDY</u> STATE <u>NEW MEXICO</u> DESCRIPTION <u>865'</u> FNL <u>& 1790'</u> FEL ELEVATION <u>3954'</u> HUDSON OIL OPERATOR <u>COMPANY OF TEXAS</u> LEASE <u>PUCKETT NORTH</u>





THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES. 1000 2000 FEET 0 1000 E H Scole: 1"=1000" HUDSON OIL COMPANY OF TEXAS ACCESS ROADS TO THE PUCKETT NORTH WELLS IN SECTIONS 12 & 13, TOWNSHIP 17 SOUTH, RANGE 31 EAST, N.M.P.M. PROVIDING SURVEYING SERVICES SINCE 1946 OHN WEST SURVEYING COMPANY EDDY COUNTY, NEW MEXICO 412 N. DAL PASO Survey Date: 2/03 & 04/12 CAD Dote: 2/14/12 Drawn By: ACR HOBBS, N.M. 88240 (575) 393-3117 www.jws W.O. No.: 12110069 Rev: Rel. W.O.: Sheet 1 of 1 www.iws

1/16/13

C Anjelica/2012/Hudson Ol Campany al Texas/Japa

EIGHT POINT DRILLING PROGRAM HUDSON OIL COMPANY OF TEXAS (HOCT)

NAME OF WELL: Puckett North #18

LEGAL DESCRIPTION:

SURFACE: Sec 13 T17S R31E 865' FNL & 1790' FEL

POINT 1: ESTIMATED FORMATION TOPS (See No. 2 Below)

POINT 2: WATER, OIL, GAS AND/OR MINERAL BEARING FORMATIONS

Elevation above sea level: 3954' GL

Formation -	Est from KB	BEARING
Description	(TVD)	
Quaternary	Surface	
Fresh Water	250′	Fresh water
Rustler Anhydrite	682′	Barren
Top Salt	900′	Barren
Base of Salt	1923'	Barren
Yates	2028'	Oil, Gas, Water
Seven Rivers	2356'	Oil, Gas, Water
Queen	2980'	Oil, Gas, Water
Grayburg	3415'	Oil, Gas, Water
San Andres	3739'	Oil, Gas, Water

POINT 3: CASING PROGRAM

Sell	UH							
Hole	INTERVA	CASING	WEIGH	THREA	COLLAR	GRADE	PURPOSE	CONDITI
Size	LMD	(OD		E D March	A State of M			ON
26"	0-40'	20"	NA	NA	NA	Conductor	Conductor	New
12 ¼"	0-755,010	8 ⁵ / ₈ "	24#	8rd	ST&C	J-55	Surface	New
7 ⁷ / ₈ "	0-4300'	5 ½ "	17#	8rd	LT&C	J-55	Production	New

CASING DESIGN SAFETY FACTORS:

COLLAPSE	BURST .	JOINT STRENGTH	BUTTRESS	Dry.	Buoyant
1.25	1.0	8-R, 1.8	1.6	1.6	1.8

POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAM 2)

BOP (blow out preventer) system with a minimum rating of 2M will be installed, used, maintained and tested as per Onshore Order 2. The BOP will be an annular bag type preventer with 2" inlets and 2" outlets to the choke manifold. This BOP will be nippled up on the $8^{5}/_{8}$ " surface casing.

. No abnormal pressures or abnormal temperatures are expected while drilling this well. Other wells drilled in this section and area, have not encountered any problems while drilling.

_POINT 5: MUD PROGRAM

JU COA

	CU	Y		
DEF	PTH &	MUD TYPE SYSTEM	MUDWt	VISC
40'-	785	Fresh water Spud Mud, use paper to control seepage	8.4-8.7	29-32
7,55	'-TD	Brine water add Salt Water Gel if native mud does not have the	10-1-10.2	29-38
		desired viscosity. Use paper to control seepage. If water loss		
		control is needed use starch to accomplish these needs.		

Mud Monitoring: Mud levels will be monitored and visually inspected daily. Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run logs and casing the mud system may have to be altered to meet these needs.

POINT 6: TECHNICAL STAGES OF OPERATION

A) TESTING

None anticipated

B) LOGGING

- A. Open Hole log: Dual Laterolog , SNP, MSLF, LDT, Caliper and Gamma Ray log from TD back to $8^{5}/_{8}$ " casing shoe.
- B. Cased Hole log: Gamma Ray, Neutron from TD to the $8\frac{5}{8}$ casing shoe. Cement Bond Log from TD to surface.
- C. No DST's, Core's or Mud Logger is planned at this time.

C) CONVENTIONAL CORING

None anticipated

D) CEMENT

CASING TYPE	AMOUN TSXS	FT OF	TYPE	Density	Yield	NW.	TF
20" Conductor		40'	Redi-mix		1.75		
$8^{5}/_{8}$ " Surface	250		C+4%PF20+2%PF1+0.125#/sk PF29+0.25#/skPF46	13.5	1.74	9.135	13.052
LEAD		850 ⁷					
$8^{5}/_{8}$ " Surface	280		C+2%PF1	14.80	1.34	6.356	10.060
TAIL					_		

5 1/2 "	500		35/65 P/C+5%PF44	12.9	1.91	9.922	14.304
Production			(BWOW)+6%PF20+0.2%PF13				
		4350'	+3#/skPF42+0.25#/skPF46+0.				
			125#/skPF29				
LEAD							
	360		C+0.3%PF13	14.8	1.33	6.318	9.931
5 ½" Production							
TAIL							

Cement excesses will be as follows:

Surface – 100% excess of cement will be circulated to surface.

Production – 100% excess of cement will be circulated to the surface.

E) H₂S CONTINGENCY & SAFETY EQUIPMENT

See

COA

 H_2S monitors shall be installed prior to drilling out the surface shoe. If H_2S is encountered in quantities to greater than 10ppm, the well will be shut in and the H_2S equipment will be installed, including a flare line that will be extended pursuant to Onshore Order #6.

These tests will be performed:

- a) Upon installation
- b) After any component change
- c) Thirty days after a previous test
- d) As required by well conditions

A function test to insure that the preventers are operating correctly will be performed on each trip. In accordance with the BLM Onshore Order #6, if H_2S is encountered in concentrations of less than 10ppm, fans will be placed in work areas to prevent the accumulations of hazardous amounts of poisonous gas. If higher concentrations of H_2S are detected, the well will be shut in. A rotating head, Mud/Gas separator and flare line with igniter will be installed. H_2S is not anticipated in the area, although in the event that H_2S is encountered, the H_2S contingency plan attached will be implemented.

NOTE: HOTC has received a H_2S exemption for this area. A Mud Gas Separator is not anticipated for this area.

F) CLOSED LOOP AND CHOKE MANIFOLD

Please refer to Diagrams 2, 3 and 4 for choke manifold and closed loop system layout.

POINT 7: ANTICIPATED RESERVOIR CONDITIONS, PRESSURES, TEMPERATURES and POTENTIAL HAZARDS

No abnormal pressures or temperatures are expected. There is no known presence of H_2S in the area. If H_2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6.

Hudson Oil Company of Texas - PUCKETT NORTH #18

No loss of circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.

Estimated BHP 2150+/-Estimated BHT 135°

POINT 8: OTHER PERTINENT INFORMATION

A) Anticipated Starting Date

Upon approval from the BLM

___15__ Days drilling operations

___30__ Days completion operations

B) After running casing, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Grayburg-San Andres formation will be perforated and stimulated in order to establish production.





DIAGRAM #4

Hudson Oil Company of Texas Closed Loop System



OPERATIONS & MAINTENANCE

Drilling Fluids from the wellbore will go through the flow line across the shale shaker. Solids will drop into roll off containers with baffles as drawn above. Baffles slow fluid velocity to allow solids to fall down through 6" air actuated valves into roll off containers. Clean water goes back out to the drilling fluid steel pits. Solids and any leftover liquid will be hauled to disposal.

INSPECTION

The closed loop equipment will be inspected daily by each tour and any necessary maintenance performed. Any leak in the system will be repaired and .or contained immediately. OCD will be notified within 48 hours.

CLOSURE PLAN

During drilling operations, all liquids, drilling fluids and cutting will be hauled off via CRO (Controlled Recovery Incorporated Permit R-9166)



<u>HUDSON OIL COMPANY OF TEXAS (HOCT)</u> EMERGENCY PROCEDURES & PUBLIC PROTECTION SECTION TABLE OF CONTENTS

I. H₂S Contingency Plan

- A. Scope
- B. Objective
- C. Discussion of Plan

II. Emergency Procedures

- A. Emergency Procedures and Public Protection
- B. Emergency Procedures Implementation
- III. Ignition Procedures
 - A. Responsibility
 - **B.** Instructions
- IV. Training Requirements
- V. Emergency Equipment

VI. Evacuation Plan

- A. General Plan
- B. Emergency Phone Lists

VII. General Information

- A. H₂S Toxicity Table
- B. Respirator Use
- C. Emergency Rescue

<u>Hudson Oil Company of Texas</u> <u>Hydrogen Sulfide Drilling Plan Summary</u> <u>For Drilling/Work-over/Facility</u>

NOTE: This well and its anticipated facility are not expected to have H2S releases. However, there may be H2S in the nearby area. There are no private residences in the area but a contingency plan has been orchestrated. Hudson Oil Company of Texas will have a company representative available to the rig personnel through the drilling or production operations. If H2S is detected or suspected, monitoring equipment will be acquired for monitoring and/or testing.

- A. All personnel shall receive proper H₂S training in accordance with Onshore Order III.C.3.a
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment:
 - > Well control equipment:
 - A. Flare line 150' from wellhead to be ignited by flare gun
 - B. Choke Manifold with a remotely operated choke
 - C. Mud/gas separator
 - > Protective equipment for essential personnel
 - Breathing Apparatus:
 - a. Rescue Packs (SCBA) 1 unit shall be placed at each breathing area, 2 shall be sored in the safety trailer.
 - b. Work/Escape Packs 4 packs shall be stored on the rig floor with sufficient are hose not to restrict activity.
 - c. Emergency Escape Packs 4 packs shall be stored in the doghouse for emergency evacuation.

Auxiliary Rescue Equipment:

- a. Stretcher
- b. Two OSHA full body harness
- c. 100' ⁵/₈" OSHA approved rope
- d. 1-20# class ABC fire extinguisher
- ➢ H₂S detection and monitoring equipment:

The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm at 10ppm and audible at 14ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places:

a. Rig Floor

- b. Bell Nipple
- c. End of flow line or where will bore fluid is being discharged

(Gas sample tubes will be stored in the safety trailer)

12

Visual Warning Systems:

- a. One color code condition sign will be placed at the entrance to the sire reflecting the possible conditions at the site.
- b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
- c. Two wind socks will be placed in strategic locations, visible from all angles.

> Mud Program:

The mud program has been designed to minimize the volume of H_2S circulated to the surface. The operator will have the necessary mud products to minimize hazards while drilling in H_2S bearing zones

> Metallurgy:

- a. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines and valves shall be suitable for H₂S service.
- b. All elastomers used for packing and seals shall be H₂S trim.

> Communication:

Communication will be via two-way radio in emergency and company vehicles. Cell phones and land lines where available.

EMERGENCY PROCEDURES AND PUBLIC PROTECTION SECTION

- I. In the event of any evidence of H₂S levels above 10ppm, take the following steps immediately:
 - a. Secure breathing apparatus (SCBA)
 - b. Order non-essential personnel out of the danger zone
 - c. Take steps to determine if the H₂S level can be corrected or suppressed, and if so, proceed with normal operations.
- II. If uncontrollable conditions occur, proceed with the following:
 - a. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel and the New Mexico Oil and Gas (NMOCD) of the situation.
 - b. Isolate area and prevent entry by unauthorized persons into the 100ppm ROE.
 - c. Remove all personnel to the Safe Briefing Area.
 - d. Notify public safety personnel for help with maintain roadblocks and implementing evacuation. Phone number list attached.
 - e. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.
- III. Responsibility:
 - a. The Company Approved Supervisor shall be responsible for the total implementation of the plan.
 - b. The Company Approved Supervisor shall be in complete command during any emergency.
 - c. The Company Approved Supervisor shall designate a backup Supervisor in the event that he/she is not available.

EMERGENCY PROCEDURE IMPLEMENTATION

I. Drilling or Tripping

a. All Personnel

- i. When alarm sounds, don escape unit and report to upwind Safe Briefing Area
- ii. Check status of other personnel (buddy system)
- iii. Secure breathing apparatus (SCBA)
- iv. Wait for orders from supervisor

b. Drilling Foreman

- i. Report to upwind Safe Briefing Area
- ii. Don breathing apparatus and return to the point of release with the Tool Pusher or Driller (buddy system)
- iii. Determine the concentration of H_2S
- iv. Assess the situation and take appropriate control measures.

c. Tool Pusher

- i. Report to the upwind Safe Briefing Area
- ii. Don breathing apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system)
- iii. Determine the concentration
- iv. Assess the situation and take appropriate control measures.
- d. Driller
 - i. Check the status of other personnel (in a rescue attempt, always use the buddy system).
 - ii. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.
 - iii. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

e. Derrick Man and Floor Hands

i. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

f. Mud Engineer

- i. Report to the upwind Safe Briefing Area
- ii. When instructed, begin check of mud for pH level and H₂S level.

g. On-site Safety Personnel

- i. Don Breathing Apparatus
- ii. Check status of all personnel
- iii. Wait for instructions from Drilling Foreman or Tool Pusher

II. Taking a Kick

- a. All personnel report to the upwind Safe Briefing Area
- b. Follow standard BOP procedures

III. Open Hole Logging

a. All unnecessary personnel should leave the rig floor.

b. Drilling Foreman and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

IV. Running Casing or Plugging

- a. Follow "Drilling or Tripping" procedures.
- b. Assure that all personnel have access to protective equipment.

IGNITION PROCEDURES

Responsibility

The decision to ignite the well is the responsibility of the DRILLING FOREMAN in concurrence with the STATE POLICE. The State Police shall be the Incident Command on the scene of any major release. Intentional ignition must be coordinated with the NMOCD and local officials. In the event the Drilling Foreman is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

- 1. Human life and property are endangered.
- 2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

Instructions for Igniting the Well:

- 1. Two people are required for the actual igniting operation. Both men must wear SCBA and must use a full body harness and attach a retrievable safety line to the D-Ring on the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Foreman is responsible for igniting the well.
- 2. The primary method to ignite is a 25mm flare gun with a range of approximately 500ft.
- 3. Ignite from upwind and do not approach any closer than is warranted
- 4. Select the ignition site best suited for protection and which offers an easy escape route.
- 5. Before igniting, check for the presence of combustible gases.
- 6. After igniting, continue emergency actions and procedures as before.
- 7. All unassigned personnel will limit their actions to those directed by the Drilling Foreman.

NOTE: After the well is ignited, burning H_2S will convert to SO_2 , which is also highly toxic. Do not assume the area is safe after the well is ignited.

TRAINING REQUIREMENTS

When working in an area where H₂S might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel at the well site, whether regularly assigned, contracted, or employed on an unscheduled basis, have had adequate training by a qualified instructor in the following:

- 1. Hazards and Characteristics of H_2S and SO_2
- 2. Physicals effects of H_2S on the human body
- 3. Toxicity of H₂S and SO₂
- 4. H₂S detection, emergency alarm and sensor location
- 5. Emergency rescue
- 6. First aid and artificial resuscitation
- 7. The effects of H_2S on metals
- 8. Location safety

In addition, Supervisory Personnel will be trained in the following areas:

- 1. If high tensile tubular are to be used, personnel will be training in the special maintenance requirements.
- 2. Corrective action and shut-in procedures when drilling or reworking a well as well as blowout prevention and well control procedures.
- 3. The contents and requirements of the H_2S Drilling Operations Contingency Plan and the Public Protection Plan.

Service company personnel and visiting personnel must be notified if the zone contains H₂S and each service company must provide adequate training and equipment for their employees before the arrive at the well site.

EMERGENCY EQUIPMENT

As stated in the BLM Onshore Order #6, for wells located in a known H₂S area, H₂S equipment will be rigged up after setting surface casing. For wells located inside the known H₂S areas, the flare pit will be located 150' from the location and for wells located outside known H₂S areas, the flare pit will be located 100' away from location.

It is not anticipated that any H₂S is in the area, however, in the event that H₂S is encountered, the attached H₂S Contingency Plan will be implemented. (Please refer to Diagrams 2, 3 and 4 for choke manifold and closed loop system layout.)

All H₂S safety equipment and systems will be installed, tested and be operational when drilling reaches a depth of 500' above, or three days prior to penetrating a known formation containing H₂S.

Lease Entrance Sign:

Caution sign should be located at all roads providing direct access to the location. Signs should have a yellow background with black lettering and contain the words "CAUTION" and "POISION GAS" that is legible from a distance of at least 50'.

Windsocks or Wind Streamers:

- A minimum of two 10" windsocks located at strategic locations so that they may be seen from any point on location.
- Wind streamers (if preferred) should be placed at various locations on the well sire to ensure wind consciousness at all times.

Hydrogen Sulfide Detector and Alarms:

- H₂S monitors with alarms will be located on the rig floor, cellar, and the mud pits. These monitors will be set to alarm at 10ppm with a red light and to alarm at 15ppm with a red light and audible alarm.
 Well Condition Flags:
 - The well Conditions flags should be located at all roads providing direct access to the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following conditions:
 - Green Normal Operating Conditions
 - Yellow Potential Danger
 - Red Danger, H₂S Gas is Present

Respiratory Equipment:

- Fresh air breathing equipment should be placed at the Company Supervisor Trailer and the Safe Briefing Area and should include the following:
 - A minimum of two (2) SCBA's at each area.
 - Enough air-line units to operate safely, anytime H₂S concentrations reach the IDLH (100ppm).

• Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrick man and the other operation areas.

Fire Extinguishers:

• Adequate fire extinguishers shall be located at strategic locations.

Mud Program:

• The mud program has been designed to minimize the volume of H₂S circulated to the surface. Proper mud weight, safe drilling practices and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

Metallurgy:

• All drill strings, casing, tubing, wellhead, BOP, drilling spools, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.

Well Control Equipment:

- Flare line
- Choke manifold
- Blinds rams and pipe rams to accommodate all pipe sizes with properly sized closing units.
- Auxiliary equipment may include, if applicable, annular preventer and rotating head.

Communication Equipment:

• Proper communication equipment such as cell phones or two-way radios should be available for communication between the company man's trailer, rig floor and tool pusher's trailer.

Well Testing:

• There will be not drill stem testing

Evacuation Plan:

- Evacuation routes should be established prior to spudding the well.
- Should be discussed with all rig personnel

Designated Areas:

Parking and Visitor area:

- > All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- A smoking area will be designated at a pre-determined safe distance from the wellhead and any other possible flammable areas.

Safe Briefing Areas:

Two (2) Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180° angle if wind directs tend to shift in the area.

PPE should be stored at both Safe Briefing Areas or if a moveable cascade trailer is used, it should be kept unwind of existing winds. When wind is from the prevailing direction, both Safe Briefing Areas should be accessible.

NOTE: Additional equipment will be at Lucky Health and Safety in Hobbs, New Mexico.

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Hudson Oil Company of Texas – EMERGENCY PROCEDURES & PUBLIC PROTECTION Page 11 of 16

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EVACUATION PLAN

<u>General Plan</u>

The direct lines of action to protect the public from hazardous gas situations are as follows:

- 1. When the company approved supervisor determines that H₂S gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan.
- 2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and an evacuation needs to be implemented.
- 3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.
- 4. Law enforcement personnel (State Police, Sheriff's Department, Local Police Department, and Fire Department) will be called in to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

NOTE: Law enforcement personnel will not be asked to enter the contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of H₂S has been controlled, Company approved safety personnel will determine when the area is safe for re-entry.

Contacting Authorities

Hudson Oil Company of Texas (HOCT) personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible, but no later than four (4) hours. Be prepared to give the Agencies the following information (additional information may be requested):

- Type of release
- Volume of release
- Wind direction
- Location of release
- Directions to site

A call list of essential and potential responders has been included in this plan. HOCT must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

<u>H₂S Contingency Plan for Drilling/Workover/Facility</u> <u>Emergency Contacts</u>

Tony Tucker – HOCT	Maljamar	575.676.2266 (office) 575.365.8064 (cellular)	
Randall Hudson – HOCT	Ft. Worth	817.336.7190 (office)	
Medical Emergency		911	
Ambulanca – Artasia		575 746 5050	
Ambulance – Artesia		575.746.5050	
State Police – Artesia		575.746.2703	
State Police – Carlsbad		575.885.3137	
State Police – Hobbs		575.392.5588	
Sheriff – Artesia		575.746.9888	
Sheriff – Carlsbad		575.887.7551	
Sheriff – Lovington		575.396.3611	
City Police – Artesia		575.746.5001	
City Police – Carlsbad		575.885.2111	
Fire Department – Loco Hi	lls	575 677 2349	
Fire Department – Maliam	ar	575 676 4100	
Fire Department – Artesia		575 746 2701	
Fire Department – Carlsba	d	575.887.3798	
Lovington Fire and Ambula	ance	575.396.7318	
NMOCD – Artesia		575.748.1283	
NMOCD – Hobbs		575.393.6161	
BLM – Carlsbad		575.887.6544	
Wild Well Control – Permia	an Basin	432.550.6202	
Cudd Pressure Control – Po	ermian Basin	432.580.3544 or 432.570.5300	
BJ Services		575.746.3140	
Flight For Life – Lubbock		806.743.9911	
Aerocare – Lubbock		806.747.8923	
Med Flight Air Ambulance	– Albuquerque	505.842.4433	
SB Air Med Service – Albud	querque	505.842.4949	
Lucky Health and Safety –	Hobbs	575.492.7777	

TOXIC EFFECTS OF HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10ppm, which is 0.001% by volume. H_2S is heavier than air (specific gravity = 1.192) and colorless. If forms an explosive mixture with air between 4.3 and 46.0% by volume. H_2S is almost as toxic as Hydrogen Cyanide (HCN) and is between five and six times more toxic than Carbon Monoxide (CO). Toxicity data for H_2S and various other gases are compared in Table I (below). Physical effects at various H_sS exposure levels are shown in Table II.

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COMMON NAME	CHEMICAL FORMULA	SPECIFIC GAVITY (SC=1)	THRESHOLD LIMIT (1)	HAZARDOUS LIMIT (2)	LETHAL CONCENTRATIONS (3)
HYDROGEN CYANIDE	HCN	0.94	10ppm	150ppm/hr	300ppm
HYDROGEN SULFIDE	H ₂ S	1.18	10ppm	250ppm/hr	600ppm
SULFUR DIOXIDE	SO ₂	2.21	5ppm		1000ppm
CHLORINE	CL ₂	2.45	1ppm	4ppm/hr	1000ppm
CARBON MONOXIDE	CO	0.97	50ppm	400ppm/hr	1000ppm
CARBON DIOXIDE	CO ₂	1.52	5000ppm	5%	10%
METHANE	CH₄	0.55	90,000ppm	Combustible in air	Above 5%

TABLE I – TOXICITY OF VARIOUS GASES

1) **Threshold Limit** – Concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects

- 2) Hazardous Limit Concentration what will cause death with short-term exposure
- 3) Lethal Concentration Concentration that will cause death with short-term exposure

PERCENT (%)	РРМ	CONCENTRATION GRAINS 100 STD. FT3 [*]	PHYSICAL EFFECTS
0.001	<10	00.65	Obvious & unpleasant odor
0.002	10	01.30	Safe for 8hrs of exposure
0.010	100	06.48	Kills smell in 3-15 mins. May sting eyes & throat
0.020	200	12.96	Kills smell shortly; stings eyes & throat
0.050	500	32.96	Dizziness; breathing ceases in a few mins. Needs prompt artificial respiration
0.070	700	45.36	Unconscious quickly; death will result if not rescued promptly
0.100	1000	64.30	Unconscious at once; followed by death within minutes

TABLE II – PHYSICAL EFFECTS OF HYDROGEN SULFIDE

USE OF SELF-CONTAINED BREATHING APPARATUS (SCBA)

- 1. Anyone who uses a SCBA shall:
 - a. Be approved by a physician or licensed health care practitioner
 - b. Pass a fit test
 - c. Be trained in donning and doffing
 - d. Its proper use
 - e. Knowledge to ensure proper face seal
 - f. Knowledge in conducting an inspection of the SCBA
 - g. Conduct proper maintenance
- 2. Such items as facial hair (beard/sideburns) and eyeglasses will not allow a proper face mask seal.
- 3. Anyone reasonably expected to wear SCBA's shall have these items removed before entering a toxic atmosphere.
- 4. A special mask with a mount for prescription eyewear must be obtained for anyone who must wear prescription eyewear in order to see while using an SCBA.
- 5. SCBA's should be worn in H₂S concentrations above 10ppm.

RESCUE & FIRST AID FOR H₂S POISONING

REMEMBER: DO NOT PANIC – REMAIN CALM – THINK

- 1. Hold your breath **do not** inhale first
- 2. Put on SCBA
- 3. Remove victim(s) to fresh air as quickly as possible. Go **upwind** from source or at **right angle** to the wind. **Do not downwind**.
- 4. Briefly apply chest pressure using arm lift method of artificial respiration to clean victim's lungs and to avoid inhaling toxic gas directly from victim's lungs.
- 5. Provide artificial respiration if needed.
- 6. Provide from prompt transportation to the hospital and continue giving artificial respiration if needed.
- 7. Inform hospital/medical facilities of the possibility of H₂S poisoning before they treat.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration and CPR, as well as first air for eyes and skin contact with liquid H_2S .

EXHIBIT 7 HUDSON OIL COMPNAY OF TEXAS Interim Reclamation Well Pad Layout



NORTH



Puckett North #18

Hudson Oil of Texas Puckett North 18 SHL: 865 FNL & 1790 FEL, Section: 13, T.17S., R.31E.

Surface Use Plan of Operations

Introduction

The following surface use plan of operations will be followed and carried out once the APD is approved. No other disturbance will be created other than what was submitted in this surface use plan. If any other surface disturbance is needed after the APD is approved, a BLM approved sundry notice or right of way application will be acquired prior to any new surface disturbance.

Before any surface disturbance is created, stakes or flagging will be installed to mark boundaries of permitted areas of disturbance, including soils storage areas. As necessary, slope, grade, and other construction control stakes will be placed to ensure construction in accordance with the surface use plan. All boundary markers will be maintained in place until final construction cleanup is completed. If disturbance boundary markers are disturbed or knocked down, they will be replaced before construction proceeds.

If terms and conditions are attached to the approved APD and amend any of the proposed actions in this surface use plan, we will adhere to the terms and conditions.

1. Existing Roads

- a. The existing access road route to the proposed project is depicted on Exhibit 3. Improvements to the driving surface will be done where necessary. No new surface disturbance will be done, unless otherwise noted in the New or Reconstructed Access Roads section of this surface use plan.
- b. The existing access road route to the proposed project does not cross lease or unit boundaries, so a BLM right-of-way grant will not be acquired for this proposed road route.
- c. Existing oil and gas roads utilized to access the proposed project will be maintained by crowning, clearing ditches, and fixing potholes.. All existing structures on the entire access route such as cattleguards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use.

2. New or Reconstructed Access Roads

- a. An access road will be needed for this proposed project. See the survey plat for the location of the access road.
- b. The length of access road needed to be constructed for this proposed project is about 46' feet.
- c. The access road will be constructed with 6 inches of compacted caliche.
- d. When the road travels on fairly level ground, the road will be crowned and ditched with a 2% slope from the tip of the road crown to the edge of the driving surface. The ditches will be 3 feet wide with 3:1 slopes.
- e. The access road will be constructed with a ditch on each side of the road.
- f. The maximum grade for the access road will be 1 percent.
- g. No turnouts will be constructed on the proposed access road.

- h. No cattleguards will be installed for this proposed access road.
- i. No BLM right-of-way grant is needed for the construction of this access road.
- j. No culverts will be constructed for this proposed access road.
- k. No low water crossings will be constructed for the access road.
- 1. Since the access road is on level ground, no lead-off ditches will be constructed for the proposed access road.
- m. Newly constructed or reconstructed roads, on surface under the jurisdiction of the Bureau of Land Management, will be constructed as outlined in the BLM "Gold Book" and to meet the standards of the anticipated traffic flow and all anticipated weather requirements as needed. Construction will include ditching, draining, crowning and capping or sloping and dipping the roadbed as necessary to provide a well-constructed and safe road.

3. Location of Existing Wells

a. Exhibit 2 of the APD depicts all known wells within a one mile radius of the proposed well.

4. Location of Existing and/or Proposed Production Facilities

- a. All permanent, lasting more than 6 months, above ground structures including but not limited to pumpjacks, storage tanks, barrels, pipeline risers, meter housing, etc. that are not subject to safety requirements will be painted a non-reflective paint color that blends in with the surrounding landscape. The paint color will be one of the colors from the BLM Standard Environmental Colors chart selected by the BLM authorized officer.
- b. All proposed production facilities that are located on the well pad will be strategically placed to allow for maximum interim reclamation, recontouring, and revegetation of the well location.
- c. Production from the proposed well will be transported to the production facility located on the Puckett North #15. The location of the well is as follows: 660 FSL & 660 FEL, Sec. 12 or T.17S. R.31E.
- d. A pipeline to transport production will be installed from the proposed well to the existing production facility.
 - i. We plan to install a 3 inch surface polyethylene pipeline from the proposed well to the production facility. The working pressure of the pipeline will be about 125 psi. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer

surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

- ii. Exhibit 6 depicts the proposed production pipeline route from the well to the production facility.
- iii. The proposed pipeline does not cross lease boundaries, so a right of way grant will not need to be acquired from the BLM.
- e. If any plans change regarding the production facility or other infrastructure (pipeline, electric line, etc.), we will submit a sundry notice or right of way (if applicable) prior to installation of construction.
- f. An electric line will be applied for through a sundry notice or BLM right of way at a later date.

5. Location and Types of Water

a. The source and location of the water supply are as follows: The well will be drilled with a combination of fresh water and brine water based mud systems. The water will be obtained from commercial suppliers in the area and/or hauled to the location by transport trucks over existing and proposed roads as indicated in Exhibit #1.

6. Construction Materials

- a. Construction material that will be used to build the well pad and road will be caliche.
- b. All material required for construction of the drill pad and access roads will be obtained from private, state, or federal pits. If the well pad is flipped to acquire caliche underneath the well pad, Hudson shall stay within the approved well pad area when performing these operations. A federal mineral material permit will be acquired prior to flipping the location for caliche or acquiring caliche from a federal pit.

7. Methods of Handling Waste

- a. Drilling fluids and produced oil and water from the well during completion operations will be stored safely and disposed of properly in an NMOCD approved disposal facility.
- b. Garbage and trash produced during drilling and completion operations will be collected in a trash bin and disposed of properly at a state approved site. All trash on and around the well site will be collected for disposal.
- c. Human waste and grey water will be properly contained and disposed of properly at a disposal facility.
- d. After drilling and completion operations, trash, chemicals, salts, frac sand and other waste material will be removed and disposed of properly at a disposal site.

e. The well will be drilled utilizing a closed loop system. Drill cutting will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

8. Ancillary Facilities

a. No ancillary facilities will be needed for this proposed project.

9. Well Site Layout

- a. The proposed drilling pad was staked and surveyed by a professional surveyor. The attached survey plat of the well site depicts the drilling pad layout as staked.
- b. A title of a well site diagram is Diagram 1. This diagram depicts the rig layout.
- c. Topsoil Salvaging:

Grass, forbs, and small woody vegetation, such as sagebrush will be excavated as the topsoil is removed. Large woody vegetation will be stripped and stored separately and respread evenly on the site following topsoil respreading. Topsoil depth is defined as the top layer of soil that contains 80% of the roots. In areas to be heavily disturbed, the top 6 inches of soil material, will be stripped and stockpiled on the perimeter of the well location and along the perimeter of the access road to control run-on and run-off, to keep topsoil viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil should include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils. Contaminated soil will not be stockpiled, but properly treated and handled prior to topsoil salvaging.

10. Plans for Surface Reclamation

a. Reclamation Objectives:

- i. The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat and forage loss, visual impact, and weed infestation, during the life of the well or facilities.
- ii. The long-term objective of final reclamation is to return the land to a condition approximating that which existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.
- iii. The BLM will be notified at least 3 days prior to commencement of any reclamation procedures.

Hudson Oil of Texas Puckett North 18 SHL: 865 FNL & 1790 FEL, Section: 13, T.17S., R.31E.

iv. If circumstances allow, interim reclamation and/or final reclamation actions will be completed no later than 6 months from when the final well on the location has been completed or plugged. We will gain written permission from the BLM if more time is needed.

b. Interim Reclamation

- i. Interim reclamation will be performed on the well site after the well is drilled and completed. Exhibit 7 depicts the location and dimensions of the planned interim reclamation for the well site.
- ii. Within 30 days of well completion, the well location and surrounding areas will be cleared of, and maintained free of, all materials, trash, and equipment not required for production.
- iii. In areas planned for interim reclamation, all the surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.
- iv. The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.
- v. Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including cuts & fills. To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
- vi. Proper erosion control methods will be used on the area to control erosion, runoff and siltation of the surrounding area.
- vii. The interim reclamation will be monitored periodically to ensure that vegetation has reestablished and that erosion is controlled.

c. Final Reclamation (well pad, buried pipelines, etc.)

- i. Prior to final reclamation procedures, the well pad, road, and surrounding area will be cleared of material, trash, and equipment.
- ii. All surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.

Hudson Oil of Texas Puckett North 18 SHL: 865 FNL & 1790 FEL, Section: 13, T.17S., R.31E.

- iii. All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be recontoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.
- iv. After all the disturbed areas have been properly prepared, the areas will be seeded with the proper BLM seed mixture, free of noxious weeds. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
- v. Proper erosion control methods will be used on the entire area to control erosion, runoff and siltation of the surrounding area.
- vi. All unused equipment and structures including pipelines, electric line poles, tanks, etc. that serviced the well will be removed.
- vii. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, and that erosion is controlled.

11. Surface Ownership

a. The surface ownership of the proposed project Federal.

12. Other Information

a. No other information is needed at this time.

13. Maps and Diagrams

- a. Exhibit 1 Well Site Diagram
- b. Exhibit 2 Wells Within One Mile
- c. Exhibit 3 Access Roads
- d. Exhibit 4 Topographical Map
- e. Exhibit 5 Vicinity Map
- f. Exhibit 6 Production Pipeline Map
- g. Exhibit 7 Interim Reclamation Diagram
- h. Diagram 1 Rig Layout

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Hudson Oil Company of Texas
LEASE NO.:	NMLC-029415B
WELL NAME & NO.:	Puckett North 18
SURFACE HOLE FOOTAGE:	0865' FNL & 1790' FEL
LOCATION:	Section 13, T. 17 S., R 31 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			
Lesser Prairie-Chicken Timing Stipulations			
Ground-level Abandoned Well Marker			
Construction			
Notification			
Topsoil			
Closed Loop System			
Federal Mineral Material Pits			
Well Pads			
Roads			
Road Section Diagram			
⊠ Drilling			
Cement Requirements			
H2S Requirements			
Logging Requirements			
Waste Material and Fluids			
Production (Post Drilling)			
Well Structures & Facilities			
Pipelines			
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)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

<u>Ground-level Abandoned Well Marker to avoid raptor perching</u>: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

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) 234-5909 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 in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

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

Payment shall be made to the BLM prior to removal of any federal mineral materials. 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. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. 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 twenty-five (25) 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 foot road with 4% road slope: $\underline{400'}_{4\%}$ + 100' = 200' lead-off ditch interval

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.

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

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A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

Eddy County

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

- 1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is encountered in quantities greater than 10 PPM the well shall be shut in and H2S equipment shall be installed and flare line must be extended pursuant to Onshore Oil and Gas Order #6. After detection, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items.
- 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. If the drilling rig is removed without approval an Incident of Non-Compliance will be written and will be a "Major" violation.
- 3. The record of the drilling rate along with the GR/N well log run from TD to surface shall 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 program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

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

Wait on cement (WOC) time prior to drilling out 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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. 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.

Possibility of water and brine flows in the Rustler, Salado, Artesia Group, and Queen. Possibility of lost circulation in the Rustler and Artesia Group.

- 1. The 8-5/8 inch surface casing shall be set at approximately 810 feet (in a competent bed <u>below the Magenta Dolomite</u>, which is a <u>Member of the Rustler</u>, and if salt is encountered, set casing at least 25 feet above the salt) and cemented to the surface.
 - 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. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - 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.
- 2. The minimum required fill of cement behind the 5-1/2 inch production casing is:

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.
- 2. In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).
- 3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000** (**2M**) psi.
- 4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. 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.

f. 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. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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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.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

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, <u>Shale Green</u> from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, <u>et seq</u>. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, <u>et seq</u>.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-ofway width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

9. The pipeline shall be buried with a minimum of <u>24</u> inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder 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 will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will

be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. 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, powerline 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.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

IX. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored. Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 2, for Sandy 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 <u>no</u> 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:

Species	l <u>b/acre</u>
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed