OCD-HOBBS

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SEP 22 2008

HOBBS (OCD)

ATS-08-779
FT-06-1151

Form 3160-3
(April 2004)

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No. LC-063458	
6 If Indian, Allotee or Tribe Name	
7. If Unit or CA Agreement, Name and No.	
1a. Type of work: [X] DRILL [ ] REENTER	
1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [ ] Single Zone [ ] Multiple Zone	8. Lease Name and Well No. <31488> Warren Unit 324
2 Name of Operator ConocoPhillips Company <217817>	9. API Well No. 30-025- 39190
3a. Address 3300 N. "A" Street, Bldg. 6 Midland, TX 79705	3b. Phone No(include area code) (432)688-6884
	10. Field and Pool, or Exploratory Warren;Bline-Tb O&G/Warren;Drinkard/DK/Abo
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface 1980' FNL & 760' FEL Unit H Split Estate At proposed prod. zone 1980' FNL & 760' FEL	11. Sec., T. R. M. or Blk and Survey or Area Sec. 26, T-20-S, R-38-E
14. Distance in miles and direction from nearest town or post office* Approx. 9 miles NE from Eunice, NM	12. County or Parish Lea / 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 3400' FEL	16. No. of acres in lease 5120 / 17. Spacing Unit dedicated to this well 40 - Acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1804' from #49	19. Proposed Depth 7325' / 20. BLM/BIA Bond No. on file ES0085
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3566' GL	22. Approximate date work will start* 11/05/2008 / 23. Estimated duration 10 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 shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an 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 authorized officer.

25. Signature Celeste G. Dale	Name(Printed/Typed) Celeste G. Dale	Date 06/05/2008
Title Regulatory Specialist		
Approved by(Signature) /S/ DAVID D. EVANS	Name(Printed/Typed) /S/ DAVID D. EVANS	Date SEP 18 2008
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 conduct 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 willfully 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.

*(Instructions on page 2)

KZ

Lea County Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

Form 3160-5
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-HOBBS

FORM APPROVED
OM B No. 1004-0137
Expires: March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - *Other instructions on reverse side.*

5. Lease Serial No.
LC-063458

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No

1. Type of Well
[X] Oil Well [ ] Gas Well [ ] Other

8. Well Name and No.
Warren Unit #324

2. Name of Operator
ConocoPhillips Company

9. API Well No.
30-025- 39190

3a. Address
3300 N. "A" Street, Bldg. 6 Midland TX 79705-5406

3b. Phone No. *(include area code)*
(432)688-6884

10. Field and Pool, or Exploratory Area
Warren;Drinkard&Blinebry-Tubb,DK;Abo

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1980' FNL & 760' FEL
Sec. 26, T-20-S, R-38-E

11. County or Parish, State
Lea
New Mexico

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
[X] Notice of Intent	[ ] Acidize	[ ] Deepen	[ ] Production (Start/Resume)	[ ] Water Shut-Off
[ ] Subsequent Report	[ ] Alter Casing	[ ] Fracture Treat	[ ] Reclamation	[ ] Well Integrity
[ ] Final Abandonment Notice	[ ] Casing Repair	[ ] New Construction	[ ] Recomplete	[ ] Other
	[X] Change Plans	[ ] Plug and Abandon	[ ] Temporarily Abandon	
	[ ] Convert to Injection	[ ] Plug Back	[ ] Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Ref. Bond #ES0085

Please accept, as an update to the Master Surface Use Plan and Master Drilling Plan, the attached Rig Layout plat for a Closed-Loop system for the subject location. We do not plan to utilize earthen pits for the drilling of this well.

It presently looks like H&P Rig #306 will be contracted for this location.

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*
Celeste G. Dale

Title Regulatory Specialist

Signature Celeste G. Dale

Date 06/06/2008

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by /S/ DAVID D. EVANS

Title FIELD MANAGER

Date SEP 18 2008

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Office CARLSBAD FIELD OFFICE

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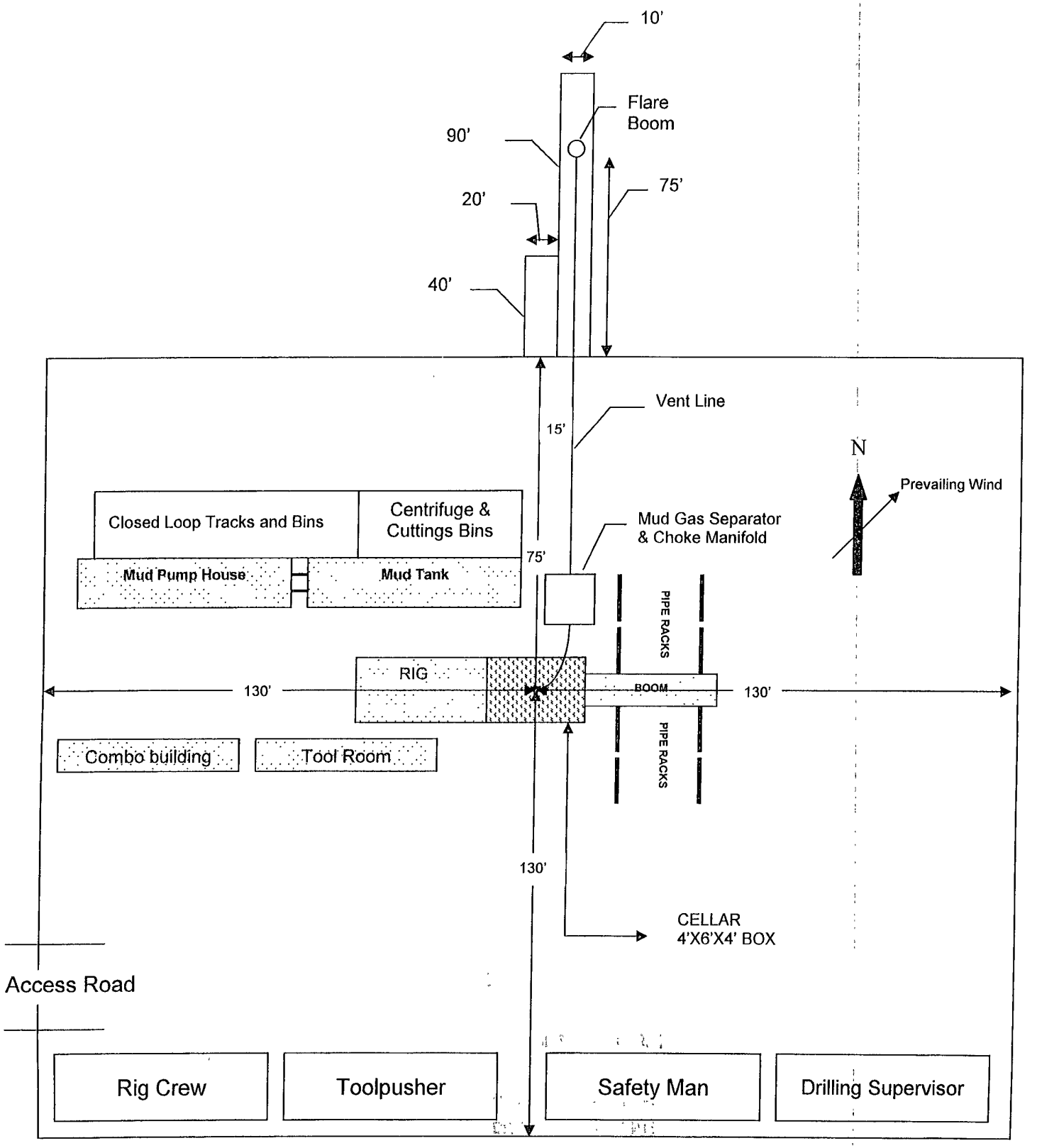
(Instructions on page 2)

ConocoPhillips
Location Schematic and Rig Layout for Closed Loop System
H&P #306
(PICTURE NOT TO SCALE)



Location Specification Request: Drilling

Overall Dimensions	205' X 260'	(see attached)
Dimensions from Well	75' North 130' South 130' East 130' West	
Caliche Requirement	Based on site assessment of what is needed, 6" to 9" after compaction.	
Slope	Location is required to be level.	
Road	Based on site assessment each road will need to be suitable to move rig and equipment easily on and off location.	

Form 3160-5
(April2004)

UNITEDSTATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-HOBBS

FORMAPPROVED
OM B No 1004-0137
Expires: March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS

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5. Lease Serial No.
LC-063458

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No

1 Type of Well
[X] Oil Well [ ] Gas Well [ ] Other

8. Well Name and No.
Warren Unit #324

2. Name of Operator
ConocoPhillips Company

9. API Well No.
30-025- 39190

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3b. Phone No. *(include area code)*
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Warren;Drinkard/Warren;Blinebry-Tubb C

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1980' FNL & 760' FEL
Sec. 26, T-20-S, R-38-E, UL "H"

11. County or Parish, State
Lea
New Mexico

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
[X] Notice of Intent	[ ] Acidize	[ ] Deepen	[ ] Production (Start/Resume)	[ ] Water Shut-Off
[ ] Subsequent Report	[ ] Alter Casing	[ ] Fracture Treat	[ ] Reclamation	[ ] Well Integrity
[ ] Final Abandonment Notice	[ ] Casing Repair	[ ] New Construction	[ ] Recomplete	[X] Other Facility Detail
	[ ] Change Plans	[ ] Plug and Abandon	[ ] Temporarily Abandon	
	[ ] Convert to Injection	[ ] Plug Back	[ ] Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Ref. Bond #ES0085

Facility map attached for the Warren Unit #324.

Facility work to include:

-Road-Existing

-Flowline-Install a new flowline from well # 324 and along existing lease roads south about 1306 feet, turn west for about 2640 feet and then turn south for another 1320 feet and tie-in to the existing header at the East Separator Facility, Section 26.

-Powerline-Existing

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*
Celeste G. Dale

Title Regulatory Specialist

Signature Celeste G. Dale

Date 06/17/2008

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by /S/ DAVID D. EVANS

Title FIELD MANAGER

Date SEP 18 2008

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Office CARLSBAD FIELD OFFICE

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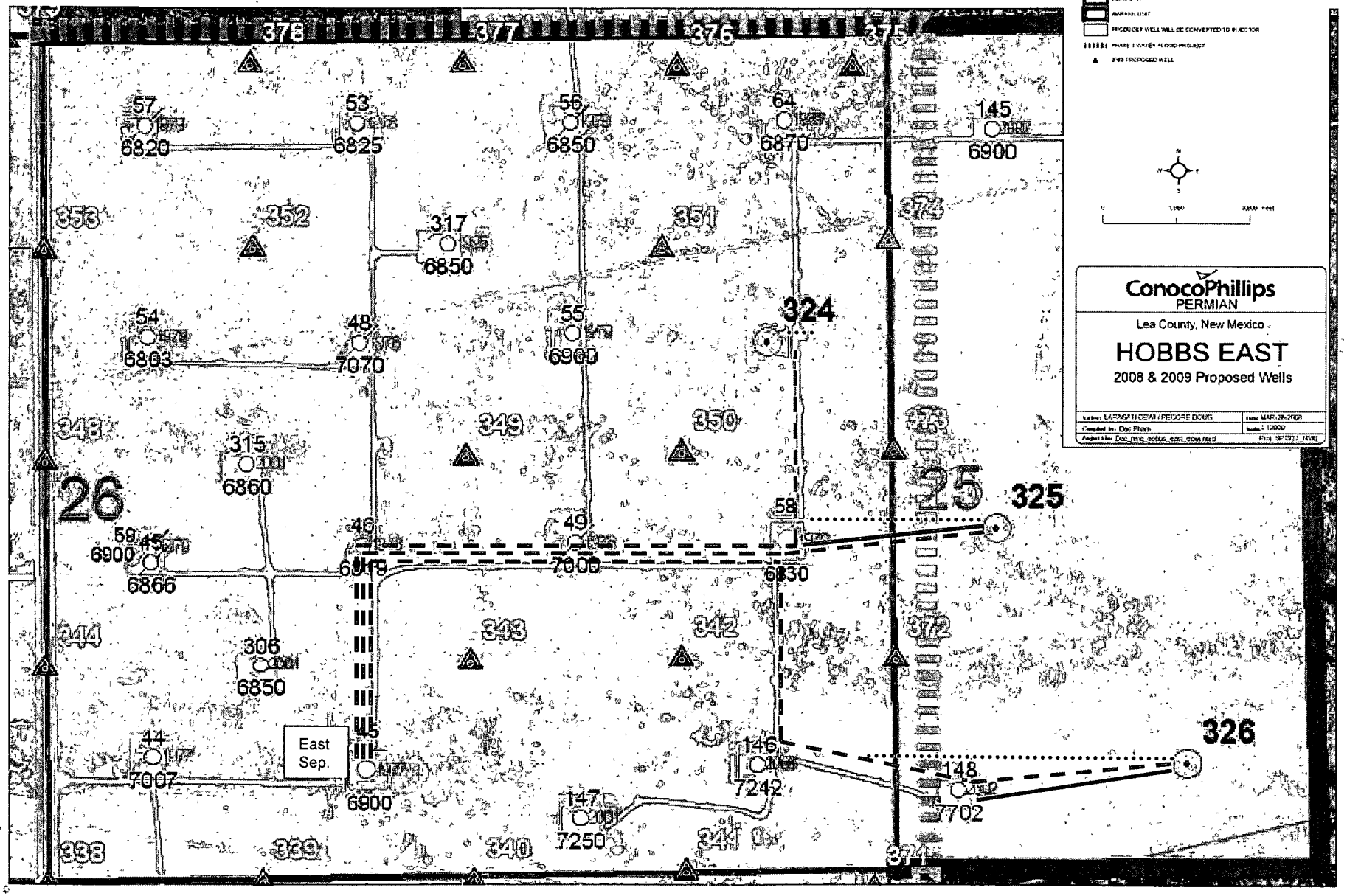
(Instructions on page 2)

	WU 324	WU 325	WU 326
Road	Existing	1051’	1134’
Flowline	5266’	1355’	3852’
Powerliine	Existing	1018’	1932



ConocoPhillips

PTRRC
Ronald G. Crouch
Sr. Right Of Way Agent

4001 Penbrook Ste 345
Odessa TX, 79762
(432) 368-1218 Office
(432) 631-5557 Cell

September 10, 2008
Cody Layton
Bureau Of Land Management
620 East Greene
Carlsbad, New, Mexico 88220

RE: Warren Unit #324
Section 26, T20S, R38E
Lea County, New Mexico

Dear Mr. Layton;

Settlement has been reached between surface owner and ConocoPhillips Company for the above mentioned well location and appurtenances. Damages will be paid before any construction begins.
The surface owner is:

G.P. Sims Estate
P.O. Box 1046
Eunice, New Mexico 88231

If you have any questions please contact me.

Sincerely,

Ronald G. Crouch
PTRRC Advisor
ConocoPhillips Company.

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Frances Dr.
Santa Fe, NM 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025- 39190	62965	Warren; Blinebry-Tubb O&G

Property Code	Property Name	Well Number
31493	WARREN UNIT BLINEBRY Tubb WF	324

OGRID No.	Operator Name	Elevation
217817	CONOCOPHILLIPS COMPANY	3566'

Surface Location

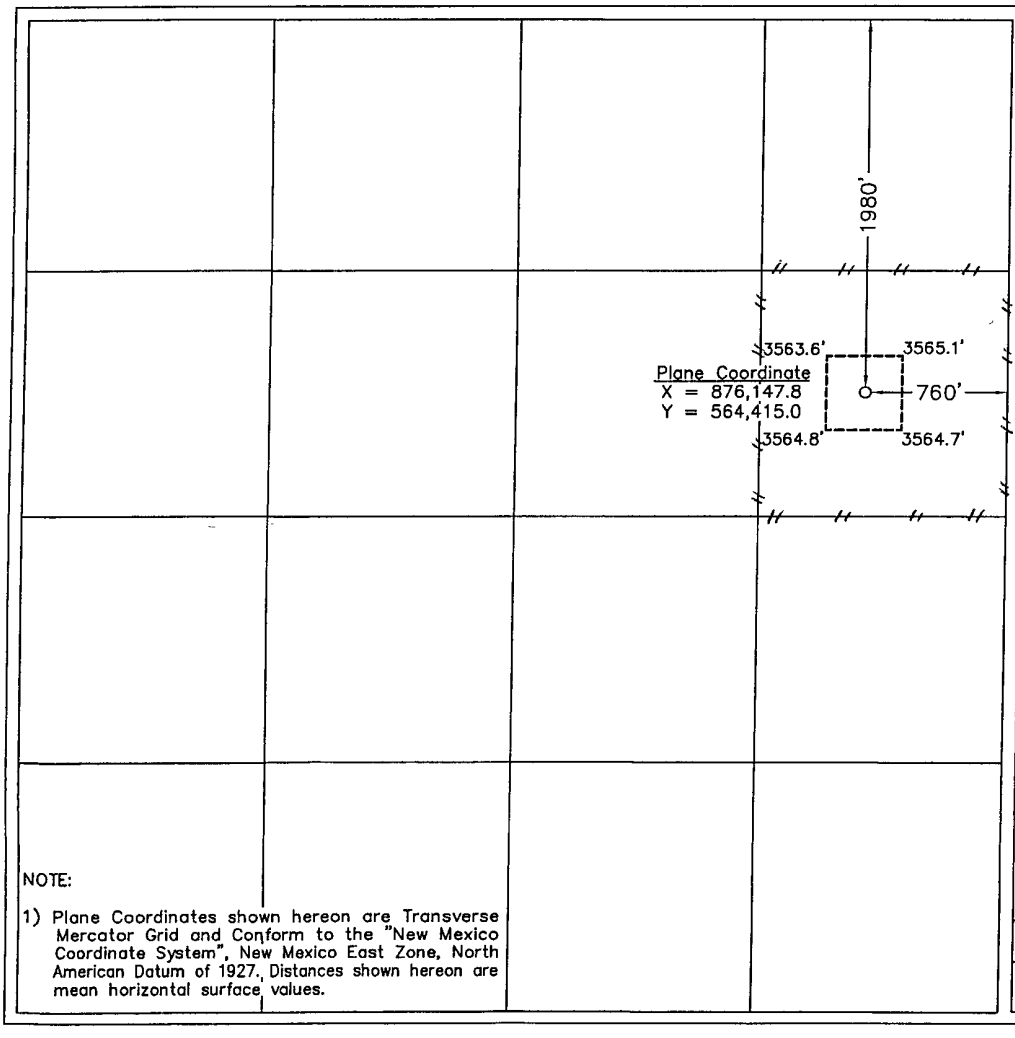
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	26	20 S	38 E		1980	NORTH	760	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
$)			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



NOTE:

1) Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the "New Mexico Coordinate System", New Mexico East Zone, North American Datum of 1927. Distances shown hereon are mean horizontal surface values.

OPERATOR CERTIFICATION

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interestin the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 06/06/08
Date

Celeste G. Dale
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison and that the same is true and correct to the best of my belief

March 24, 2008
Date of Survey

LVA
Signature & Seal of Professional Surveyor

W.O. Num. 2008-0281

Certificate No. MACON McDONALD 12185

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

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Revised October 12, 2005
Submit to Appropriate District Office
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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025- 39190	63080	Warren; Drinkard East

Property Code	Property Name	Well Number
~~31493~~ 31488	WARREN UNIT	324

OGRID No.	Operator Name	Elevation
217817	CONOCOPHILLIPS COMPANY	3566'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	26	20 S	38 E		1980	NORTH	760	EAST	LEA

Bottom Hole Location If Different From Surface

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Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

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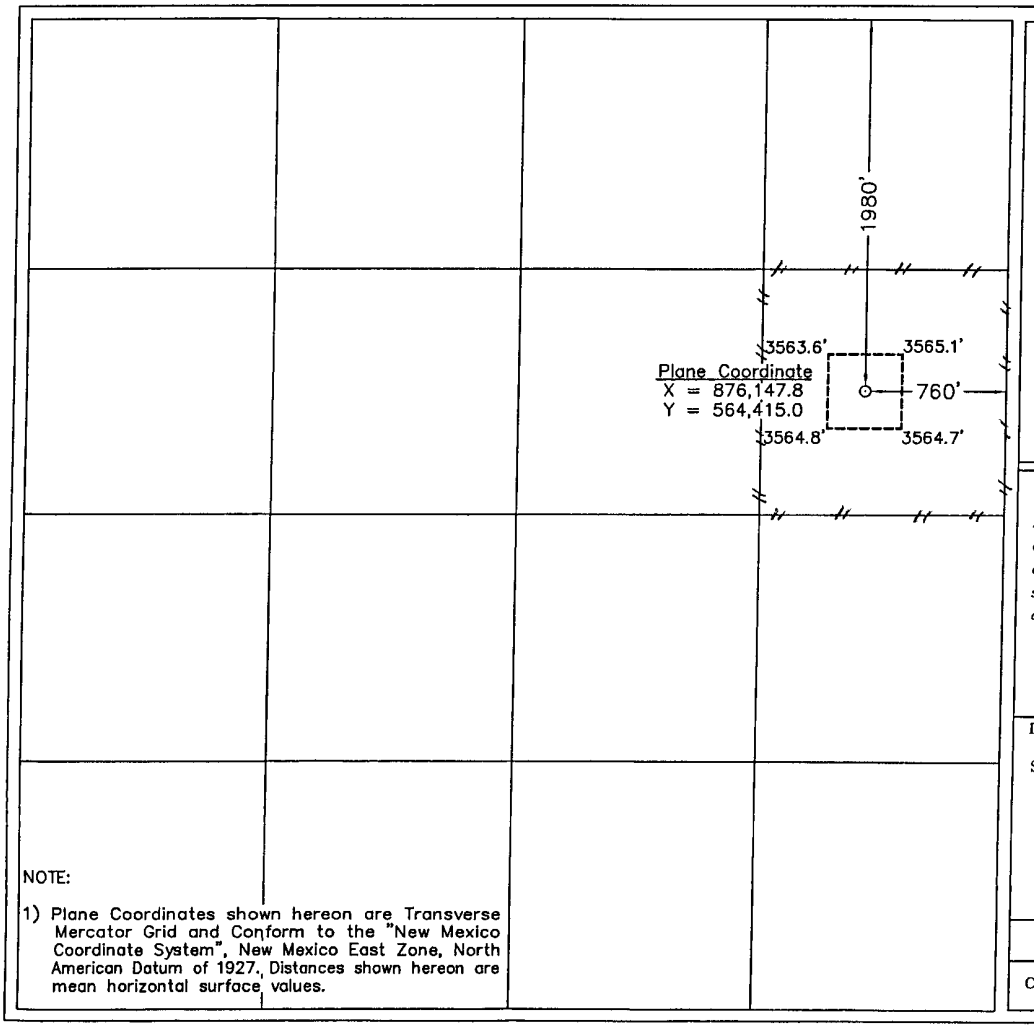

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Signature 06/06/08
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Printed Name

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WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025- 39190	96587	DK; Abo, West

Property Code	Property Name	Well Number
31488	WARREN UNIT	324

OGRID No.	Operator Name	Elevation
217817	CONOCOPHILLIPS COMPANY	3566'

Surface Location

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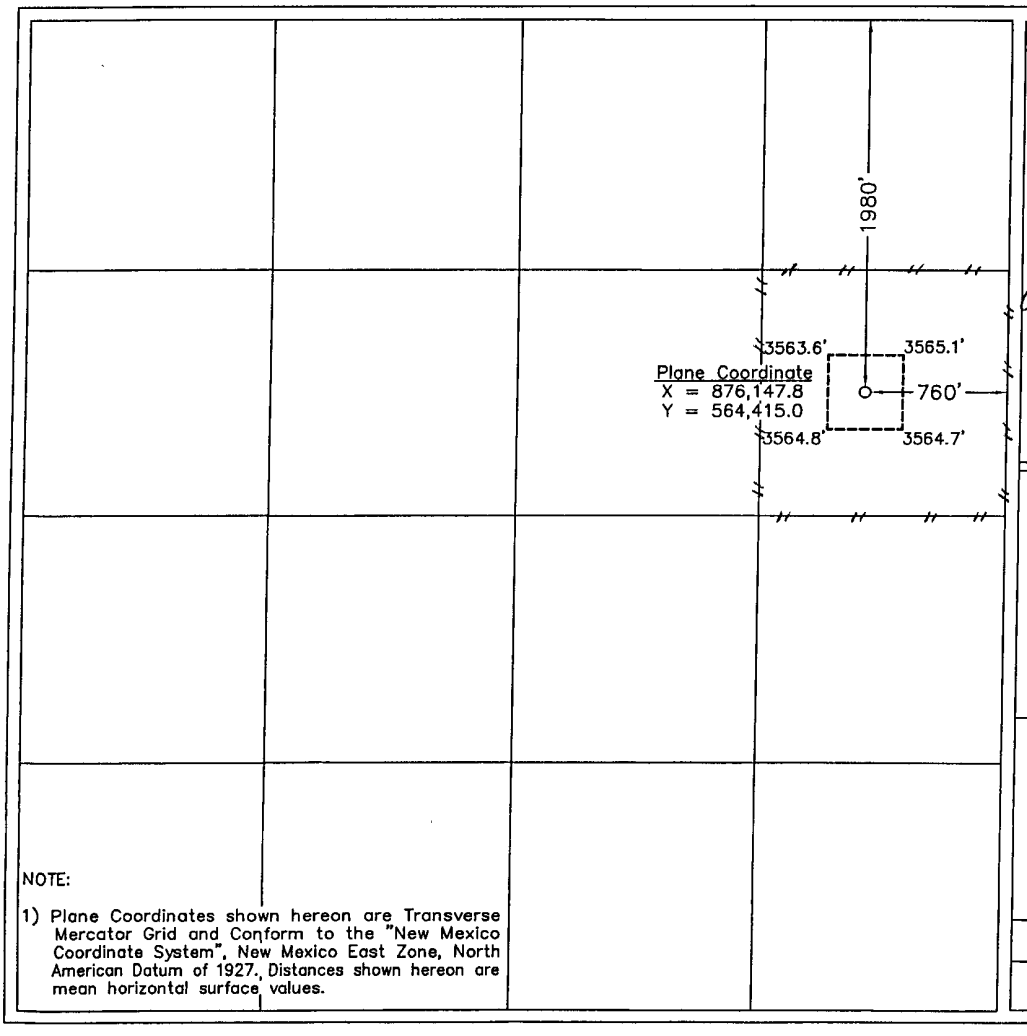

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Signature & Seal of Professional Surveyor

W.O. Num. 2008-0281

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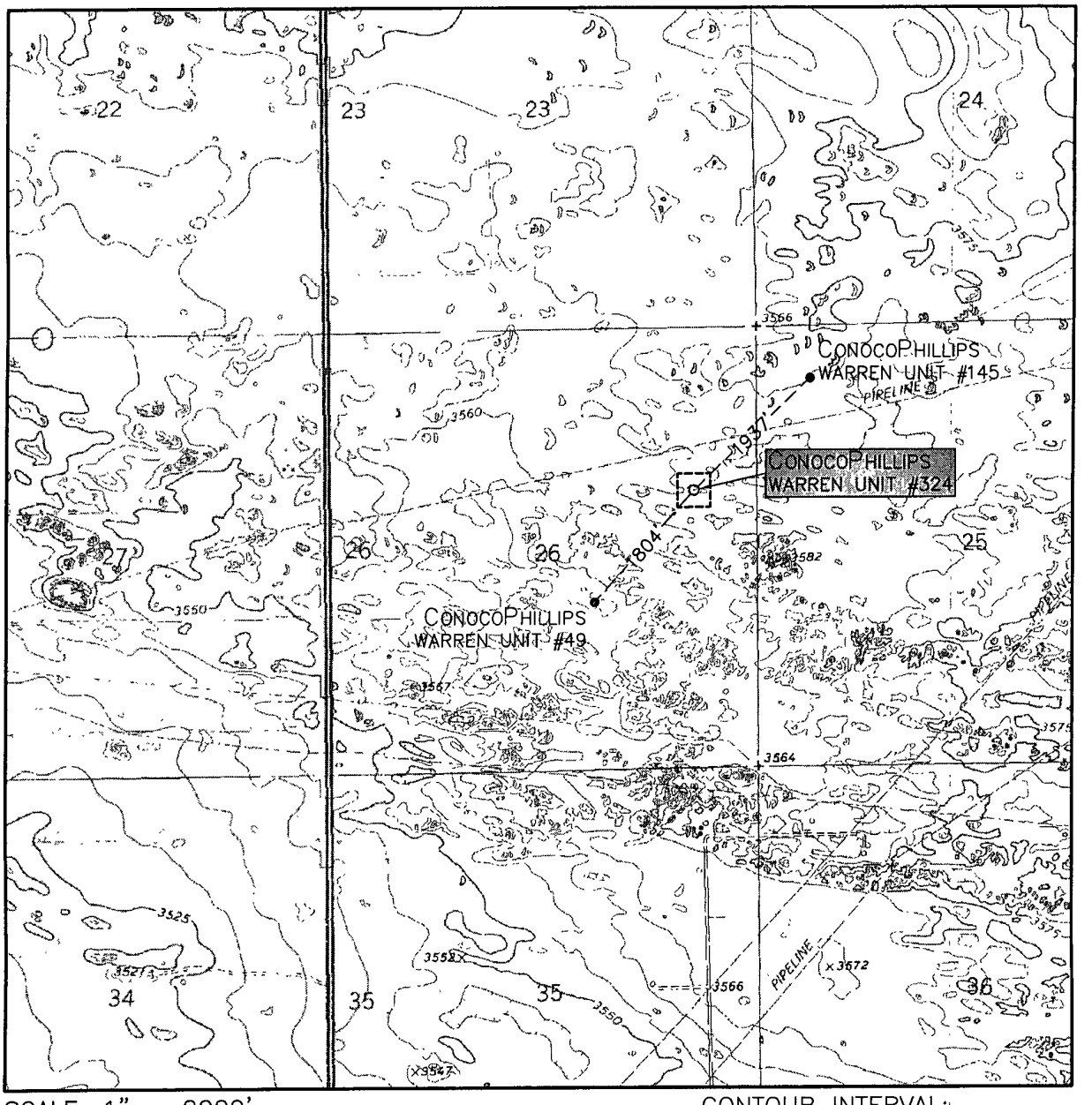
LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
HOBBS SE – 5'

SEC. 26 TWP. 20–S RGE. 38–E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 1980' FNL & 760' FEL

ELEVATION 3566'

OPERATOR CONOCOPHILLIPS

LEASE WARREN UNIT

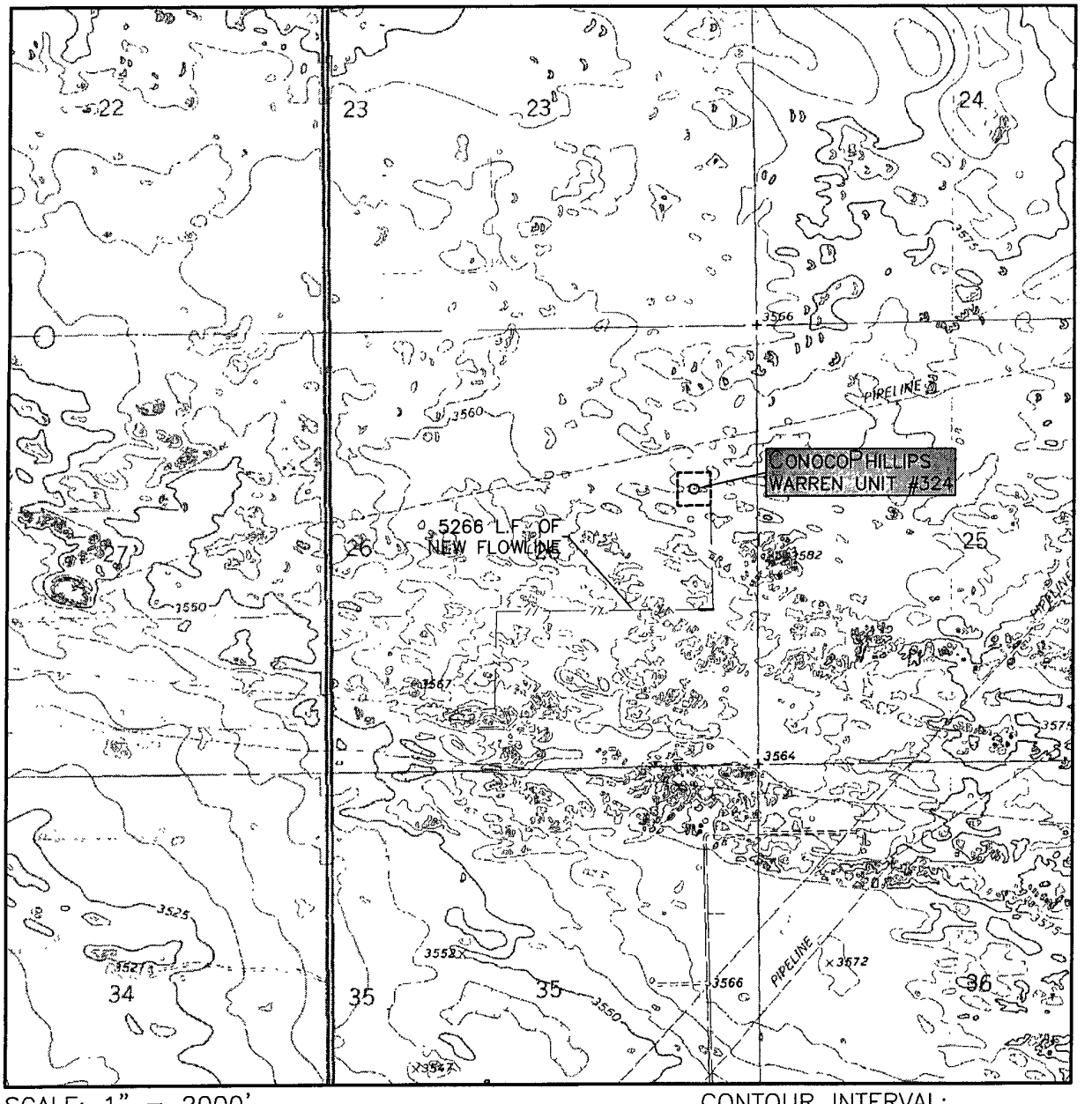
U.S.G.S. TOPOGRAPHIC MAP
HOBBS SE

NORTH

WEST COMPANY of Midland, Inc.

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687–0865 – (432) 687–0868 FAX

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

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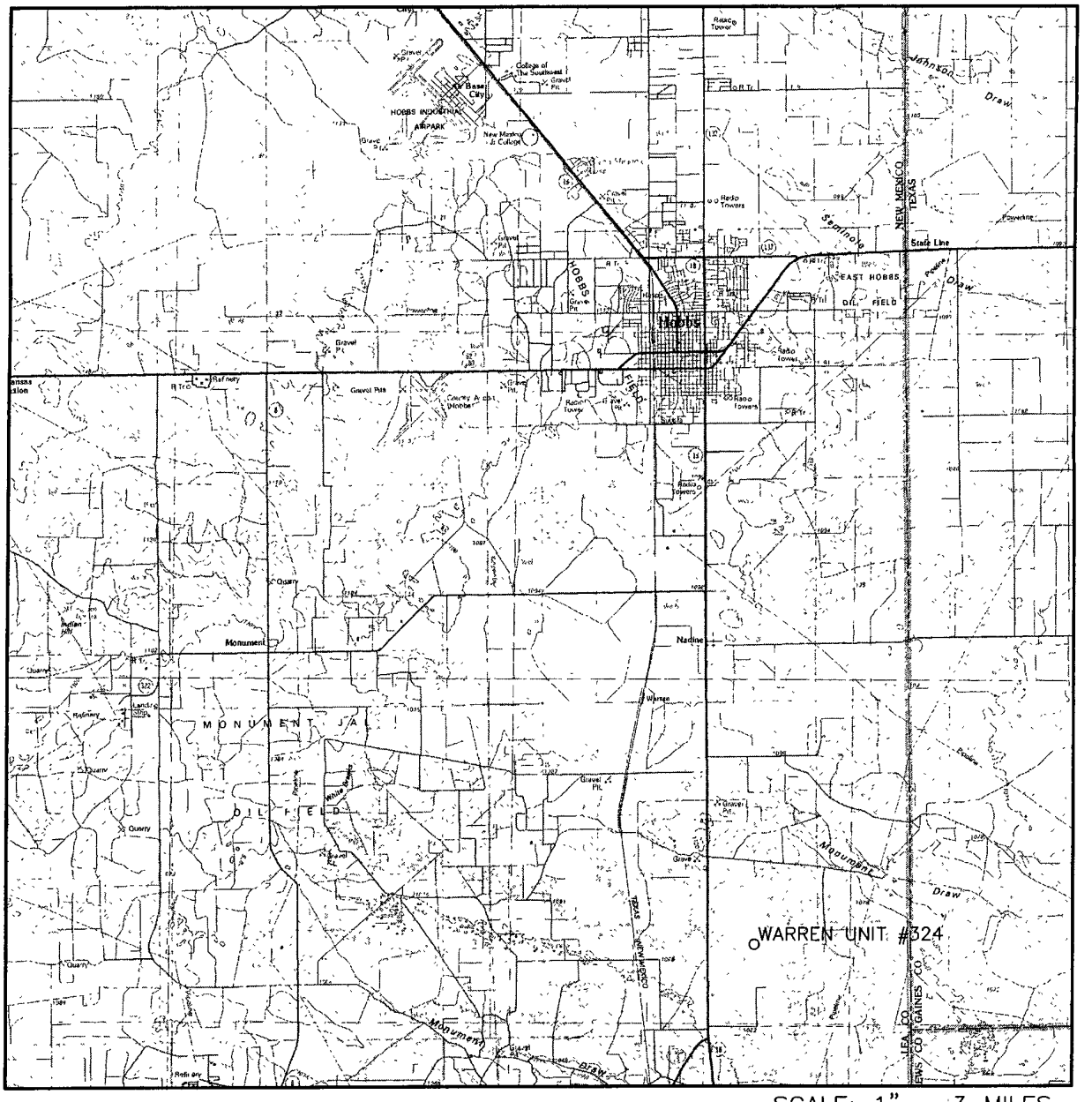
U.S.G.S. TOPOGRAPHIC MAP
HOBBS SE

NORTH

WEST COMPANY of Midland, Inc.

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687–0865 – (432) 687–0868 FAX

VICINITY MAP



SCALE: 1" = 3 MILES

SEC. 26 TWP. 20-S RGE. 38-E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 1980' FNL & 760' FEL

ELEVATION 3566'

OPERATOR CONOCOPHILLIPS

LEASE WARREN UNIT

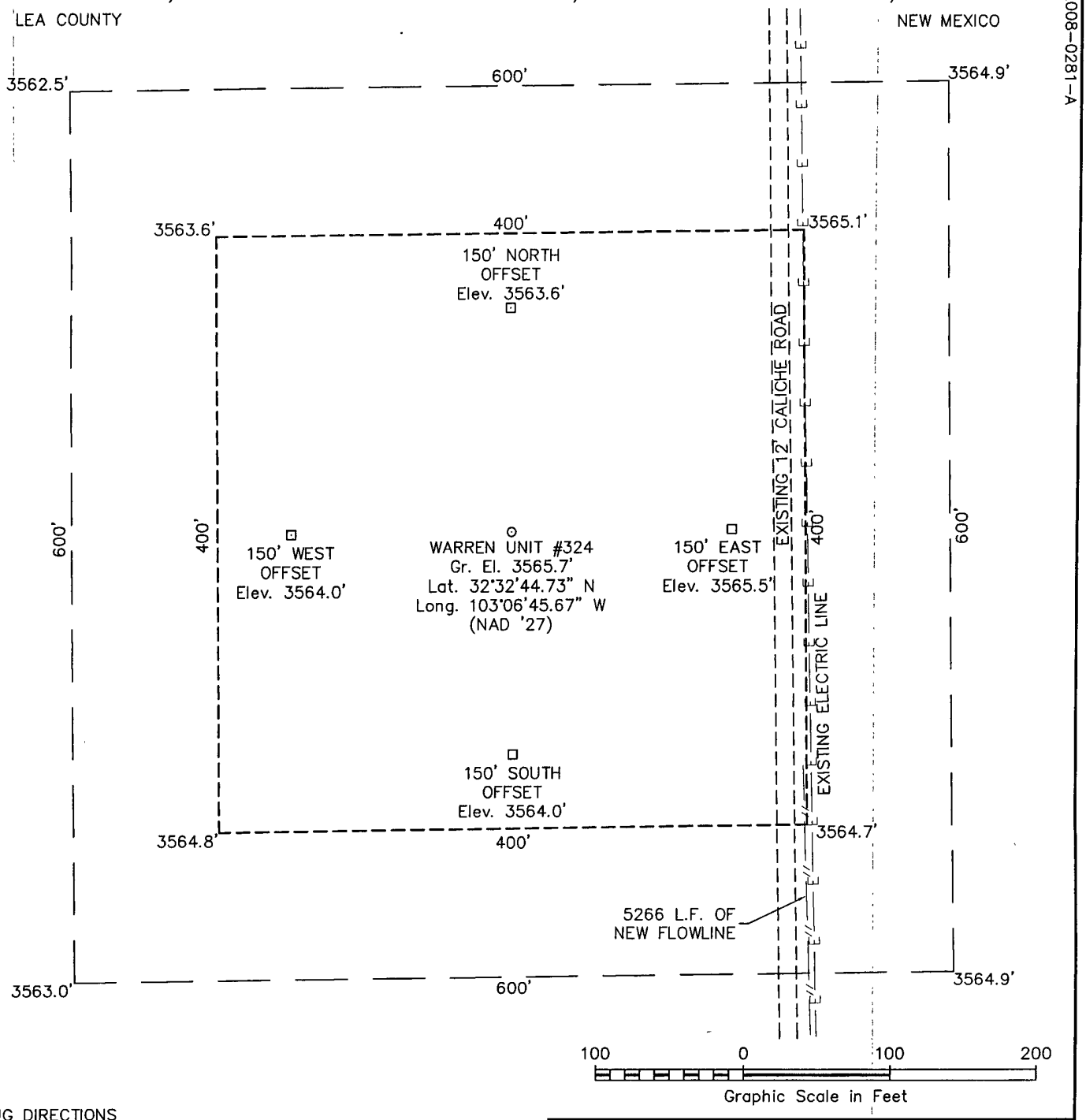
NORTH

WEST COMPANY of Midland, Inc.

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 - (432) 687-0868 FAX

SECTION 26, TOWNSHIP 20 SOUTH, RANGE 38 EAST, N.M.P.M.

L-2008-0281-A



DRIVING DIRECTIONS

FROM THE INTERSECTION OF U.S. HIGHWAY 18 AND U.S. HIGHWAY 176 IN EUNICE, NEW MEXICO GO NORTH ON SAID U.S. HIGHWAY 18 7.1 MILES TO A CATTLE GUARD ON EAST (RIGHT) SIDE OF SAID U.S. HIGHWAY 18, THEN GO EAST AND NORTH THROUGH SAID CATTLE GUARD ON LEASE ROAD 0.6 MILES TO A 4-WAY INTERSECTION, THEN GO EAST 0.5 MILE TO A WELL PAD, THEN GO NORTH 0.3 MILES TO THE PROPOSED LOCATION.

CONOCOPHILLIPS

WARREN UNIT #324

Located 1980' FNL & 760' FEL, Section 26
Township 20 South, Range 38 East, N.M.P.M.
Lea County, New Mexico

Drawn By: LVA	Date: April 8, 2008
Scale: 1"=100'	Field Book: 409 / 1-10
Revision Date:	Quadrangle: Hobbs SE
W.O. No: 2008-0281	Dwg. No.: L-2008-0281-A

WEST COMPANY of Midland, Inc.

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 - (432) 687-0868 FAX

Warren 324

Formation Tops and Planned Total Depth	
Formation Call Points	Top (ft MD)
Rustler	1580
Salado	1670
Yates	2675
Blinebry	5790
Tubb	6535
Drinkard	6850
Abo	7125
Total Depth (minimum)	7280
Total Depth (maximum)	7325

Casing Depths		
String	Minimum Depth	Maximum Depth
Surface Casing	1605	1650
Production Casing	7270	7315

See COA

Note: The Surface Casing and the Production Casing programs reflect an uncertainty of 45' in the setting depth for the shoe because that is the approximate length of a full joint of Range 3 casing. This range for the setting depth will allow us to drill the hole to fit the casing string based on how the tally comes out and will provide for the cementing head to be positioned at the rig floor for safety and efficiency in cementing operations. The casing will be set approximately 10 ft off bottom.

1. **Geologic Name of Surface Formation:**
   - Quaternary

2. **Estimated tops of geological markers and estimated depths to water, oil, or gas formations:**

In SEMU and Warren Unit, the estimated tops of the geological markers and proposed Total Depth (TD) vary within a range of as much as 590'. The range of minimum to maximum depth for these markers and proposed TD range is presented in the table below. The datum for these depths is RKB (which is 10' - 12' above Ground Level).

Formation Call	Formation Top FT MD		Thickness		Contents
	Minimum	Maximum	Min	Max	
Above top of Rustler					Fresh Water
Rustler	1210	1620	84	140	
Salado	1295	1740	1115	1350	
Yates	2620	2900	200	350	Gas
Blinebry	5460	5950	490	850	Gas and Oil
Tubb	6160	6650	270	430	Oil
Drinkard	6530	6980	120	550	Oil and Salt Water
Abo	6750	7300			
Proposed TD	6910	7500			

Note: For each individual well we will include with the APD package our correlation pick depths for the formation tops and proposed TD for that individual well.

Protection of fresh water will be accomplished by setting the surface casing 25' - 70' into the Rustler Anhydrite formation and **cementing** the surface casing from the casing shoe **to the surface of ground** in accordance with the provisions of Onshore Oil and Gas Order No. 2 and New Mexico Oil Conservation Division Title 19.

3. **Proposed casing program:**

Type	Hole Size	Interval MD RKB (ft)		OD	Wt	Gr	Conn	Condition	Safety Factors Calculated per BLM Load Formulas		
	(in)	From	To	(inches)	(lb/ft)				Burst	Collapse	Tension Dry/Buoyant
Cond	17-1/2"	0	40' – 85' (30' – 75' BGL)	13-3/8"	48#	H-40	STC	New	NA	NA	NA
Surf	12-1/4"	0	1235'– 1690'	8-5/8"	24#	J-55	STC	New	4.03	1.83	6.02 / 6.91
Prod	7-7/8"	0	6910' – 7500'	5-1/2"	17#	L-80	LTC	New	1.98	1.61	2.65 / 3.13

SEE COA

We propose to set the surface and production casing approximately 10' off bottom and to drill the hole to fit the casing string so that the cementing head is positioned at the floor for the cement job.

Casing Design (Safety) Factors – BLM Criteria:

Joint Strength Design (Safety) Factor: SFt
SFt = Fj / Wt;
Where

- Fj is the rated pipe Joint Strength in pounds (lbs)
- Wt is the weight of the casing string in pounds (lbs)

The Minimum Acceptable Joint Strength Design (Safety) Factor SFT = 1.6 dry or 1.8 bouyant

Collapse Design (Safety) Factor: SFc
SFc = Pc / (MW x .052 x Ls)
Where

- Pc is the rated pipe Collapse Pressure in pounds per square inch (psi)
- MW is mud weight in pounds per gallon (ppg)
- Ls is the length of the string in feet (ft)

The Minimum Acceptable Collapse Design (Safety) Factor SFc = 1.125

Burst Design (Safety) Factor: SFb
SFb = Pi / BHP
Where

- Pi is the rated pipe Burst (Minimum Internal Yield) Pressure in pounds per square inch (psi)
- BHP is bottom hole pressure in pounds per square inch (psi)

The Minimum Acceptable Burst Design (Safety) Factor SFb = 1.0

Joint Strength Design (Safety) Factors – BLM Criteria

Surface Casing:

- SFj Dry = 244,000 lbs / (1690 ft x 24 lb/ft) = 244,000 lbs / 40,560 lbs = 6.02 Dry
- SFj Bouyant = 244,000 lbs / (1690 ft x 24 lb/ft) [1-(8.5/65.5)= 244,000 lbs / 35,296 lbs = 6.91 Bouyant

Production Casing:

- SFj Dry = 338,000 lbs / (7500 ft x 17 lb/ft) = 338,000 lbs / 127,500 lbs = 2.65 Dry
- SFj Bouyant = 338,000 lbs / (7500 ft x 17 lb/ft) [1-(10.0/65.5)= 338,000 lbs / 108,034 lbs = 3.13 Bouyant

Collapse Design (Safety) Factors – BLM Criteria

Surface Casing:
SFc = 1370 psi / (8.5 ppg x .052 x 1690 ft) = 1370 psi / 747 psi = 1.83
Production Casing:
SFc = 6290 psi / (10 ppg x .052 x 7500 ft) = 6290 psi / 3900 psi = 1.61

Burst Design (Safety) Factors – BLM Criteria

Surface Casing:
SFb = 2950 psi / (8.33 ppg x .052 x 1690 ft) = 2950 psi / 732 psi = 4.03
Production Casing:
SFb = 7740 psi / (5.13 ppg x .052 x 7500 ft) = 7740 psi / 2000 psi = 3.87 based on reservoir pressure data
SFb = 7740 psi / (10 ppg x .052 x 7500 ft) = 7740 psi / 3900 psi = 1.98 based on brine density used to drill to TD

Casing Design (Safety) Factors – Additional ConocoPhillips Criteria:

ConocoPhillips casing design policy establishes Corporate Minimum Design Factors (see table below) and requires that service life load cases be considered and provided for in the casing design.

ConocoPhillips Corporate Criteria for Minimum Design Factors

	Burst	Collapse	Axial
Casing Design Factors	1.15	1.05	1.4

Surface Casing:

The maximum internal (burst) load on the Surface Casing occurs when the surface casing is tested to 1500 psi. We will pressure up to 1600 psi and let the pressure settle for 1 minute after shutting down the pump. Then we will begin the 30 minute test period. Therefore the maximum pressure that the surface casing will be exposed to will be 1600 psi.

Surface Casing Burst Design Factor
DF Burst = Burst Rating / Maximum Pressure During Casing Pressure Test = 2950 psi / 1600 psi = 1.84

The maximum collapse load on the Surface Casing occurs when we release the pressure after bumping the plug on the surface casing cement job.

Surface Casing Collapse Design Factor
DF Collapse = Collapse Rating / (Cement Column Hydrostatic Pressure – Displacement Fluid Hydrostatic Pressure)
DF Collapse = 1370 psi / {[(300 ft x .052 x 14.8 ppg) + (1390 ft x .052 x 13.5 ppg)] – (1690 ft x .052 x 8.33 ppg)}
DF Collapse = 1370 psi / 475 psi
DF Collapse = 2.88

The maximum axial load on the Surface Casing would be the buoyant weight of the full string of casing plus an allowance for potential overpull in the amount of 100,000 lbs.

Surface Casing Axial (Tension) Design Factor
DF Tension = Joint Strength Rating / (Bouyant Weight + Overpull Margin)
Bouyancy Factor for fresh water (8.34 ppg fluid) = 1 – (8.34 / 65.5) = .873
Overpull Margin is selected to be 100,000 lbs
DF Tension = 244,000 lbs / [(1690 ft x 24 lb/ft x .873) + 100,0000 lbs]
DF Tension = 244,000 lbs / 135,408 lbs
DF Tension = 1.80

Production Casing:

The maximum internal (burst) load would occur either during during fracture initiation or screen out. Fracture initiation occurs with 2% KCL water in the hole and a maximum of 5000 psi surface pressure. Screen out might occur with up to 12 ppg frac fluid in the hole.

For the fracture initiation load case, the design factor calculated at surface is:
DF Burst @ Surface for Fracture Initiation = Burst Rating / Maximum Applied Surface Pressure
DF Burst @ Surface for Fracture Initiation = 7740 psi / 5000 psi
DF Burst @ Surface for Fracture Initiation = 1.54

For the fracture initiation load case, the design factor calculated at TD is:
DF Burst @ TD for Fracture Initiation = Burst Rating / (Internal Pressure – Pore Pressure)
Internal Pressure at TD = Surface Pressure + Hydrostatic Pressure at TD of 2% KCL Water Column
Hydrostatic Pressure at TD of 2% KCL Water Column = 7500 ft x .052 x 8.6 ppg = 3354 psi
Surface Pressure at the time of Fracture Initiation = 5000 psi maximum
Internal Pressure at TD = 5000 psi + 3354 psi = 8354 psi
Pore Pressure in the Reservoir = 2000 psi approximately
DF Burst @ TD for Fracture Initiation = 7740 psi / (8354 psi - 2000 psi)
DF Burst @ TD for Fracture Initiation = 7740 psi / 6354 psi
DF Burst @ TD for Fracture Initiation = 1.22

For the screen out load case, the maximum burst loading occurs at TD and is calculated as follows:
DF Burst @ TD for Screen Out = Burst Rating / (Internal Pressure – Pore Pressure)
Internal Pressure at TD = Surface Pressure + Hydrostatic Pressure at TD of 12 ppg frac fluid
Hydrostatic Pressure at TD of 12 ppg frac fluid = 7500 ft x .052 x 12.0 ppg = 4680 psi
Maximum Allowable Surface Pressure at the time of Screen Out = 4050 psi maximum
Internal Pressure at TD at time of Screen Out = 4050 psi + 4680 psi = 8730 psi
Pore Pressure in the Reservoir = 2000 psi approximately
DF Burst @ TD for Fracture Initiation = 7740 psi / (8730 psi - 2000 psi)
DF Burst @ TD for Fracture Initiation = 7740 psi / 6730 psi
DF Burst @ TD for Fracture Initiation = 1.15

The maximum collapse load on the production casing occurs with the well pumped off on production. The maximum potential pore pressure in the well would be equal to or less 10 ppg which is the density of the brine drilling fluid used in drilling production hole interval from the Surface Casing Shoe to TD.

DF Collapse = Collapse Rating / Maximum Possible Pore Pressure
DF Collapse = 6290 / (10 ppg x .052 x 7500 ft) = 6290 psi / 3900 psi = 1.61

Production Casing Axial (Tension) Design Factor
DF Tension = Joint Strength Rating / (Bouyant Weight + Overpull Margin)
Bouyancy Factor for 10 ppg brine = 1 – (10.0 / 65.5) = .847
Overpull Margin is selected to be 100,000 lbs
DF Tension = 338,000 lbs / [(7500 ft x 17 lb/ft x .847) + 100,0000 lbs]
DF Tension = 338,000 lbs / (107,993 lbs + 100,000 lbs)
DF Tension = 338,000 lbs / 207,993 lbs
DF Tension = 1.63

4. **Proposed cementing program:**

13-3/8" Conductor:

Cement to surface with ready mix or Class C Neat cement. TOC at surface.

8-5/8" Surface Casing:

The intention for the cementing program for the Surface Casing is to:

- Place the Tail Slurry from the casing shoe to 300' above the casing shoe,
- Bring the Lead Slurry to surface.

Spacer: 20 bbls Fresh Water

Lead Slurry								
Volume (sx) & Recipe & Excess %	Top (ft MD)	Bottom (ft MD)	Length (ft)	Density (ppg)	Yield (cuft/sx)	Mix Wtr gal/sx	Compressive Strengths @ 95 deg F by UCA Method	
433 sx - 644 sx Class C + 4% bentonite + 2% CaCl2 + 0.125% Polyflake Excess = 120%	Surface	935' to 1390'	935' to 1390'	13.5	1.96	10.69	Time 6 hrs 12 hrs 24 hrs 48 hrs	Strength 320 psi 514 psi 589 psi 601 psi

Tail Slurry								
Volume (sx) & Recipe & Excess %	Top (ft MD)	Bottom (ft MD)	Length (ft)	Density (ppg)	Yield (cuft/sx)	Mix Wtr gal/sx	Compressive Strengths @ 91 deg F by UCA Method	
200 sx Class C + 2% CaCl2 + 0.125% Polyflake Excess = 100%	935' to 1390'	1235' to 1690'	300'	14.8	1.35	6.36	Time 3 hrs 9 hrs 12 hrs 24 hrs 48 hrs	Strength 50 psi 500 psi 793 psi 1266 psi 2183 psi

Displacement: Fresh Water

Note: In accordance with the Pecos District Conditions of Approval, we will Wait on Cement (WOC) for a period of not less than 18 hrs after placement or until at least 500 psi compressive strength has been reached in both the Lead Slurry and Tail Slurry cements on the Surface Casing, whichever is greater.

5-1/2" Production Casing Cementing Program:

The intention for the cementing program for the Production Casing is to:

- Place the Tail Slurry from the casing shoe to a point approximately 200' above the Blinebry formation,
- Bring the Lead Slurry to surface.

Spacer: 20 bbls Fresh Water.

Lead Slurry								
Volume (sx) & Recipe & Excess %	Top (ft MD)	Bottom (ft MD)	Length (ft)	Density (ppg)	Yield (cuft/sx)	Mix Wtr gal/sx	Compressive Strengths @ 113 deg F by Crush Method	
685 – 1066 sx 50% Class C 50% POZ + 10% bentonite + 8 lb/sx Salt + 0.2% Fluid Loss Additive + 0.125% Polyflake	Surface	5260' to 5750'	5260' to 5750'	11.8	2.55	14.88	Time 12 hrs 24 hrs 48 hrs 72 hrs	Strength 100 psi 200 psi 245 psi 310 psi
Excess = 86% - 166% (based on caliper if available) (estimated average hole size = 9.40" – 10.75")								

Tail Slurry								
Volume (sx) & Recipe & Excess %	Top (ft MD)	Bottom (ft MD)	Length (ft)	Density (ppg)	Yield (cuft/sx)	Mix Wtr gal/sx	Compressive Strengths @ 113 deg F by Crush Method	
280 – 486 sx 50% Class C 50% POZ + 2% Bentonite + 5% Salt + 0.4% Fluid Loss Additive + 0.4% Dispersant + LCM if needed	5260' to 5750'	6910' to 7500'	1650' to 1750'	14.2	1.32	6.20	Time 12 hrs 24 hrs 48 hrs 72 hrs	Strength 800 psi 1100 psi 1410 psi 1720 psi
Excess = 27% - 108% (based on caliper if available) (estimated average hole size = 8" – 9.26")								

Displacement: 2% KCL water with approximately 250 ppm gluteraldehyde biocide.

Proposal for Option to Adjust Production Casing Cement Volumes:

The production casing cement volumes presented above are estimates based on data from previous wells. We propose an option to adjust these volumes based on the caliper log data for each well if available. Also, if no caliper log is available for any particular well, we would propose an option to possibly increase the production casing cement volumes to account for any uncertainty in regard to the hole volume.

5. Pressure Control Equipment:

The blowout preventer equipment (BOP) will consist of equipment to conform to the requirements for a 2M System as described in Onshore Oil and Gas Order No. 2, III.A.2.a.ii. The blowout preventer equipment will be installed after running and cementing the surface casing and installing the wellhead.

A copy of the BLM diagrams of the minimum BOP and Choke Manifold equipment for a 2M system is attached.

6. Proposed Wellhead Program:

Casing Head: 8-5/8" Slip on and Weld x 11" 5M Casing Head installed on 8-5/8" surface casing
Tubing Head: 11" 5M x 7-1/6" 5M Tubing Head installed after setting 5-1/2" production casing

7. Proposed Mud System

The mud systems that are proposed for use are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0 – Surface Casing Point	Fresh Water Native Mud	8.5 – 9.0 ppg	28 – 40 sec	N.C.
Surface Casing Point to TD	Brine	10 ppg	29 sec	N.C.
Conversion to Mud at TD	Brine Based Mud	10 ppg	34 – 45 sec	5 – 10 cc/30 min

12-1/4" hole from surface of ground to surface casing point: The circulating media will be either a native mud or fresh water with high viscosity sweeps. The mud components will be:

- Fresh Water
- Bentonite (if needed)
- Lime
- Soda Ash
- Starch (if needed)
- Drilling Paper
- Other loss of circulation material if needed (nut plug or fiberous material)
- Soap sticks (if needed)

7-7/8" hole from the surface casing shoe to TD: The circulating media will be 10 ppg brine and will be converted to a mud with starch, attapulgite, and lime upon reaching Total Depth (TD). The mud components will be:

- Brine (approximately 10 lb/gal density)
- Attapulgite
- Lime
- Starch
- Drilling Paper
- Other loss of circulation material if needed (nut plug, fiberous material, gilsonite, or asphalt)
- Soap Sticks if needed
- Lease crude oil as a spotting fluid if needed in the event of differential sticking

8. Logging, Coring, and Testing Program:

a. No drill stem tests will be done
b. No mud logging is planned, but might possibly be done if it is determined that this data is needed;
c. No whole cores are planned
d. The open hole electrical logging program is planned to be as follows:
   - Total Depth to 2500': Resistivity, Density, and Gamma Ray.
   - Total Depth to Surface Casing Shoe: Caliper
   - Total Depth to 200' MD, Gamma Ray and Neutron
   - Formation pressure data (XPT) on electric line if needed (optional)
   - Rotary Sidewall Cores on electric line if needed (optional)
   - BHC Sonic if needed (optional)
   - Spectral Gamma Ray if needed (optional)

9. Abnormal Pressures and Temperatures:

- No abnormal pressures or temperatures are expected to be encountered.
- The expected bottom hole temperature is 113 degrees F.
- The expected bottom hole pressure is 2000 psi.
- The estimated H2S concentrations in the Warren Unit and SEMU are presented in the table below for the various producing horizons in this area:

FORMATION / ZONE	H2S (PPM)	Gas Rate (MCFD)	ROE 100 PPM	ROE 500 PPM
Yates / Seven Rivers / Queen	4000	62	42	19
Grayburg / San Andres	28000	20	70	32
Blinebry / Tubb / Drinkard	1559	210	50	22

ConocoPhillips will provide H2S monitoring equipment which will be rigged up, tested, and operational prior to drilling out from surface casing. All persons arriving on location will have H2S certification & training that occurred within the last year. Each occurrence of H2S gas at surface will be noted on the daily reports and any occurrence of H2S in excess of 100 ppm will be reported to the authorized officer as soon as possible but no later than the next business day per the provisions of 43 CFR 3160, III.C.1.c.ii.

10. Anticipated starting date and duration of operations:

Road and location construction will begin after the BLM and NMOCD have approved the APD and will take into account any closure stipulations that may be attached or specified in order to avoid operations in any closure period. Also, rig availability may impact our schedule. With consideration of these limiting factors, we would intend / plan to drill the wells in our proposed program MCA Unit within two years after receiving approval of the APD.

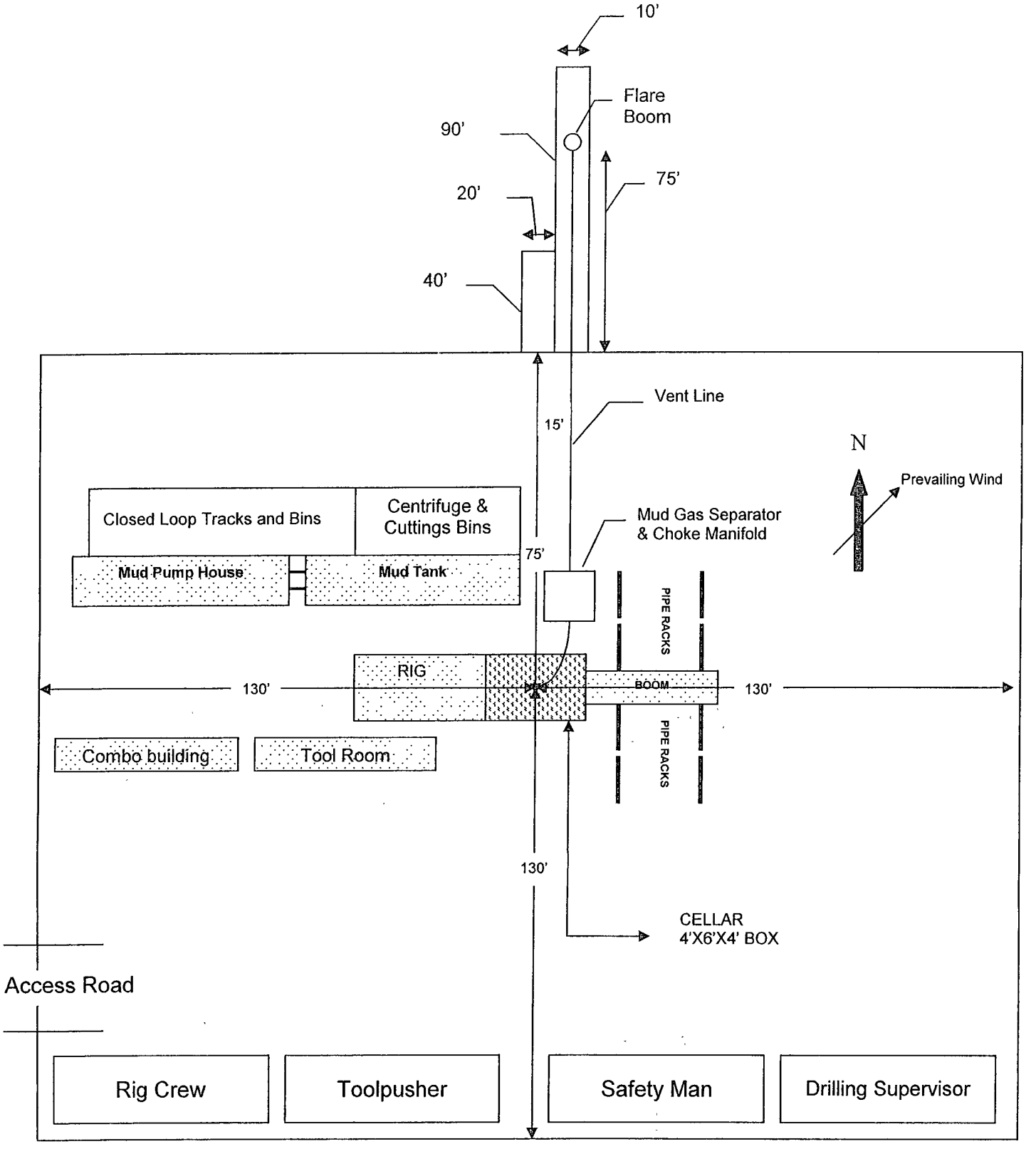
Attachments:

- Attachment # 1 ..... Proposed Casing and Cementing Program
- Attachment # 2 ..... Diagram of Choke Manifold Equipment (Excerpted 54 FR 39528, Sept 27, 1989)
- Attachment # 3 ..... BOP and Choke Manifold Schematic – 2M System (Figure 3-1, Appendix G, from BLM)
- Attachment # 4 ..... BOP and Choke Manifold Schematic – 2M System (Figure 3-1A, Appendix G, from BLM)

Contact Information:

Program prepared by:
Steven O. Moore, Staff Drilling Engineer, ConocoPhillips Company
Phone 832 486 2459
Cell Phone 281 467 7596
Date: May 07, 2008

ConocoPhillips
Location Schematic and Rig Layout for Closed Loop System
H&P #306
(PICTURE NOT TO SCALE)

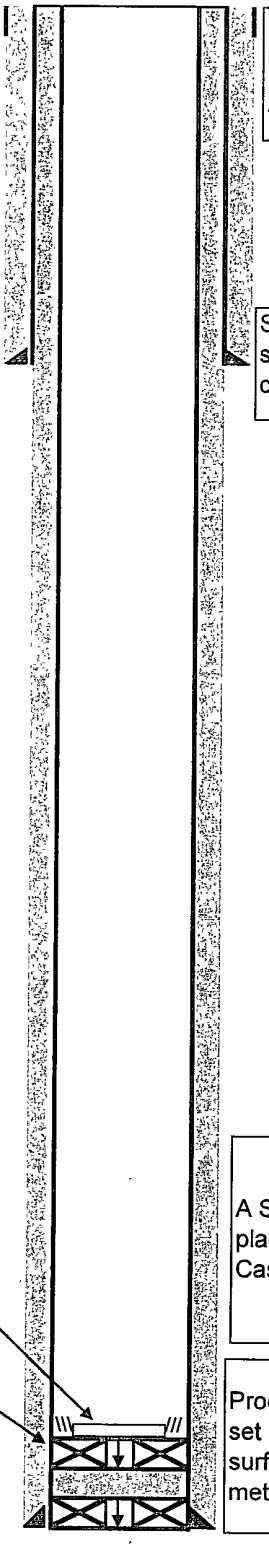


ConocoPhillips

Attachment # 1

SEMU and Warren Unit
Proposed Casing & Cementing Program

Datum: RKB (12' above ground level)



Conductor: 13-3/8" 48# H-40 ST&C set at 30' to 75' below ground level (42' to 87' MD RKB) and cemented to surface.

Surface Casing: 8-5/8" 24# J-55 ST&C set in the Rustler formation and cemented to surface.

A Single-Stage cement job is pumped placing cement from the Production Casing shoe to surface.

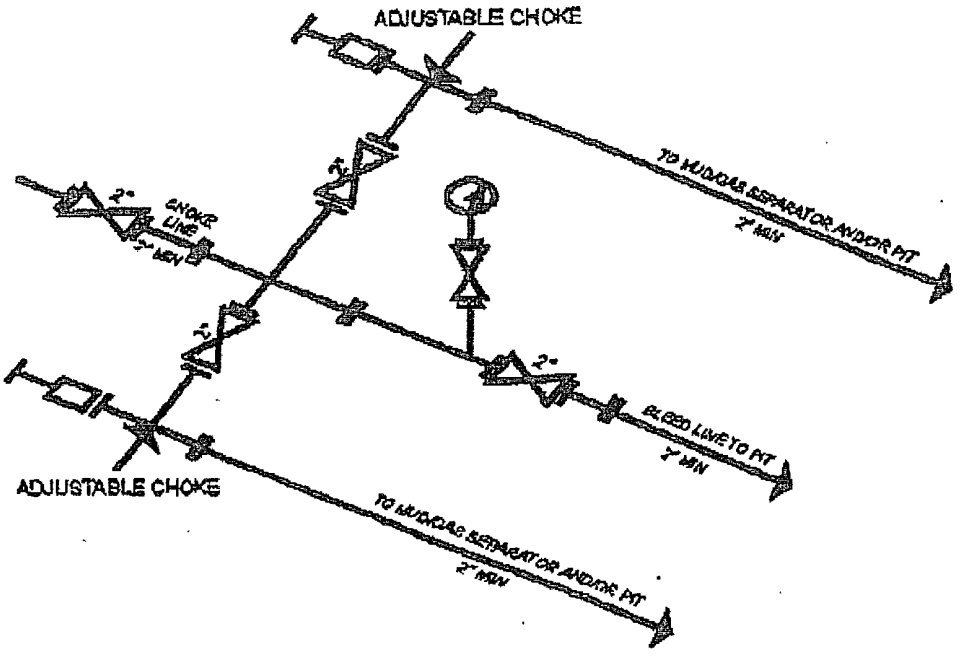
Cement Wiper Plug

Float Shoe, one joint of casing, and Float Collar

Production casing: 5-1/2" 17# L-80 LT&C set 10' above TD and cemented to surface with single-stage cementing method.

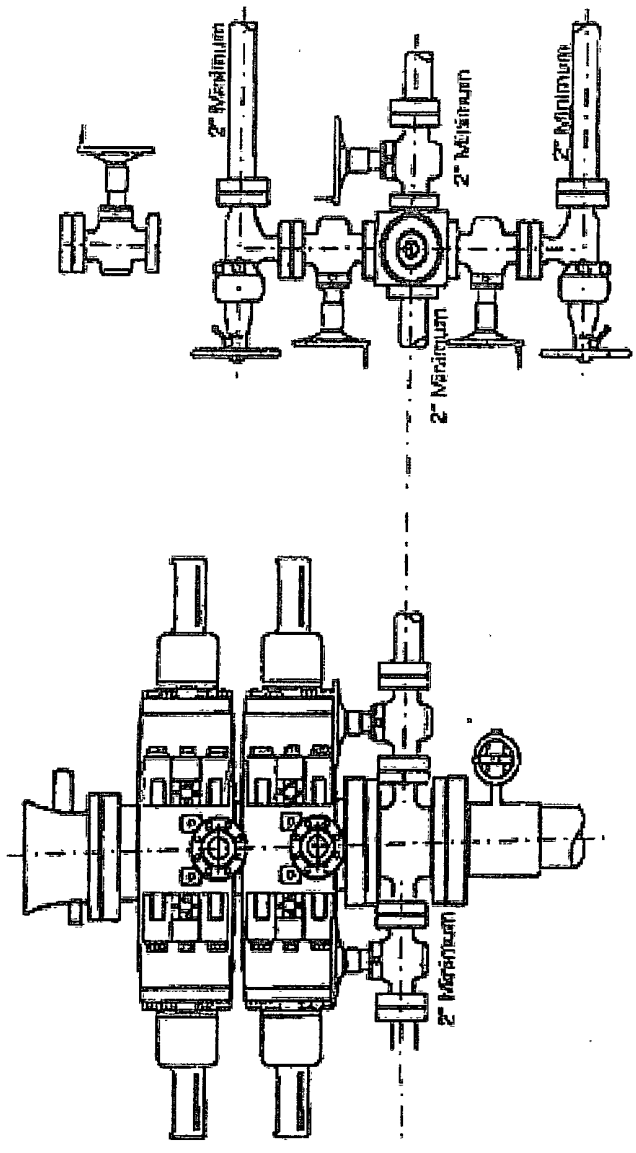
Schematic prepared by:
Steven O. Moore, Drilling Engineer
26 - March- 2008

Attachment I. Diagrams of Choke Manifold Equipment



2M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY

Attachment # 3

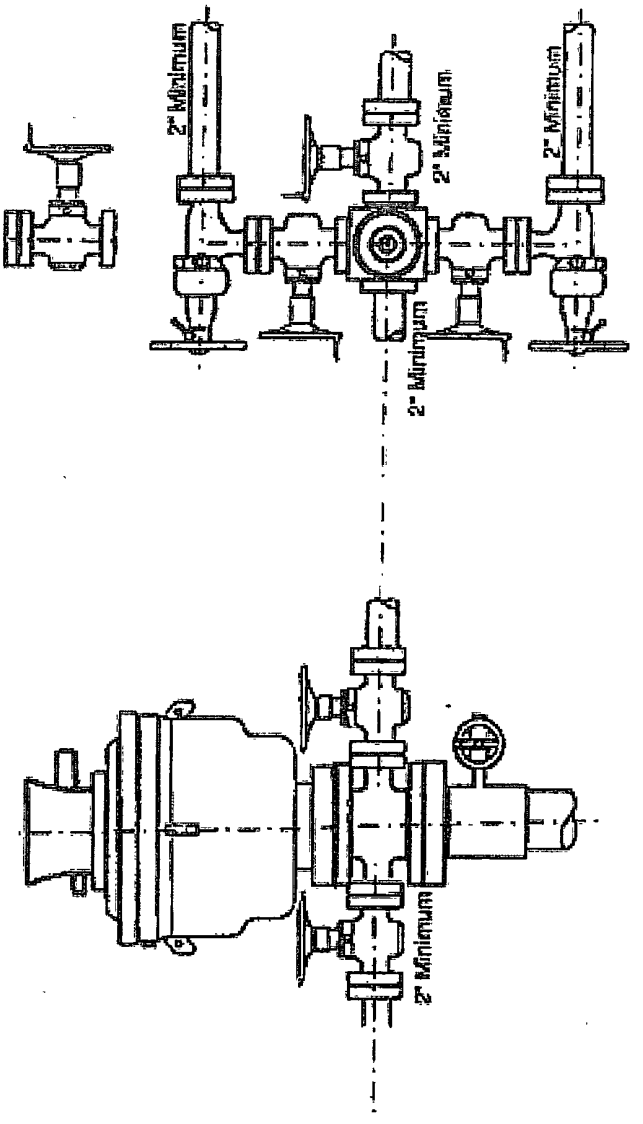


2000 psi System

Figure 3-1

Appendix G

Attachment # 4



2000 psi System

Figure 3-1A

Appendix G

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Conoco Phillips Company
LEASE NO.:	LC-063458
WELL NAME & NO.:	Warren Unit # 324
SURFACE HOLE FOOTAGE:	1980' FNL & 760' FEL
BOTTOM HOLE FOOTAGE	Same
LOCATION:	Section 26, T. 20 S., R 38 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.

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)

Mitigation Measures: The mitigation measures include the special drilling stipulations, the standard stipulation for the Lesser Prairie Chicken Timing Stipulations, the standard stipulation for surface flowlines, the standard stipulation for overhead electrical lines, and the standard stipulations for permanent resource roads.

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, geophysical exploration other than 3-D operations, and 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 ft. from the source of the noise.

Warren Unit # 324: Closed Loop System V-Door East

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 (505) 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. Closed Loop System

Warren Unit # 324: Closed Loop System V-Door East

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 (505) 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

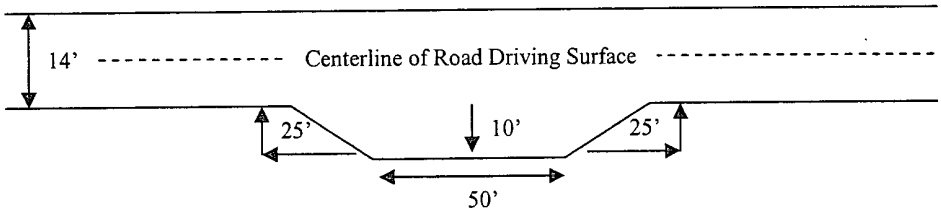
deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

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:

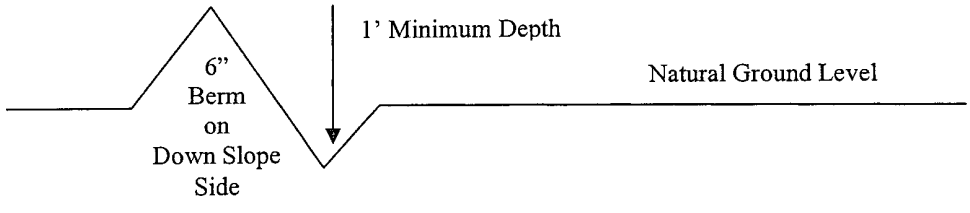
Standard Turnout – Plan View



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:

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

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.

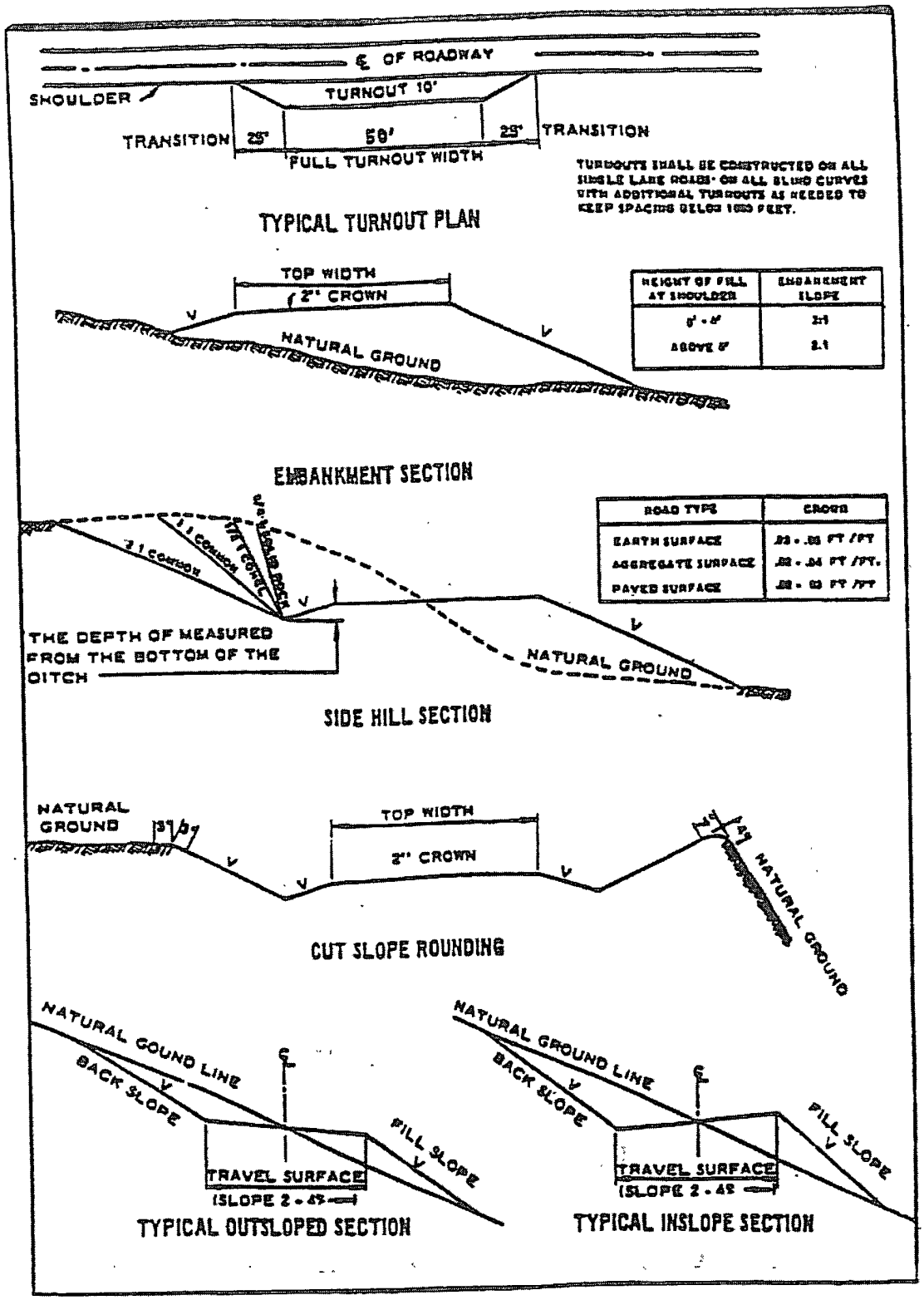
A gate shall be constructed and fastened securely to H-braces.

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

☒ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs, NM 88240, (575) 393-3612

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Yates** formation. If Hydrogen Sulfide is encountered please report measured amounts 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.

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.

1. The **8-5/8** inch surface casing shall be set at **approximately 1500 feet (a minimum of 25 feet into the Rustler Anhydrite and 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 a 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.

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. 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.

LB 8/28/08

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the 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, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) 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-of-way width of 25 feet.

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 24 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 hehalf, 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. (March 1989)

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the 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, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to 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. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Powerlines shall be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Powerlines, " Raptor Research Foundation, Inc., 1981. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication are "raptor safe." Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

6. 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 the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. 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 actions to prevent the loss of significant 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.

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.
- See attached reclamation plans.

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.

BLM Serial #:
Company Reference:
Well Name and Number:

Seed Mixture for LPC Sand/Shinnery 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:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A
**Four-winged Saltbush	5lbs/A

* This can be used around well pads and other areas where caliche cannot be removed.

*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.