

**HIGH CAVEKARST**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

5. Lease Serial No.  
NMNM-~~00~~48343

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No. (39884)  
ARTESIA YESO FEDERAL UNIT #17

9. API Well No.  
30-015-41331

10. Field and Pool, or Exploratory  
ARTESIA; GLORITA- YESO <96830

11. Sec., T. R. M. or Bik. and Survey or Area  
C; SEC 21, T17S, R28E

1a. Type of work:  DRILL  REENTER

1b. Type of Well:  Oil Well  Gas Well  Other  Single Zone  Multiple Zone

2. Name of Operator OXY USA WTP LIMITED PARTNERSHIP

3a. Address P.O. BOX 4294  
HOUSTON, TX 77210

3b. Phone No. (include area code)  
713-513-6640

4. Location of Well (Report location clearly and in accordance with any State requirements.)  
At surface 350' FNL & 2120' FWL  
At proposed prod. zone

14. Distance in miles and direction from nearest town or post office\*  
16 MILES EAST OF ARTESIA, NM

12. County or Parish  
EDDY COUNTY, NM

13. State  
NM

15. Distance from proposed\* 350'  
location to nearest  
property or lease line, ft.  
(Also to nearest drig. unit line, if any)

16. No. of acres in lease  
120

17. Spacing Unit dedicated to this well  
40

18. Distance from proposed location\*  
to nearest well, drilling, completed, 985'  
applied for, on this lease, ft.

19. Proposed Depth  
5100' MD / 5100' TVD

20. BLM/BIA Bond No. on file  
ESB000226

21. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3593.2' GL

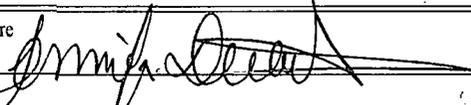
22. Approximate date work will start\*  
04/20/2013

23. Estimated duration  
10 DAYS

24. Attachments

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

- 1. Well plat certified by a registered surveyor.
- 2. A Drilling Plan.
- 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- 4. Bond to cover the operations unless covered by 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 BLM.

25. Signature  Name (Printed/Typed) JENNIFER DUARTE (jennifer\_duarte@oxy.com) Date 01/15/2013

Title REGULATORY ANALYST  
/s/ George MacDonell

Approved by (Signature)  Name (Printed/Typed) MAY 7 2013

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.

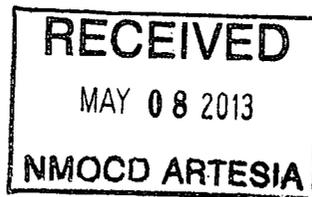
Conditions of approval, if any, are attached.

**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.

(Continued on page 2)

\*(Instructions on page 2)



Roswell Controlled Water Basin

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Approval Subject to General Requirements  
& Special Stipulations Attached

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number <b>30-015-41331</b>	Pool Code <b>96830</b>	Pool Name <b>Artesia; Glorieta-Yeso</b>
Property Code <b>39884</b>	Property Name <b>ARTESIA YESO FEDERAL UNIT</b>	Well Number <b>17</b>
OGRID No. <b>192463</b>	Operator Name <b>OXY USA WTP LIMITED PARTNERSHIP</b>	Elevation <b>3593.2'</b>

Surface Location

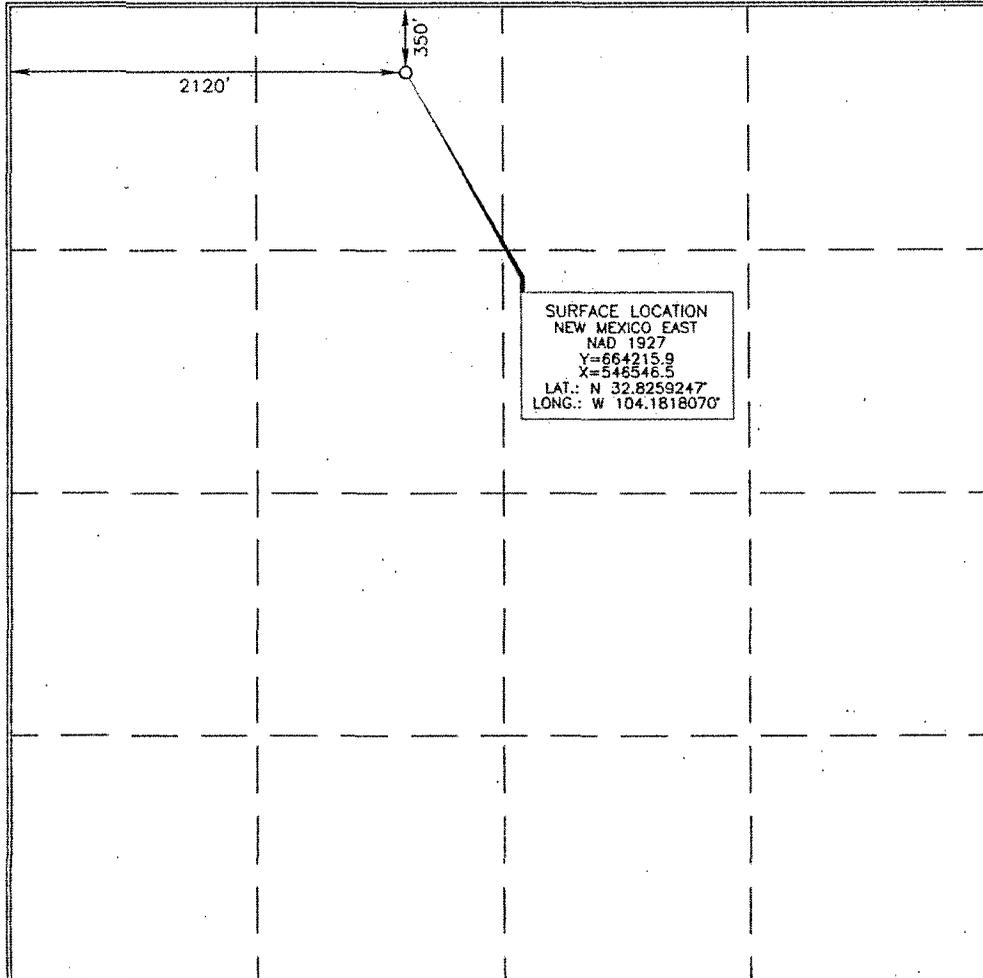
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	21	17 SOUTH	28 EAST, N.M.P.M.		350'	NORTH	2120'	WEST	EDDY

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 <b>40</b>	Joint or Infill	Consolidation Code	Order No.
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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.



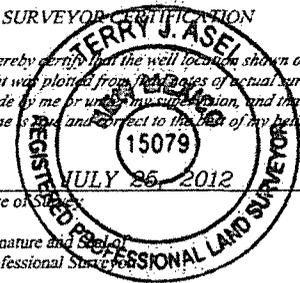
OPERATOR CERTIFICATION

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

*Jennifer Duarte* 1/15/13  
Signature Date  
**Jennifer Duarte**  
Printed Name  
**jennifer.duarte@oxy.com**  
E-mail Address

SURVEYOR CERTIFICATION

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

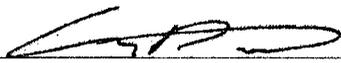


Date of Survey  
Signature and Seal of Professional Surveyor  
*Terry J. Asei* 9/17/2012  
Certificate Number 15079

**OPERATOR CERTIFICATION**

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions that presently 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 I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this

15<sup>th</sup> day of January, 2013.

Name: Anthony D'Addieco 

Position: Reservoir Management Team Leader

Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046

Telephone: 713-350-4964

E-mail: (optional): Anthony\_DAddieco@oxy.com

Company: Occidental Permian LP / OXY USA Inc / OXY USA WTP LP

Field Representative (if not above signatory): Dusty Weaver

Address (if different from above): P.O. Box 50250 Midland, TX 79710

Telephone (if different from above): 432-685-5723

E-mail (if different from above): calvin\_weaver@oxy.com

United States Department of the Interior  
Bureau of Land Management  
Carlsbad Field Office  
620 East Greene Street  
Carlsbad, New Mexico 88220

RE: Artesia Yeso Federal Unit 17  
Section 21, 17S-28E  
Eddy County, New Mexico

**STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS**

**OPERATOR NAME:** OXY USA WTP Limited Partnership  
**ADDRESS:** P.O. Box 27570  
Houston, Texas 77227-9804

**The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:**

**LEASE NO.:** NMNM-0048343 (120 Acres)

**LEGAL DESCRIPTION:** SL: 350' FNL & 2120' FWL NENW (C)  
Section 21, T17S-R28E  
Eddy County, New Mexico

**FORMATIONS:** Yeso

**BOND COVERAGE:** Nationwide

**BLM BOND FILE NO.:** ESB000226

OXY USA WTP Limited Partnership

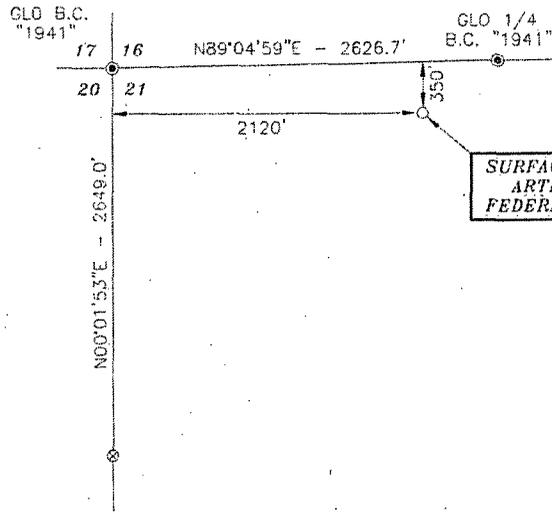
**AUTHORIZED SIGNATURE:**

  
\_\_\_\_\_  
Tiffany Pollock

**TITLE:** Land Negotiator

**DATE:** January 2, 2013

SECTION 21, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY  
NEW MEXICO

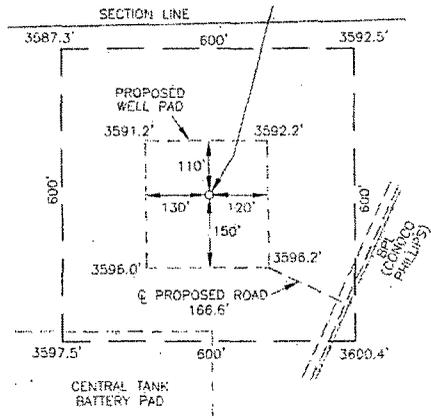


NORTH  
 Basis of Bearings - GPS Geospatial Measurements  
 North American Datum of 1983  
 NAD 83  
 NAD 83  
 NAD 83

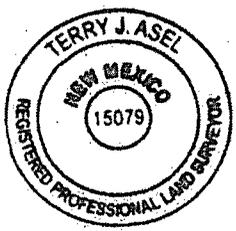
**SURFACE LOCATION  
ARTESIA YESO  
FEDERAL UNIT #17**

**DRIVING DIRECTIONS:**  
 BEGINNING IN LOCO HILLS AT THE  
 INTERSECTION OF U.S. HWY. #82  
 AND COUNTY ROAD #217  
 (HAGERMAN CUTOFF ROAD), GO  
 WEST ON U.S. HWY. #82 FOR 11.2  
 MILES. TURN RIGHT ON COUNTY  
 ROAD #208 (RED LAKE ROAD) AND  
 GO NORTH FOR 1.4 MILES. TURN  
 LEFT ON CALICHE ROAD AND GO  
 NORTHWEST FOR 1.0 MILES. TURN  
 RIGHT AND GO NORTH FOR 0.4  
 MILES. TURN LEFT ON PROPOSED  
 ROAD AND GO NORTHWEST FOR  
 166.6 FEET TO LOCATION.

**ARTESIA YESO  
FEDERAL UNIT #17  
ELEV. 3593.2'  
(NAD 27)  
LAT. = 32.8259247°N  
LONG. = 104.1818070°W**



SCALE - 1" = 300'



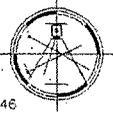
**SURVEYORS CERTIFICATE**

I, TERRY J. ASEEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

*Terry J. Aseel* 9/17/2012  
 Terry J. Aseel, N.M. R.P.L.S. No. 15079

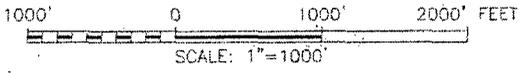
Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR  
 HOBBS, NEW MEXICO - 575-393-9146



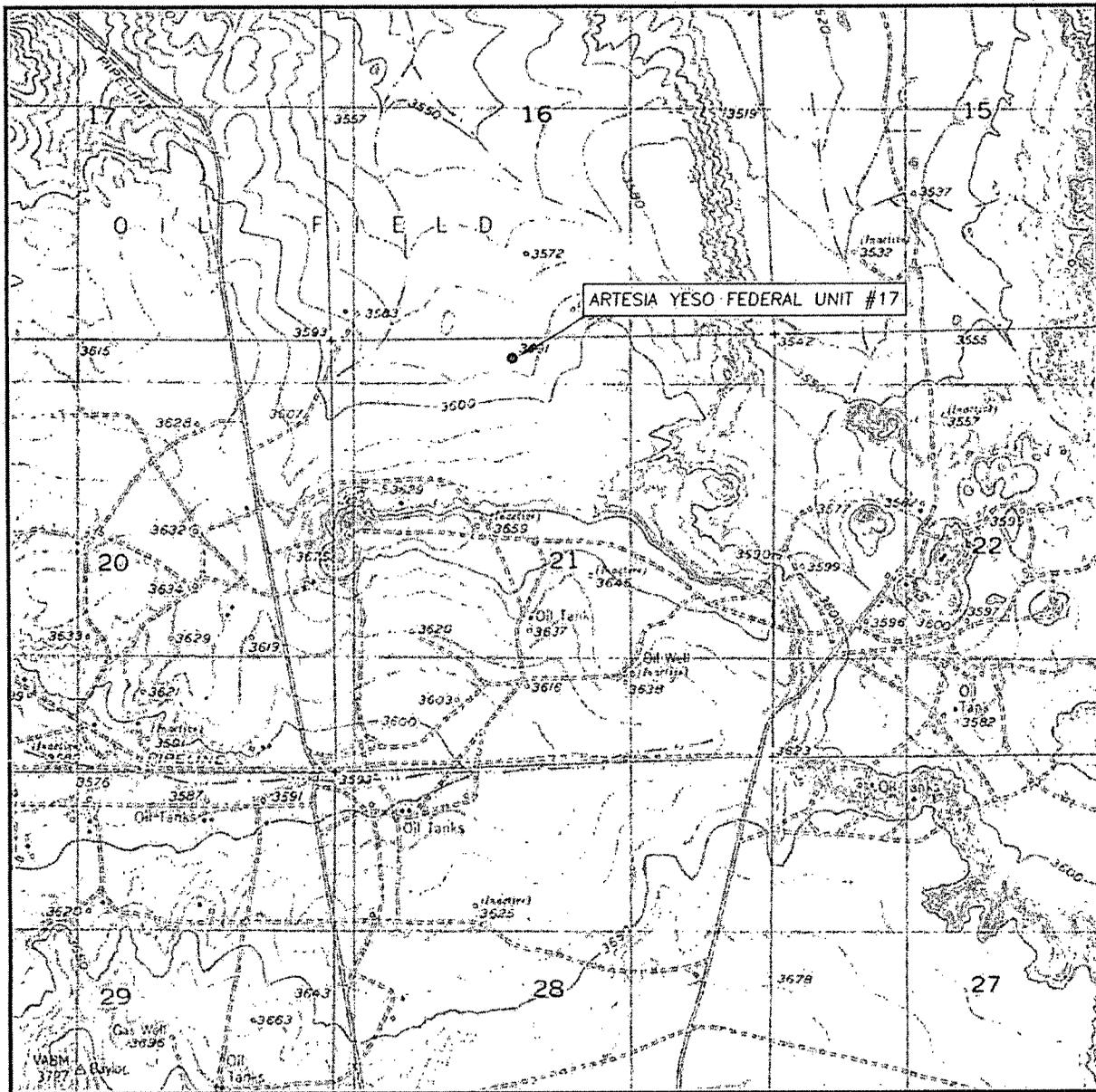
**LEGEND**

- - DENOTES FOUND MONUMENT AS NOTED
- ⊙ - DENOTES CALCULATED CORNER



<b>OXY USA WTP LP</b>		
ARTESIA YESO FEDERAL UNIT #17 LOCATED AT 350' FNL & 2120' FWL IN SECTION 21, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO		
Survey Date: 07/25/12	Sheet 1 of 1 Sheets	
W.O. Number: 120725WL-b	Drawn By: KA	Rev:
Date: 09/07/12	120725WL-b	Scale: 1" = 1000'

# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 21 TWP. 17-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 350' FNL & 2120' FWL

ELEVATION 3593.2'

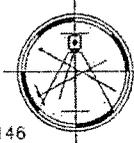
OPERATOR OXY USA WTP LP

LEASE ARTESIA YESO FEDERAL UNIT #17

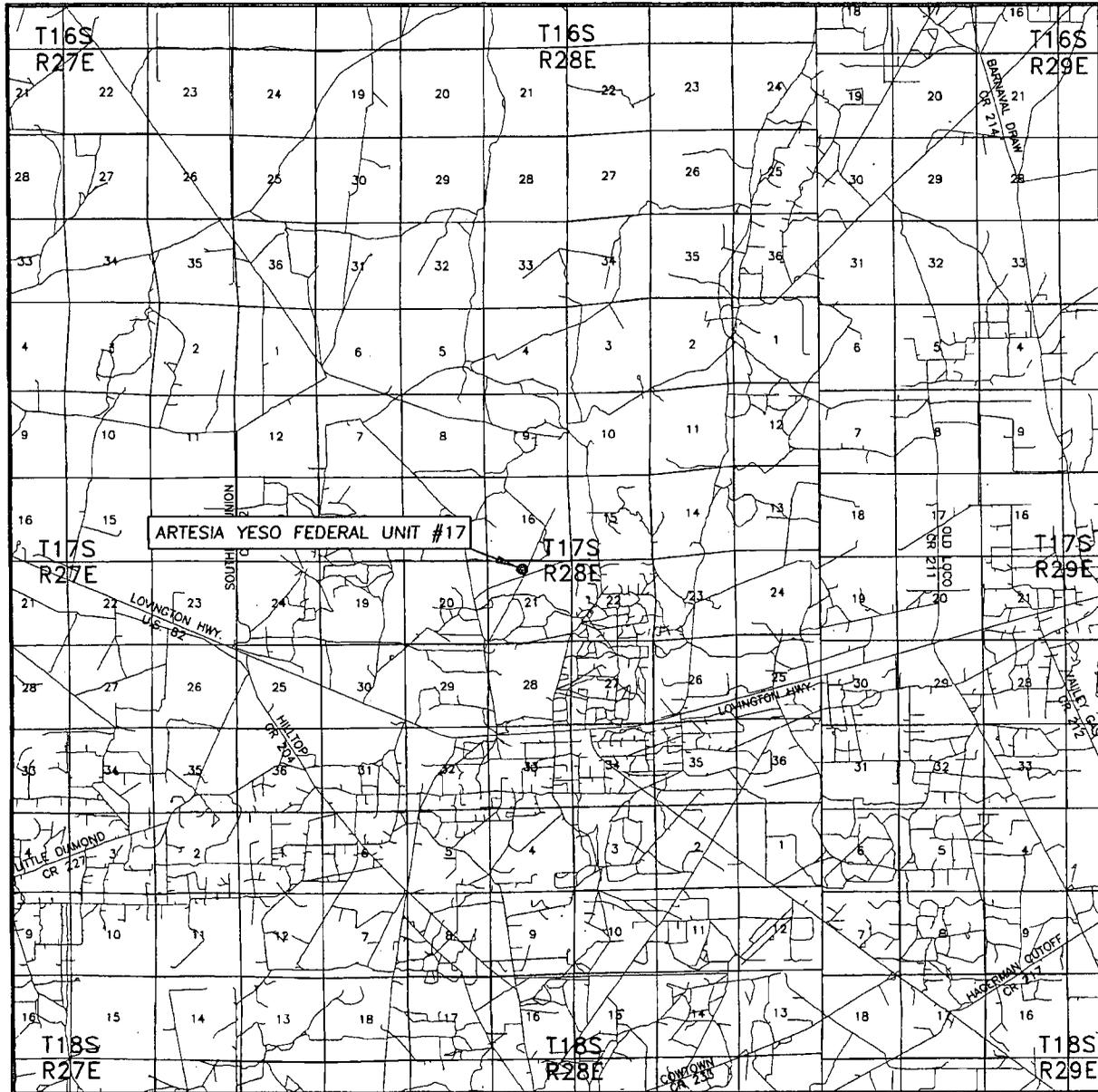
U.S.G.S. TOPOGRAPHIC MAP  
RED LAKE, N.M.

Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR  
HOBBS, NEW MEXICO - 575-393-9146



# VICINITY MAP



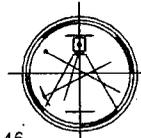
SEC. 21 TWP. 17-S RGE. 28-E  
 SURVEY N.M.P.M.  
 COUNTY EDDY  
 DESCRIPTION 350' FNL & 2120' FWL  
 ELEVATION 3593.2'  
 OPERATOR OXY USA WTP LP

SCALE: 1" = 2 MILES

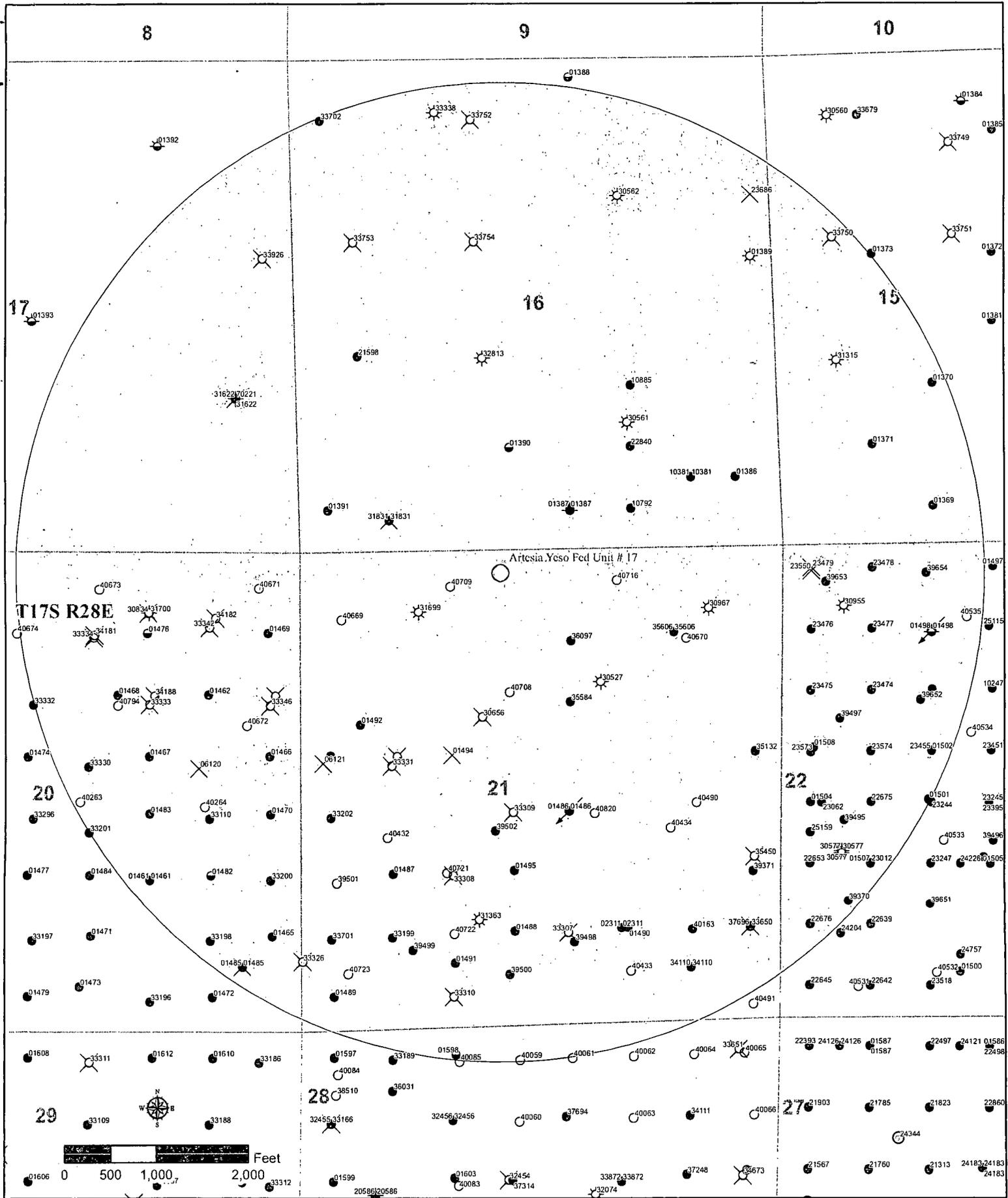
LEASE ARTESIA YESO FEDERAL UNIT #17

Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR  
 HOBBS, NEW MEXICO - 575-393-9146



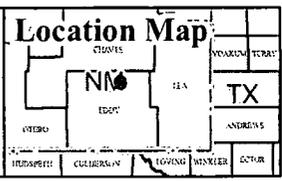
DIRECTIONS BEGINNING IN LOCO HILLS AT THE INTERSECTION OF U.S. HWY. #82 AND COUNTY ROAD #217 (HAGERMAN CUTOFF ROAD), GO WEST ON U.S. HWY. #82 FOR 11.2 MILES, TURN RIGHT ON COUNTY ROAD #208 (RED LAKE ROAD) AND GO NORTH FOR 1.4 MILES, TURN LEFT ON CALICHE ROAD AND GO NORTHWEST FOR 1.0 MILES, TURN RIGHT AND GO NORTH FOR 0.4 MILES, TURN LEFT ON PROPOSED ROAD AND GO NORTHWEST FOR 166.6 FEET TO LOCATION.



**Oxy Permian Primary**  
 New Mexico  
 Eddy & Lea Counties  
 Oxy Wells with  
 1 Mile Raduis

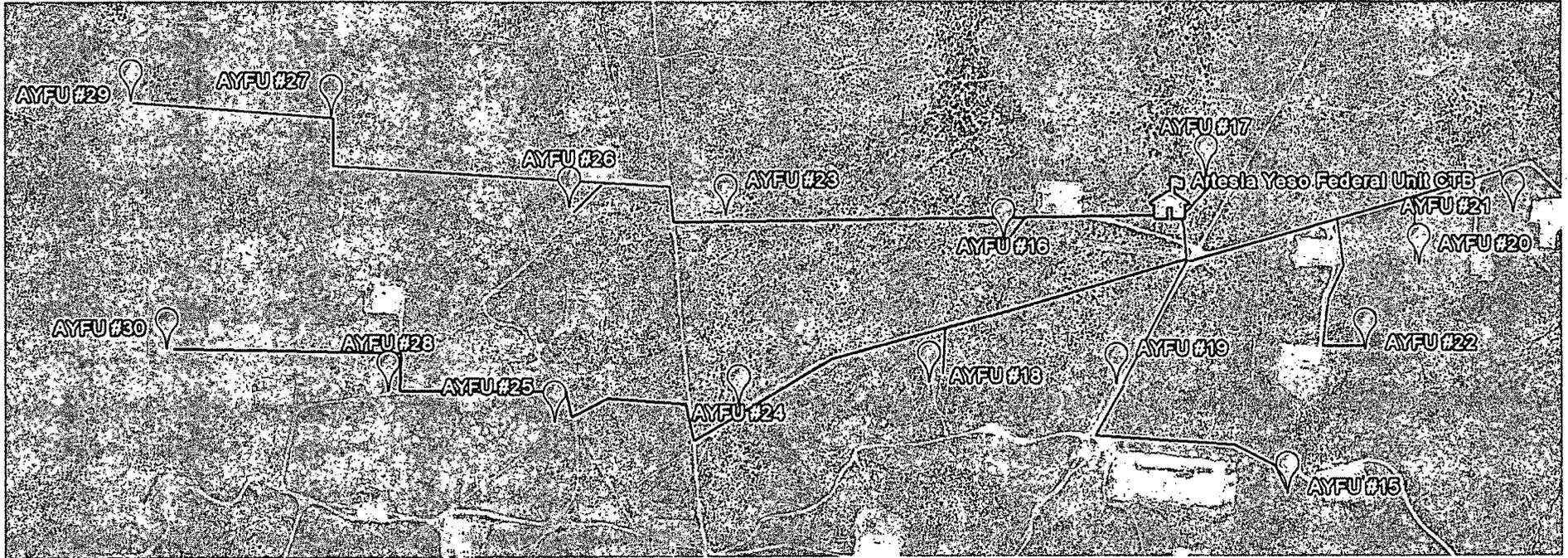
OXY WELL	GAS SHOWS	SUS	ABANDONED LOC	OTHER
OIL SHOWS	O&G SHOWS	AGW	ABANDONED-NO SHOWS	1 MILE RADIUS
GAS	OIL	AOW	INJ-NO SHOWS	
O&G	LOC	AO&GW		

**Coordinate System Information**  
 Geographic Coordinate System North American 1927  
 Datum: North American 1927  
 NAD 1927 State Plane New Mexico East FIPS 3001  
 Projection: Transverse Mercator  
 False Easting: 500000.000000  
 False Northing: 0.000000  
 Central Meridian: -104.333333  
 Scale Factor: 0.999909  
 Latitude Of Origin: 31.000000  
 Linear Unit: Feet US



CL - 01/18/2013

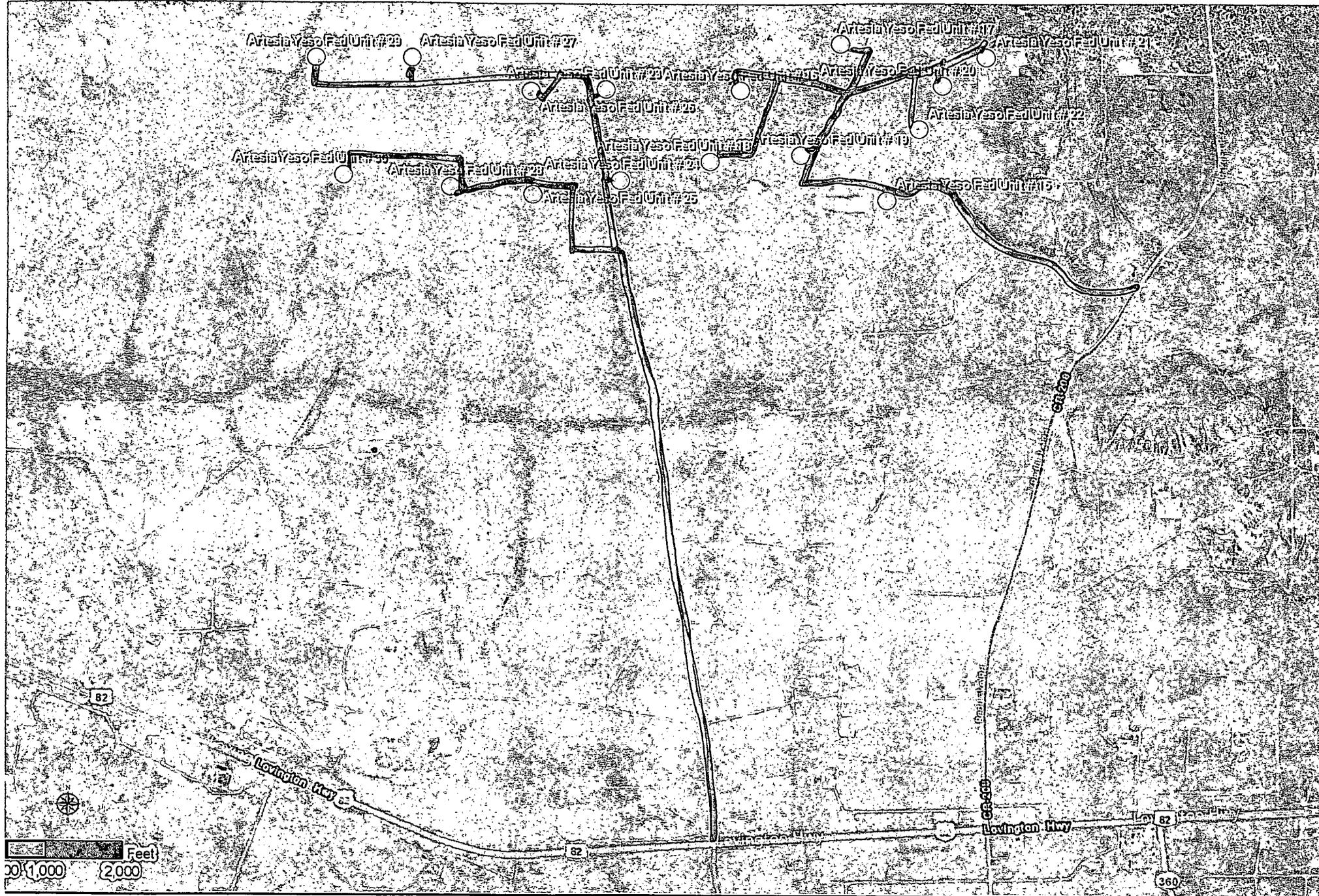
# Artesia Yeso Federal Unit Wells Flowline Routing



4" SDR 7 polyethylene production flowline (oil, gas and produced water) to be laid on surface from all the Artesia Yeso Federal Unit wells to the Artesia Yeso Federal Unit Central Tank Battery. Operating pressure < 125 psig.

Artesia Yeso Federal Unit 15: 3,000ft  
Artesia Yeso Federal Unit 16: 1,200ft  
Artesia Yeso Federal Unit 17: 400ft  
Artesia Yeso Federal Unit 18: 2,250ft  
Artesia Yeso Federal Unit 19: 1,250ft  
Artesia Yeso Federal Unit 20: 2,250ft  
Artesia Yeso Federal Unit 21: 2,700ft  
Artesia Yeso Federal Unit 22: 2,500ft

Artesia Yeso Federal Unit 23: 3,000ft  
Artesia Yeso Federal Unit 24: 3,350ft  
Artesia Yeso Federal Unit 25: 4,700ft  
Artesia Yeso Federal Unit 26: 4,150ft  
Artesia Yeso Federal Unit 27: 5,950ft  
Artesia Yeso Federal Unit 28: 6,000ft  
Artesia Yeso Federal Unit 29: 7,250ft  
Artesia Yeso Federal Unit 30: 7,650ft



**Permian Primary**

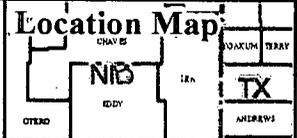
New Mexico  
 ddy & Lea Counties  
 Oxy Wells with

- OXY WELL
- Interstate Highway
- US Highway
- State Highway

*Public Access Point*

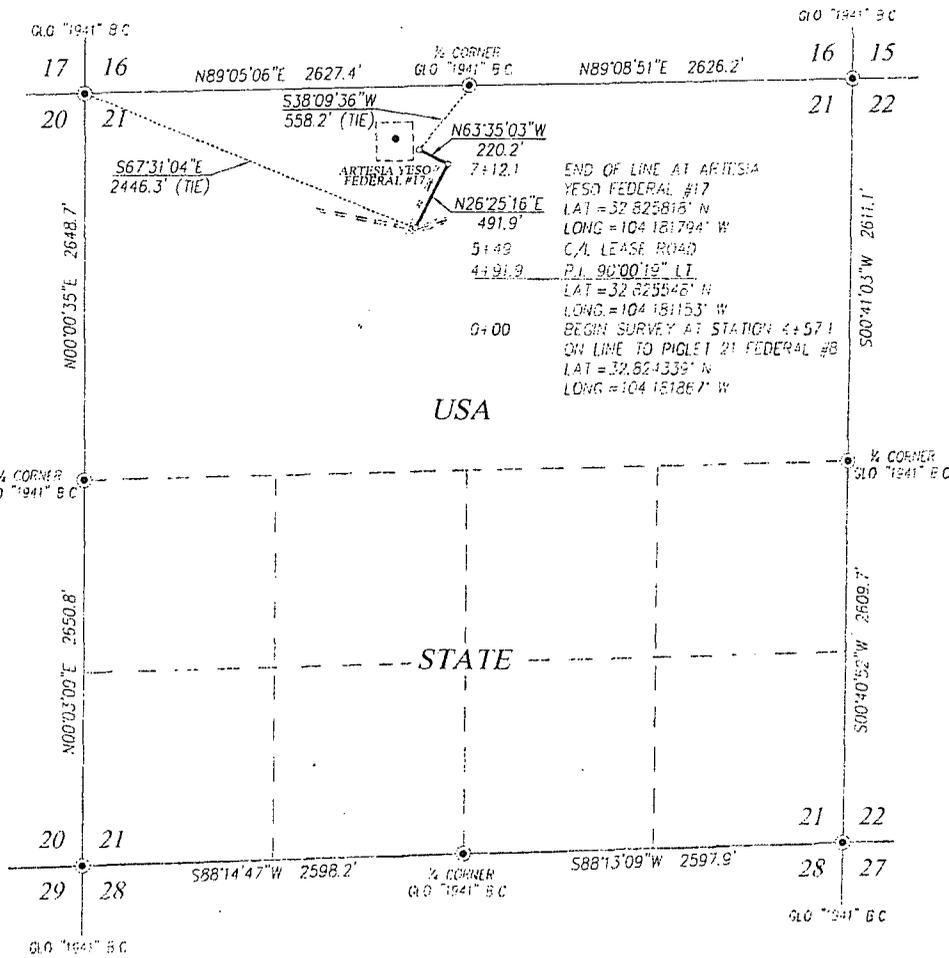
**Coordinate System Information**

Geographic Coordinate System North American 1927  
 Datum: North American 1927  
 NAD 1927 State Plane New Mexico East FIPS 3001  
 Projection: Transverse Mercator  
 False Easting: 500000.000000  
 False Northing: 0.000000  
 Central Meridian: -104.333333  
 Scale Factor: 0.999909



Operator Copy

SECTION 21, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY  
NEW MEXICO



USA

STATE

DESCRIPTION

SURVEY OF A STRIP OF LAND 50.0 FEET WIDE AND 712.1 FEET OR 0.135 MILES IN LENGTH CROSSING USA LAND IN SECTION 21, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 25.0 FEET LEFT AND 25.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES

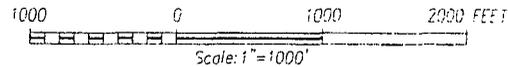
LEGEND

• DENOTES FOUND CORNER AS NOTED

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON  
DATE: 12/05/2012

PROFESSIONAL SURVEYING SERVICES  
SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
412 N. DAL PASO  
HOBBS, N.M. 88240  
(575) 393-3117 www.jwsc.biz

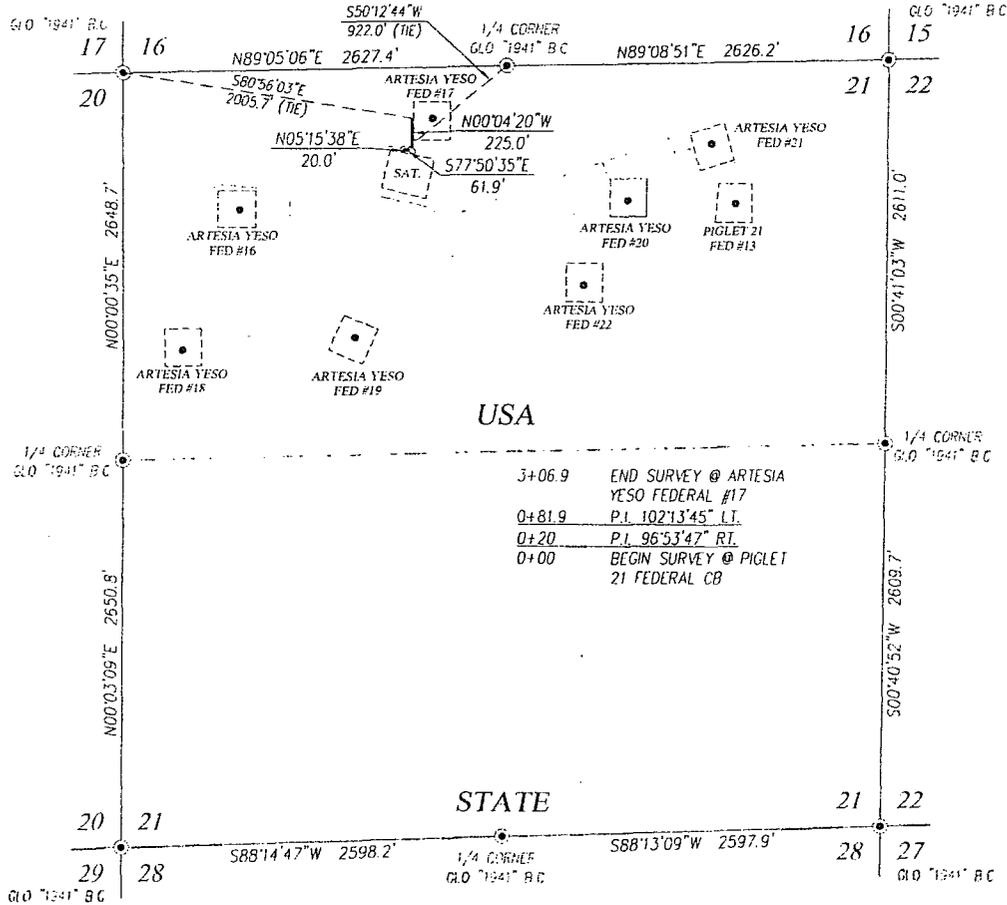


**OXY U.S.A. INC.**

SURVEY OF AN ELECTRIC LINE  
CROSSING SECTION 21,  
TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO

Survey Date: 11/15/12	CAD Date: 12/3/12	Drawn By: AF
W.O. No.: 12111944	Rev.:	Sheet 1 of 1

SECTION 21, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY  
NEW MEXICO



3+06.9 END SURVEY @ ARTESIA  
YESO FEDERAL #17  
0+81.9 P.I. 102°13'45\" L.I.  
0+20 P.I. 96°53'47\" R.I.  
0+00 BEGIN SURVEY @ PIGLET  
21 FEDERAL CB

STATE

DESCRIPTION

SURVEY OF A STRIP OF LAND 50.0 FEET WIDE AND 306.9 FEET OR 0.058 MILES IN LENGTH CROSSING  
USA LAND IN SECTION 21, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO,  
AND BEING 25.0 FEET LEFT AND 25.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO  
THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE"  
NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

LEGEND

• DENOTES FOUND CORNER AS NOTED

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239,  
DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY  
ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR  
UNDER MY DIRECT SUPERVISION, THAT I AM RESPONSIBLE FOR THIS  
SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR  
SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO  
THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 12/18/2012

PROVIDING SURVEYING SERVICES  
SINCE 1946  
JOHN WEST SURVEYING COMPANY  
412 N. DAL PASO  
HOBBS, N.M. 88240  
(575) 393-3117 www.jwsc.biz

OXY U.S.A. INC.

SURVEY OF A PIPELINE  
CROSSING SECTION 21,  
TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO

Survey Date: 12/03/12	CAD Date: 12/18/12	Drawn By: BKL
W.O. No.: 12112013	Rev.:	Rel. W.O.:

Sheet 1 of 1

# APD DATA - DRILLING PLAN

**OPERATOR NAME / NUMBER:** OXY USA WTP LP

**LEASE NAME / NUMBER:** Artesia Yeso Federal Unit 17

**STATE:** NM                      **COUNTY:** Eddy

**SURFACE LOCATION:** 350' FNL & 2120' FWL, Sec 21, T 17S, R 28E

**C-102 PLAT APPROX GR ELEV:** 3593.2'

**EST KB ELEV:** 3607.2' (14' KB)

**1. GEOLOGIC NAME OF SURFACE FORMATION**

a. Permian

**2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS**

Formation	TV Depth Top	Expected Fluids
Rustler	Surface Outcropping	Fresh Water
Yates	410	-
Seven Rivers	604	-
Queen	1170	-
Grayburg	1640	Oil
San Andres	1749	Oil/Water
Glorietta	3350	Oil
Paddock	3440	Oil
Blinebry	3900	Oil
Tubb - Base of Yeso	4820	Oil
TD	5100	TD

A. Based on the State Engineer Website, there no known nearby water wells drilled in the area.

B. The 16" conductor pipe will be set at 80' prior to spud.

**GREATEST PROJECTED TD 5100' MD / 5100' TVD      OBJECTIVE:** Yeso

**3. CASING PROGRAM**

Surface Casing: 8.625" casing set at ± 400' MD/ 400' TVD in a 11" hole filled with 8.4 ppg mud

Interval	Length	Wt	Gr	Condition	Cplg	Coll Rating (psi)	Burst Rating (psi)	Jt Str (M-lbs)	ID (in)	Drift (in)	SF Coll	SF Burst	SF Ten
0' - 400'	400'	24	J-55	New	ST&C	1370	2950	381	8.097	7.972	10.17	1.72	45.54

Production Casing: 5.5" casing set at ± 5100' MD / 5100' TVD in a 7.875" hole filled 9.6 ppg mud

Interval	Length	Wt	Gr	Condition	Cplg	Coll Rating (psi)	Burst Rating (psi)	Jt Str (M-lbs)	ID (in)	Drift (in)	SF Coll	SF Burst	SF Ten
0' - 5100'	5100'	17	L-80	New	LT&C	6290	7740	338	4.892	4.767	1.93	2.61	4.57

Collapse and burst loads calculated using Stress Check with actual anticipated loads.

# APD DATA - DRILLING PLAN -

**OPERATOR NAME / NUMBER:** OXY USA WTP LP

**LEASE NAME / NUMBER:** Artesia Yeso Federal Unit 17

**STATE:** NM                      **COUNTY:** Eddy

**SURFACE LOCATION:** 350' FNL & 2120' FWL, Sec 21, T 17S, R 28E

**C-102 PLAT APPROX GR ELEV:** 3593.2'

**EST KB ELEV:** 3607.2' (14' KB)

5/1/13  
MOR

**1. GEOLOGIC NAME OF SURFACE FORMATION**

a. Permian

**2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS**

Formation	TV Depth Top	Expected Fluids
Rustler	100	Fresh Water
Top of Salt	310	-
Base of Salt	390	-
Yates	410	-
Seven Rivers	604	-
Queen	1170	-
Grayburg	1640	Oil
San Andres	1749	Oil/Water
Glorietta	3350	Oil
Paddock	3440	Oil
Blinebry	3900	Oil
Tubb - Base of Yeso	4820	Oil
TD	5100	TD

A. Fresh Water formation is outcropping and will be covered with the 16" conductor pipe, which will be set at 80' prior to spud.

**GREATEST PROJECTED TD** 5100' MD / 5100' TVD      **OBJECTIVE:** Yeso

**3. CASING PROGRAM**

Surface Casing: 8.625" casing set at ± 400' MD/ 400' TVD in a 11" hole filled with 8.4 ppg mud

Interval	Length	Wt	Gr	Condition	Cplg	Coll Rating (psi)	Burst Rating (psi)	Jt Str (M-lbs)	ID (in)	Drift (in)	SF Coll	SF Burst	SF Ten
0'- 400'	400'	24	J-55	New	ST&C	1370	2950	381	8.097	7.972	10.17	1.72	45.54

Production Casing: 5.5" casing set at ± 5100' MD / 5100' TVD in a 7.875" hole filled 9.6 ppg mud

Interval	Length	Wt	Gr	Condition	Cplg	Coll Rating (psi)	Burst Rating (psi)	Jt Str (M-lbs)	ID (in)	Drift (in)	SF Coll	SF Burst	SF Ten
0'- 5100'	5100'	17	L-80	New	LT&C	6290	7740	338	4.892	4.767	1.93	2.61	4.57

Collapse and burst loads calculated using Stress Check with actual anticipated loads.

#### 4. CEMENT PROGRAM:

##### Surface Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft <sup>3</sup> /sk	24 Hr Comp
<b>Surface (TOC: 0' - 400')</b>							
<b>Lead:</b> 0' - 400' (125% Excess)	190	400'	Premium Plus Cement: 1 % Calcium Chloride - Flake	6.36	14.8	1.34	1608 psi

##### Production Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft <sup>3</sup> /sk	24 Hr Comp
<b>Production (TOC: 0' - 5100')</b>							
<b>Lead:</b> 0' - 3200' (98 % Excess)	420	3200'	Interfill C: 0.4% HR-800, 0.25% D-AIR 5000	14.34	11.9	2.48	327 psi
<b>Tail:</b> 3200' - 5100' (98 % Excess)	440	1900'	Premium Plus Cement: 0.5% Halad @-344, 0.2% WellLife 734, 5 lbm/sk Microbond, 0.3% Econolite, 0.3% CFR-3	7.72	14.2	1.55	1914 psi

**Description of Cement Additives:** Calcium Chloride - Flake (Accelerator), HR-800 (Retarder), D-Air 5000 (Defoamer), Halad @-344 (Low Fluid Loss Control), WellLife 734 (Cement Enhancer), Microbond (Expander), Econolite (Light Weight Additive), CFR-3 (Dispersant)

If a caliper log is run, cement volumes will be adjusted to caliper volume + 35% excess for the production hole.

#### 5. PRESSURE CONTROL EQUIPMENT

**Surface: 0 - 400'** None.

**Production: 0 - 5100'** the minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required to drill below the surface casing shoe shall be 3000 (3M) psi. Operator will be using an 11" 3M two ram stack with 3M annular preventer, & 3M Choke Manifold.

- a. The 11" 3000 psi blowout prevention equipment will be installed and operational after setting the 8 5/8" surface casing and the 8 5/8" SOW x 11" 3K conventional wellhead; the rotating head body will be installed but the rubber will be installed when it becomes operationally necessary.
- b. The BOP and ancillary BOPE will be tested by a third party upon installation to the 8 5/8" 24# J-55 surface casing. All equipment will be tested to 250/3000 psi for 10 minutes and charted, except the annular, which will be tested to 70% of working pressure. This is to be in compliance with the Onshore Order # 2 which states the BOPE shall be tested to 70 % of the yield of the casing when the BOP and casing are not isolated.
- c. The pipe rams will be functionally tested during each 24 hour period; the blind rams will be functionally tested on each trip out of the hole. These functional tests will be documented on the Daily Driller's Log. Other accessory equipment (BOPE) will include a safety valve and subs as needed to fit all drill strings, and a 2" kill line and 3" choke line having a 3000 psi WP rating. Oxy requests that the system be tested at 3,000 psi.
- d. Oxy requests a variance if Savanna 415 is used to drill this well to use a co-flex line between the BOP and choke manifold. See attached schematic.

*See COA*

*See COA*

Manufacturer: Hebei Ouya Ltd.

Serial Number: 1642343-04

Length: 39' Size: 3" Ends: flanges

WP rating: 3000 psi Anchors required by manufacturer: No

- e. See attached BOP & Choke manifold diagrams.

## 6. MUD PROGRAM:

Depth	Mud Wt ppg	Vis Sec	Fluid Loss	Type System
0 - 400'	8.4 - 8.8	27 - 38	NC	Fresh Water / Spud Mud
400' - TD	9.6 - 10	28 - 40	10 - 20	Brine Water / Salt Gel

Remarks: Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times.

- A. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

## 7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. **If Hydrogen Sulfide is encountered, measured amounts and formations will be reported to the BLM**

## 8. LOGGING / CORING AND TESTING PROGRAM:

- A. Mud Logger: Log from 3000' to TD.
- B. DST's: None.
- C. Cased Hole Logs as follows: Gamma Ray / Neutron from surface casing to TD. *see COA*

## 9. POTENTIAL HAZARDS:

- See COA*
- A. H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6.
- B. The bottomhole pressure is anticipated to be **2545 psi**.
- C. No abnormal temperatures or pressures are anticipated. **The highest anticipated pressure gradient is 0.50 psi/ft.** All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

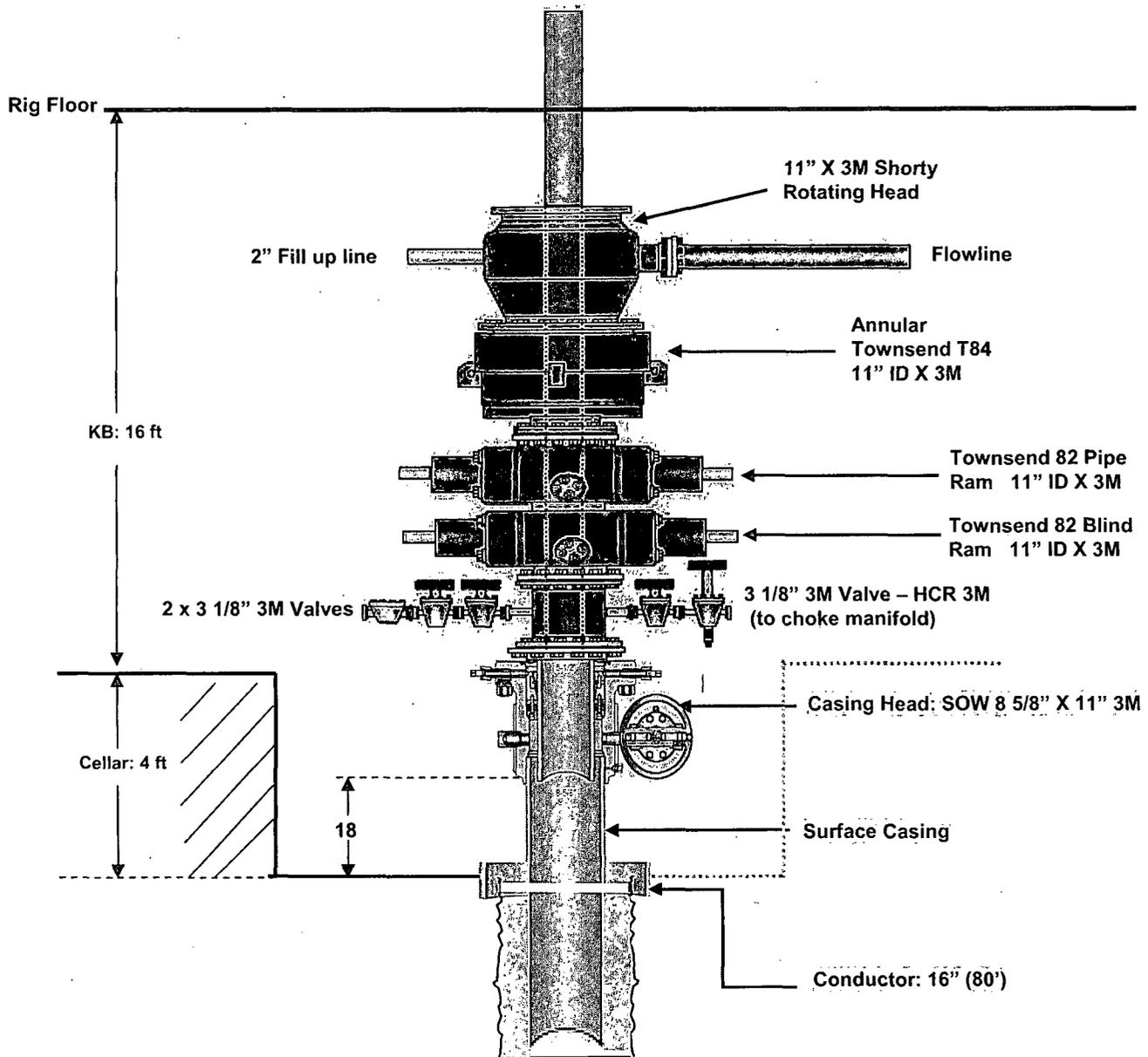
## 10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 15 days. If production casing is run, then an additional 30 days will be needed to complete the well and construct surface facilities and/or lay flow lines in order to place well on production.

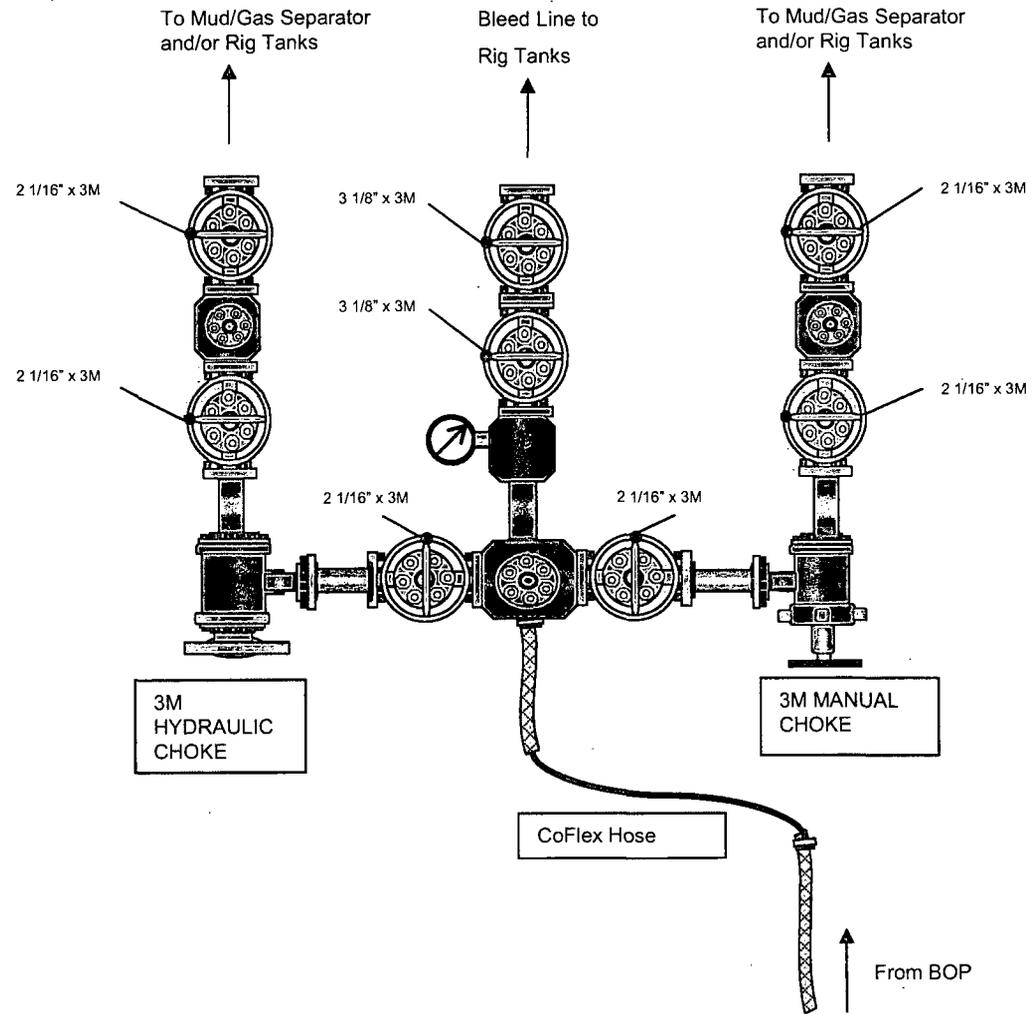
## 11. COMPANY PERSONNEL:

<b>Name</b>	<b>Title</b>	<b>Office Phone</b>
Anthony Tschacher	Drilling Engineer	713-985-6949
Sebastian Millan	Drilling Engineer Supervisor	713-350-4950
Roger Allen	Drilling Superintendent	713- 215-7617
Douglas Chester	Drilling Manager	713-366-5194

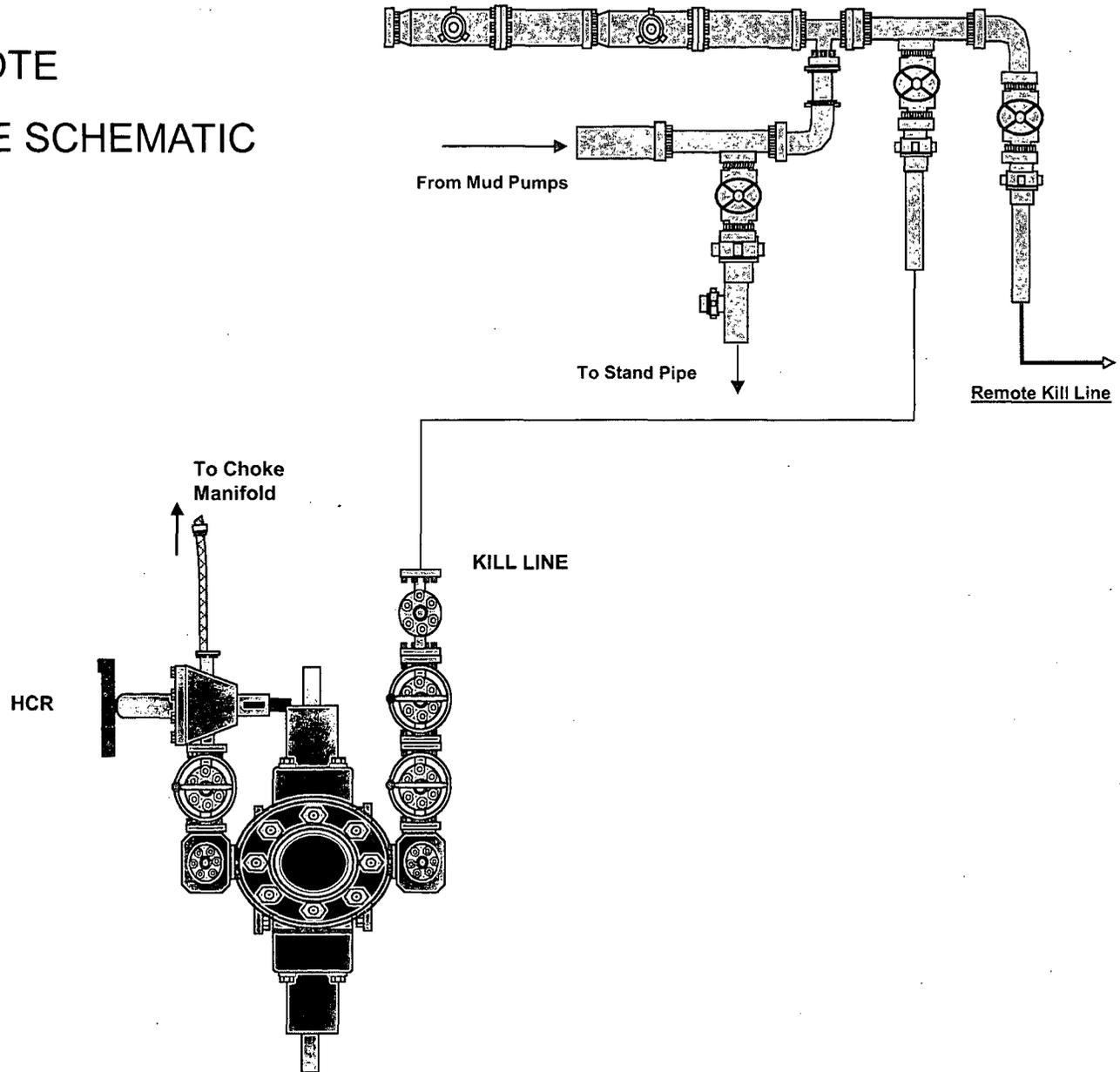
# BOP Diagram



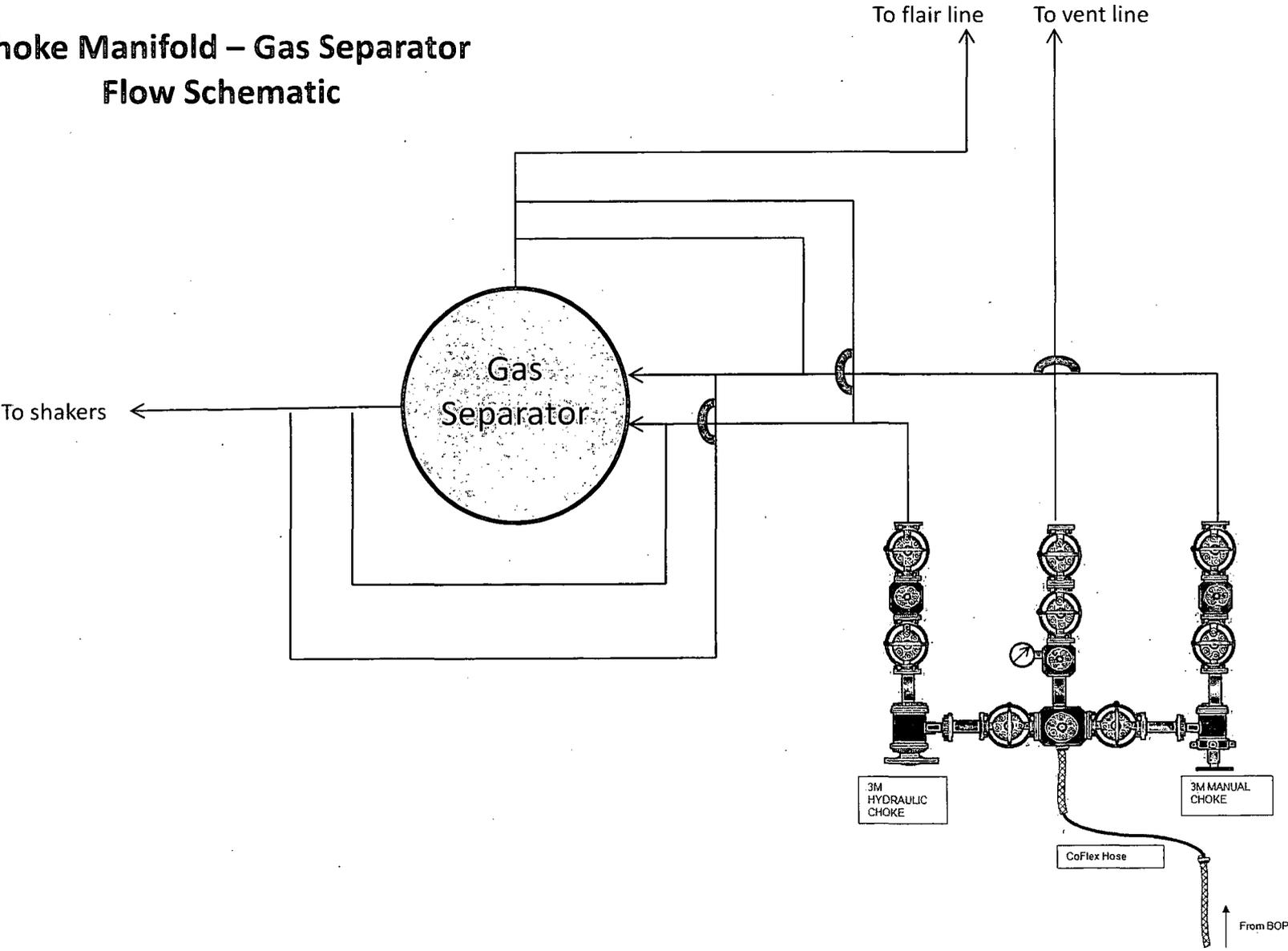
# 3M CHOKE MANIFOLD CONFIGURATION



# 3M REMOTE KILL LINE SCHEMATIC



# Choke Manifold – Gas Separator Flow Schematic



MANIFOLD



HEBEI OUYA LTD. THE HOSE PEOPLE PLUS

9727 47th Ave  
Edmonton, AB T6E 5M7  
780-437-2630

### Certificate of Compliance

Date: 2011-12-01  
Item Desc: REDL-SLIM-48x39IN-FIG1502  
Asset #: 1642343-04  
Chip ID: NOCHIPID  
Owner: Commercial Solutions INC (103867)

Test#:   
Initial Location: Site#2714 5 ST

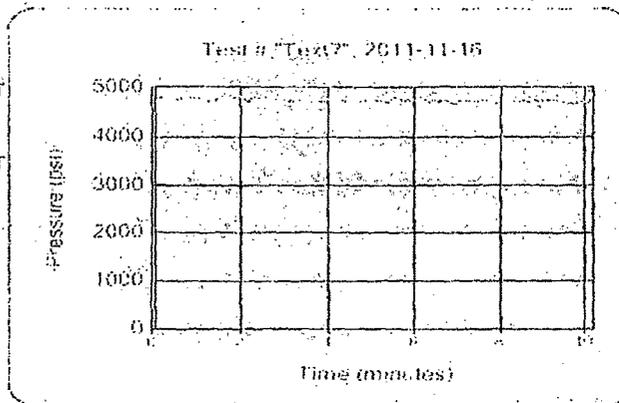
Tested by: Dave Penner  
Witnessed by: Ben Ahlskog

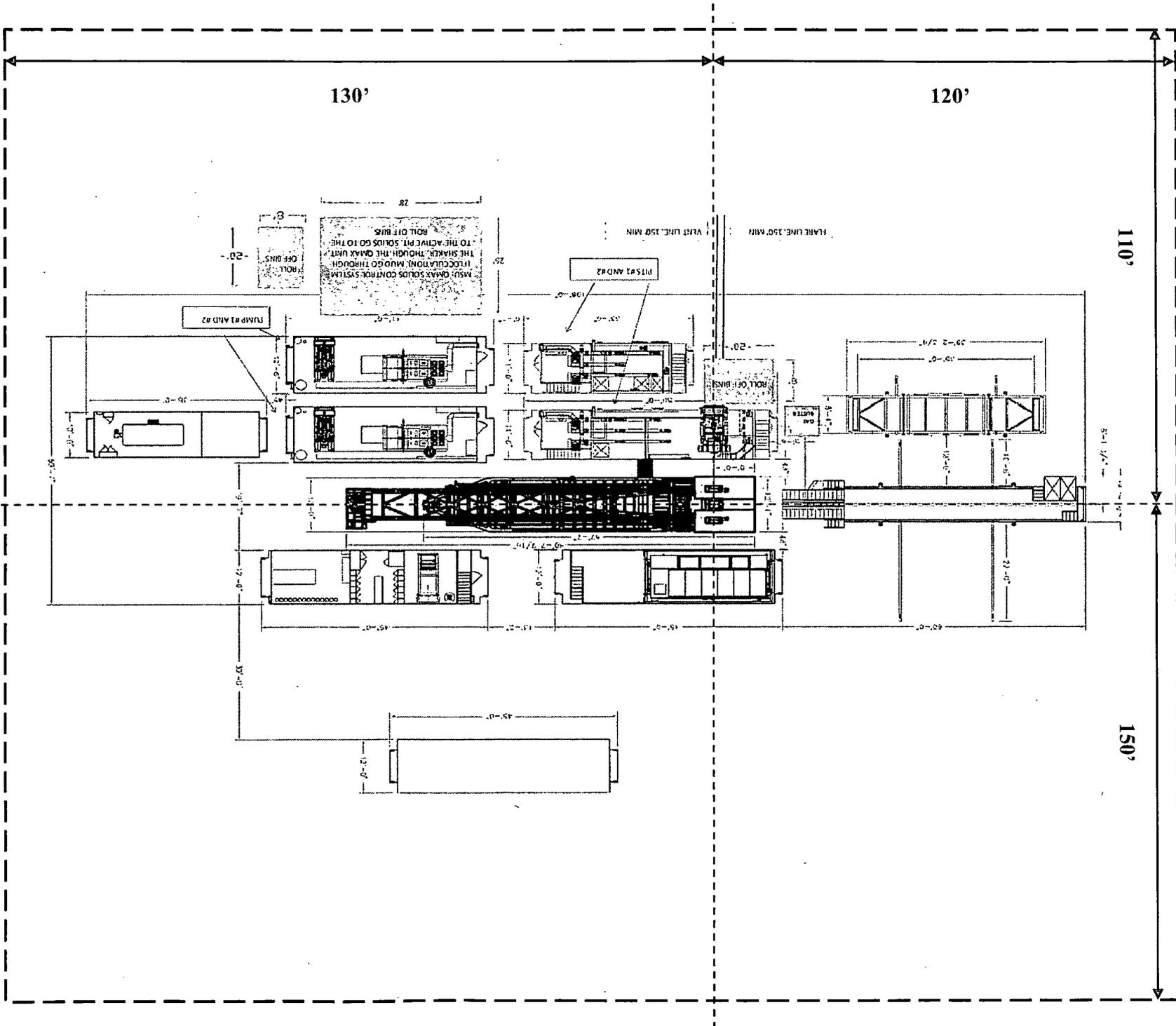
Item Attributes:

Serial Number	1642343-04
Manufacturer	HEBEI OUYA LTD.
Application Group	SLIMHOLE
Model	REDL-SLIMHOLE-3000-48
Date of Mfr	
Date Installed	2011-12-01
Locn Desc	
Inside Dia.	3 IN
Length	39 IN
Working Pressure	3000 PSI
Test Pressure	4500 PSI
Coupling A	948HX+48B/FIG1502-HU-48
Attach Method A	Swaged
Coupling A Model	GEORGE MYER/KEMPER REBUILT
Coupling B	948HX+48B/FIG1502-HU-48
Attach Method B	Swaged
Coupling B Model	GEORGE MYER/KEMPER REBUILT
Distributor Ref #	1642343-04
Factory Ref #	
EndUser Ref #	
Notes	BUILT ON PO: JON

Default Hose Certification

Test Notes	Hose passed all visual and physical inspections.
Continuity Test Results	N/A
Continuity Ohm Reading	
Certification Result	PASS
Generate Alert?	
Comments	
TimeStamp	2011-12-01 12:54:14 -07:00





130'

120'

110'

150'

MSP: GRASS SOLIDS CONTROL SYSTEM.  
RECULATION: MUST GO THROUGH  
THE SHAKER, THOUGH, THE GRASS UNIT,  
TO THE ACTIVE. SOLIDS GO TO THE  
ROLL OFF BINS.

PITS #1 AND #2

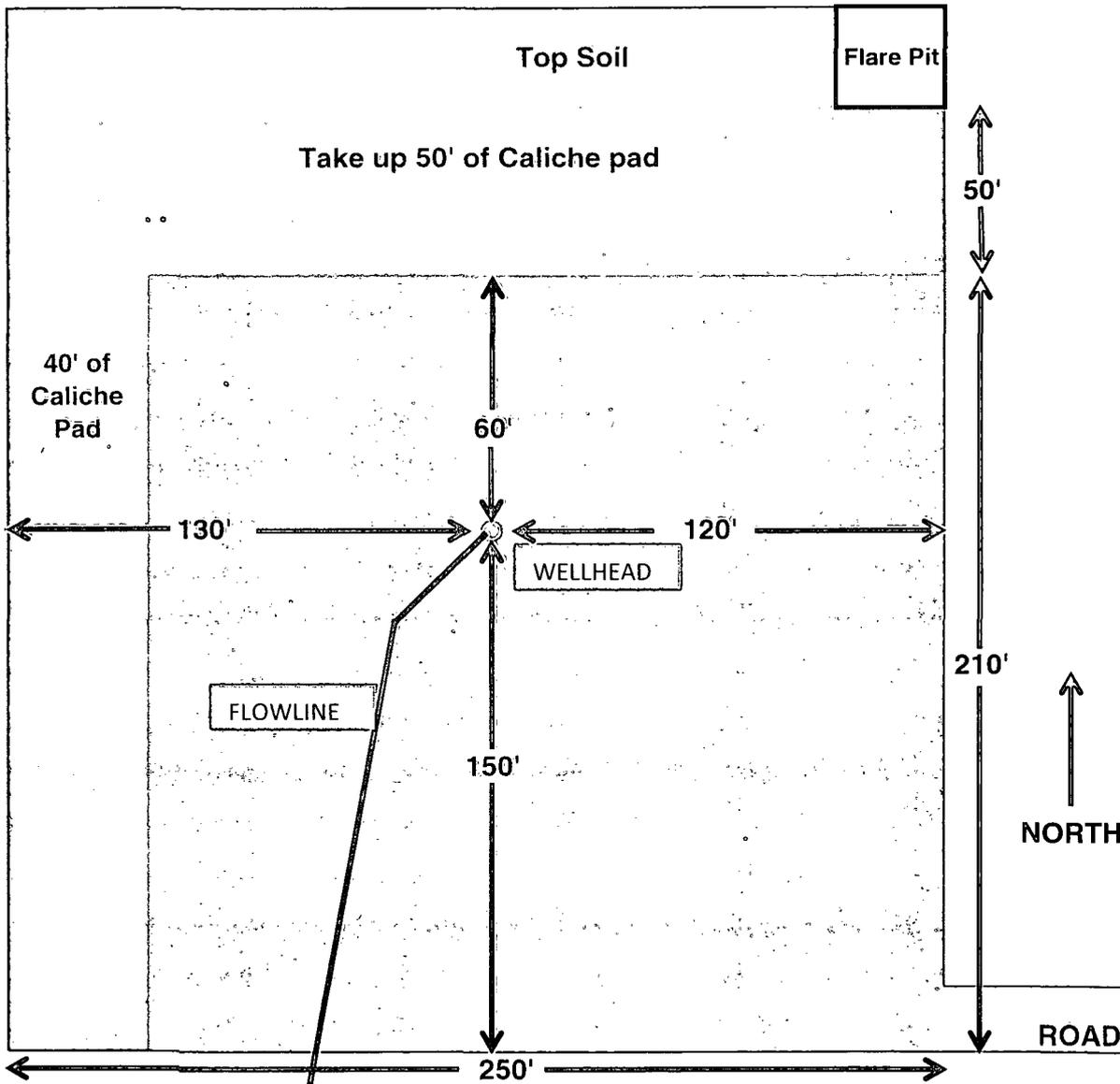
TRAP #1 AND #2

FLARE LINE, 150' MIN

VENT LINE, 150' MIN

ROLL OFF BINS

**WELL SITE PLOT PLAN**  
**Artesia Yeso Federal Unit # 17**



**If road comes into the Southeast corner of pad, Oxy will take up and re-seed 50' on North side and 40' on West side of pad**

Flowline to Artesia Yeso Federal Unit CTB  
4" SDR 7 Poly Pipeline with max pressure <125psi

**SURFACE USE PLAN OF OPERATIONS**

Operator Name/Number: OXY USA WTP LIMITED PARTNERSHIP - 192463  
Lease Name/Number: ARTESIA YESO FEDERAL UNIT #17  
Pool Name/Number: ARTESIA; GLORIETA-YESO (96830)  
Surface Location: C; SEC 21, T17S, R28E; 350' FNL & 2120' FWL; EDDY COUNTY  
Bottom Hole Location: C; SEC 21, T17S, R28E; 350' FNL & 2120' FWL; EDDY COUNTY

**1. Existing Roads**

- a. A copy of a USGS "\_RED LAKE\_", NM" quadrangle map is attached showing the proposed location. The well location is spotted on this map, which shows the existing road system.
- b. The well was staked by \_Terry J AseI\_Certificate No. \_15079\_\_ on \_07-25-2012\_, certified 09-17-2012\_.
- c. Directions to Location:  
BEGINNING IN LOCO HILLS AT THE INTERSECTION OF U.S. HWY. #82 AND COUNTY ROAD #217 (HAGERMAN CUTOFF ROAD), GO WEST ON U.S. HWY. #82 FOR 11.2 MILES, TURN RIGHT ON COUNTY ROAD #208 (RED LAKE ROAD) AND GO NORTH FOR 1.4 MILES, TURN LEFT ON CALICHE ROAD AND GO NORTHWEST FOR 1.0 MILES, TURN RIGHT AND GO NORTH FOR 0.4 MILES, TURN LEFT ON PROPOSED ROAD AND GO NORTHWEST FOR 166.6 FEET TO LOCATION.

**2. New or Reconstructed Access Roads:**

- a. A new access road will be built. The access road will run approximately \_\_\_166.6'\_\_\_ from an existing road to the location.
- b. The maximum width of the road will be 15'. It will be crowned and made up of 6" of rolled and compacted caliche. Water will be deflected, as necessary, to avoid accumulation and prevent surface erosion.
- c. Surface material will be native caliche. This material will be obtained from a BLM approved pit nearest in proximity to the location. The average grade will be approximately 1%.
- d. No cattle guards, grates or fence cuts will be required. No turnouts are planned.
- e. Blade, water & repair existing caliche road as required/needed.

**3. Location of Existing Wells:**

Existing wells within a one mile radius of the proposed well are shown on attached plat.

**4. Location of Existing and/or Proposed Production Facilities.**

- a. In the event the well is found productive, the production would be sent to the central tank battery located on the ARTESIA YESO FEDERAL UNIT CTB. The propose lines will be approximately 400' of 4" SDR 7 Poethylene laid on surface from well the CTB and will be operating <125 psig. ~~See proposed Production Facilities layout diagram.~~  
*13 3-15-2013*
- b. The proposed route for the electric line has been surveyed and is attached.
- c. All flowlines will adhere to API Standards.

## 5. Location and types of Water Supply.

This well will be drilled using a combination of water mud systems. It will be obtained from commercial water stations in the area and will be hauled to location by transport truck using existing and proposed roads.

## 6. Construction Materials:

All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM approved pit or from prevailing deposits found under the location. Will use BLM recommended use of extra caliche from other locations close by for roads, if available.

## 7. Methods of Handling Waste Material:

- a. A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins. Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility, see C-144 CLEZ.
  1. Solids - CONTROL RECOVERY INC - R9166
  2. Liquids - SUNDANCE LANDFILL - NM-01-003
- b. All trash, junk, and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.
- c. The supplier, including broken sacks, will pick up slats remaining after completion of well.
- d. A Porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- e. Disposal of fluids to be transported will be by the following companies:
  1. Solids - CONTROL RECOVERY INC - R9166
  2. Liquids - SUNDANCE LANDFILL - NM-01-003

## 8. Ancillary Facilities: None needed

## 9. Well Site Layout

See attached for the proposed well site layout with dimensions of the pad layout and equipment location.

V-Door EAST CL Tanks 40' X 75' Pad 260' X 250'

## 10. Plans for Surface Reclamation:

- a. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original top soil will again be returned to the pad and contoured, as close as possible, to the original topography.

- b. If the well is deemed commercially productive, caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.

## 11. Surface Ownership

The surface is owned by the U.S. Government and is administered by the BLM. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The surface is leased to: \_\_\_\_\_ Bogle LTD Co.

They will be notified of our intention to drill prior to any activity.

## 12. Other Information

- a. The vegetation cover is generally sparse consisting of mesquite, yucca, shinnery oak, sandsage and perennial native range grass. The topsoil is sandy in nature. Wildlife in the area is also sparse consisting of deer, coyotes, rabbits, rodents, reptiles, dove and quail.
- b. There is no permanent or live water in the general proximity of the location.
- c. There are no dwellings within 2 miles of the proposed well site.
- d. A Cultural Resources Examination will be completed by Boone Archaeological Services, LLC and forwarded to the BLM office in Carlsbad, NM.

## 13. Bond Coverage:

Bond Coverage is Nationwide Bond No. \_\_\_\_\_ ESB000226

## Operators Representatives:

The OXY Permian representatives responsible for ensuring compliance of the surface use plan are listed below.

Kim Moore  
Production Coordinator  
1017 W. Stanolind Rd.  
Hobbs, NM 88240  
Office Phone: 575-397-8236  
Cellular: 575-706-1219

Charles Wagner  
Manager Field Operations  
1502 West Commerce Dr.  
Carlsbad, NM 88220  
Office Phone: 575-628-4151  
Cellular: 575-725-8306

Allan Wells  
Drilling Superintendent  
P.O. Box 4294  
Houston, TX 77210  
Office Phone: 713-350-4810  
Cellular: 713-569-8697

Calvin (Dusty) Weaver  
Operation Specialist  
P.O. Box 50250  
Midland, TX 79710  
Office Phone: 432-685-5723  
Cellular: 806-893-3067

Juan Pinzon  
Drilling Engineering Supervisor  
P.O. Box 4294  
Houston, TX 77210  
Office Phone: 713-366-5058  
Cellular: 713-503-3962

Carlos Mercado  
Drilling Engineer  
P.O. Box 4294  
Houston, TX 77210  
Office Phone: 713-366-5418  
Cellular: 281-455-3481

SURFACE OWNER:

BLM

TENANT:

Bogle LTD Co.

P. O. Box 460

Dexter, NM 88230

# PECOS DISTRICT CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>OXY USA WTP LP</b>
<b>LEASE NO.:</b>	<b>NMNM-048343</b>
<b>WELL NAME &amp; NO.:</b>	<b>Artesia Yeso Federal Unit 17</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>0350' FNL &amp; 2120' FWL</b>
<b>LOCATION:</b>	<b>Section 21, T. 17 S., R 28 E., NMPM</b>
<b>COUNTY:</b>	<b>Eddy County, New Mexico</b>

## TABLE OF CONTENTS

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

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
  - Cave/Karst
  - Commercial Well Determination
  - Unit Well Sign Specs
- Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- Road Section Diagram**
- Drilling**
  - High Cave/Karst
  - Logging Requirements
  - Waste Material and Fluids
- Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- 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)

### **Commercial Well Determination**

A commercial well determination shall be submitted after production has been established for at least six months.

### **Unit Wells**

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

### **Cave and Karst**

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

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

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

#### **Construction:**

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

#### **No Blasting:**

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

#### **Pad Berming:**

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

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

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

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

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

**Automatic Shut-off Systems:**

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

**Cave/Karst Subsurface Mitigation**

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

**Rotary Drilling with Fresh Water:**

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

**Directional Drilling:**

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

**Lost Circulation:**

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

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

**Abandonment Cementing:**

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

**Pressure Testing:**

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

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 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. 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**

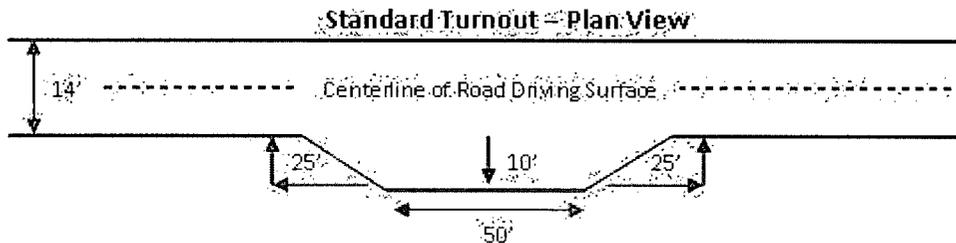
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**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:

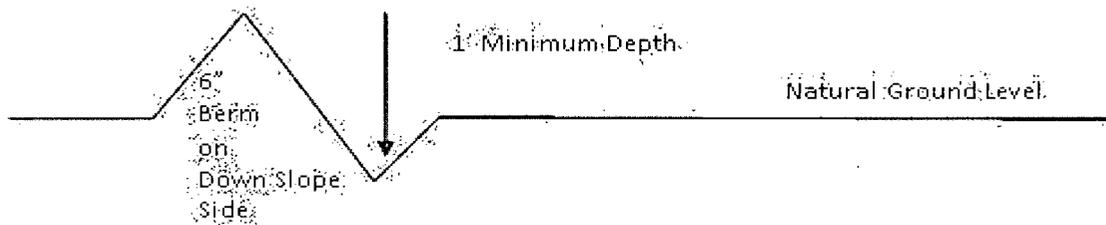


**Drainage**

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

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

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



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

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

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

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

### Culvert Installations

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

### Cattleguards

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

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

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

### Fence Requirement

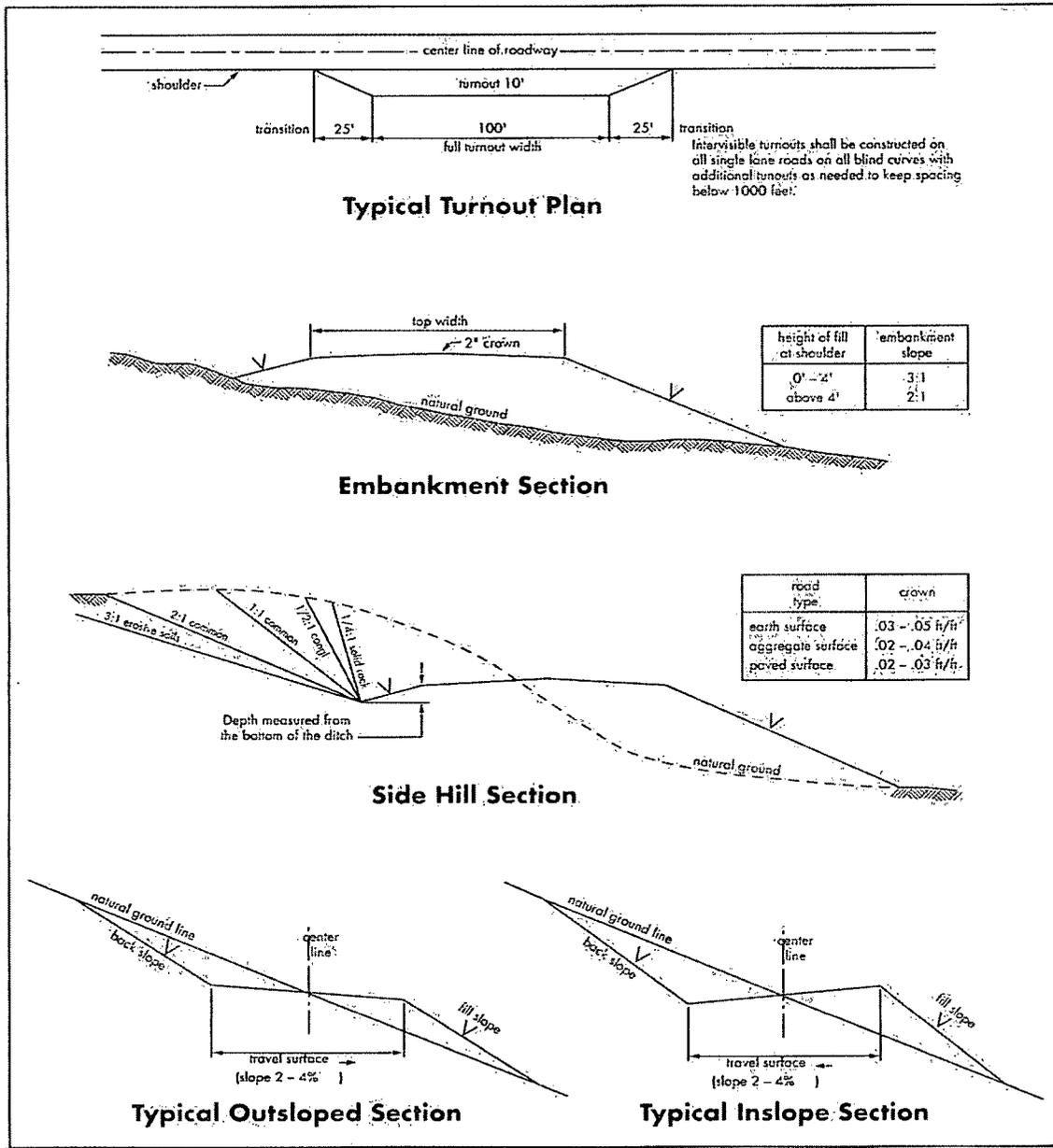
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

**Public Access**

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



## I. DRILLING

### 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 (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **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.**

### 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. 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 Salado and Artesia Groups.  
Possibility of lost circulation in the Tansil, Grayburg, and San Andres formations.**

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

1. The **8-5/8** inch surface casing shall be set at approximately **400** feet 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. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
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.

**JAM 040413**

## II. 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 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, 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 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 or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than 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 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.

18. Special Stipulations:

## C. ELECTRIC LINES

### STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

**A copy of the approved application 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. Power lines shall be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Power lines, " 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:

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction and no further construction will be done until clearance has been issued by the Authorized Officer. Special restoration stipulations or realignment may be required.
- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes with native soil from the removed poles.

### **III. 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).

## 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 no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

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

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

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

\*Pounds of pure live seed:

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