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OCD-ARIESIA

APR 28 2009

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ATS-09-37 RM

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-12559
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name -----
2. Name of Operator OGX RESOURCES, LLC. (JEFF BIRKELBACH 432-685-1287)		7. If Unit or CA Agreement, Name and No. -----
3a. Address P. O. BOX-2064 MIDLAND, TEXAS 79702	3b. Phone No. (include area code) 432-685-1287	8. Lease Name and Well No. MOMBA "24" FEDERAL #1H
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 660' FNL & 990' FEL SECTION 24 T26S-R28E EDDY CO. At proposed prod. zone 350' FSL & 660' FEL SEC. 24 T26S-R28E		9. API Well No. 30-015-37049
14. Distance in miles and direction from nearest town or post office* Approximately 14 miles South of Malaga New Mexico		10. Field and Pool, or Exploratory WILDCAT-BONE SPRING
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 660'	16. No. of acres in lease 320	11. Sec., T. R. M. or Blk. and Survey or Area SECTION 24 T26S-R28E
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. NA	19. Proposed Depth MD-11,440 TVD-7400	12. County or Parish / 13. State EDDY CO. / NM
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2912' GL	22. Approximate date work will start* WHEN APPROVED	17. Spacing Unit dedicated to this well 160
		20. BLM/BIA Bond No. on file NMB_000244
		23. Estimated duration 45 Days

24. Attachments

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

- |   |  |
|---|--|
| 1. Well plat certified by a registered surveyor.  | 4. Bond to cover the operations unless covered by an existing bond on file (s Item 20 above).      |
| 2. A Drilling Plan.   | 5. Operator certification  |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Joe T. Janica</i>	Name (Printed/Typed) Joe T. Janica	Date 12/04/08
Title Permit Eng.		

Approved by (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) <i>/s/ Don Peterson</i>	Date APR 22 2009
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

CARLSBAD CONTROLLED WATER BASIN

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

DISTRICT II  
1301 W. GRAND AVENUE, ARTESIA, NM 88210

OIL CONSERVATION DIVISION  
1220 SOUTH ST. FRANCIS DR.  
Santa Fe, New Mexico 87505

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

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

DISTRICT IV  
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number <b>30-015-37049</b>	Pool Code	Pool Name <b>WILDCAT-BONE SPRING</b>
Property Code <b>37675</b>	Property Name <b>MOMBA "24" FEDERAL</b>	Well Number <b>1H</b>
OGRID No. <b>217955</b>	Operator Name <b>OGX RESOURCES</b>	Elevation <b>2912'</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
A	24	26-S	28-E		660	NORTH	990	EAST	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
P	24	26-S	28-E		350	SOUTH	660	EAST	EDDY

Dedicated Acres <b>160</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

**GEODETIC COORDINATES**  
NAD 27 NME  
Y=376015.6 N  
X=592478.5 E  
LAT.=32.033430° N  
LONG.=104.034903° W

**BOTTOM HOLE LOCATION**  
Y=371784.4 N  
X=592825.7 E

POE  
FNL & 970' FEL

PROJECT AREA →

PRODUCING AREA →

EXHIBIT "A"

NM-12559

2913.3' 2912.4'

660'

S.L.

990'

292.1' 2910.1'

600'

GRID AZ. = 175°18'50"

HORZ. DIST. = 4246.5'

660'

350'

**OPERATOR CERTIFICATION**

I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*Joe Janica*  
Signature Date  
**Joe Janica** 12/04/08  
Printed Name

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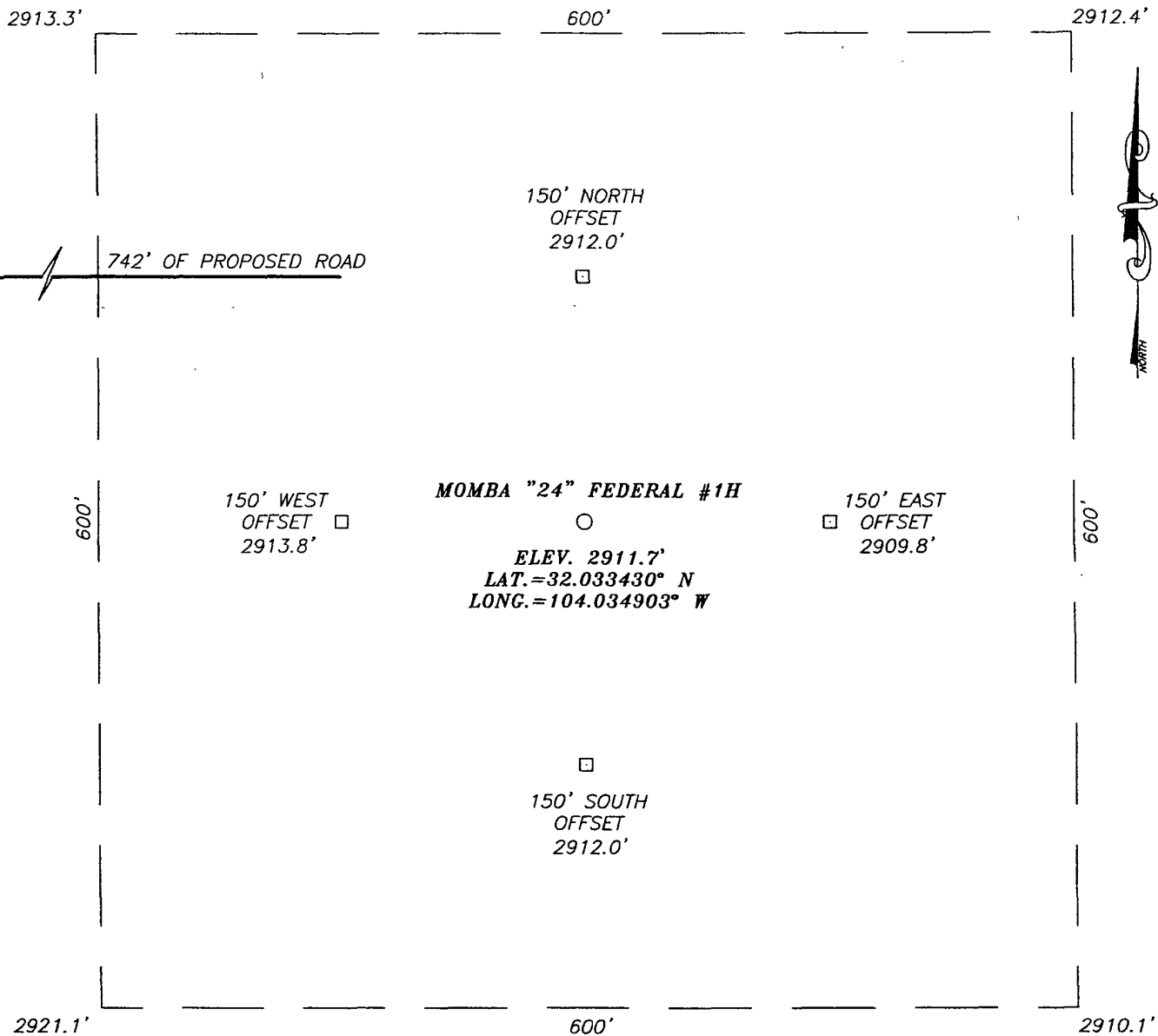
**SURVEYOR CERTIFICATION**

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 supervision, and that the same is true and correct to the best of my belief.

WALD J. EIDSON  
OCTOBER 29 2008  
NEW MEXICO  
Date Surveyed, Signature & Seal of Professional Surveyor  
*Ronald J. Eidson*  
8/5/08  
SURVEYOR

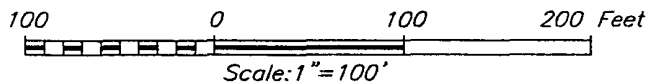
Certificate No. GARY EIDSON 12641  
RONALD J. EIDSON 3239

**SECTION 24, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M.,**  
 EDDY COUNTY, NEW MEXICO



**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF STATE HWY. #285 AND CO. RD. #725 (WHITEHORN ROAD), GO NORTHEAST ON CO. RD #725 APPROX. 0.75 MILES. TURN RIGHT AND GO SOUTHEAST APPROX. 1.5 MILES TO A PROPOSED ROAD SURVEY. TURN LEFT AND FOLLOW ROAD SURVEY EAST APPROX. 900 FEET TO THIS LOCATION.

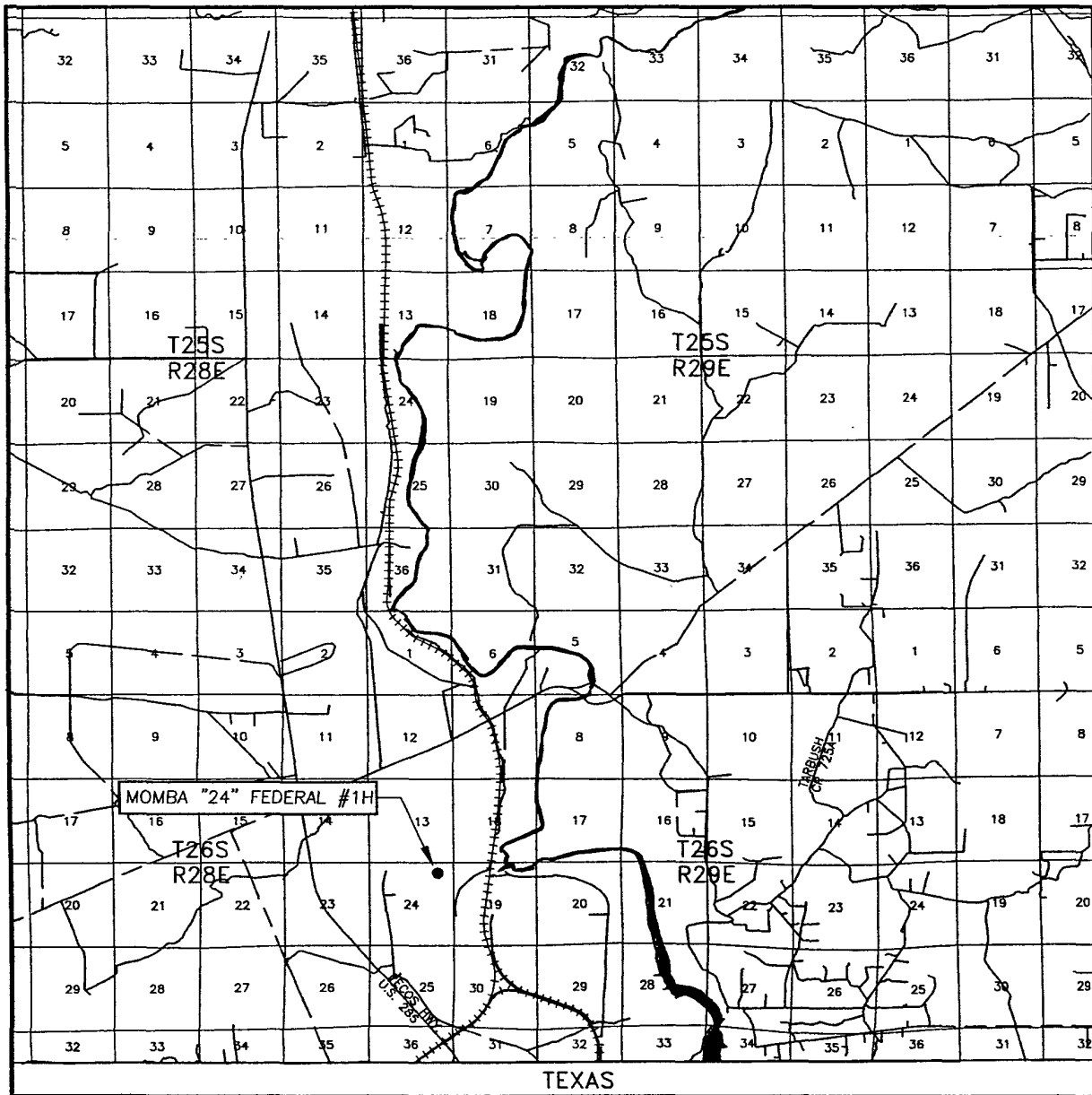


PROVIDING SURVEYING SERVICES  
 SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 393-3117

**OGX RESOURCES**


MOMBA "24" FEDERAL #1H WELL  
 LOCATED 660 FEET FROM THE NORTH LINE  
 AND 990 FEET FROM THE EAST LINE OF SECTION 24,  
 TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M.,  
 EDDY COUNTY, NEW MEXICO.

Survey Date: 10/29/08	Sheet 1 of 1 Sheets
W.O. Number: 08.11.1865	Dr By: JC
Date: 11/07/08	08111865
	Scale: 1"=100'

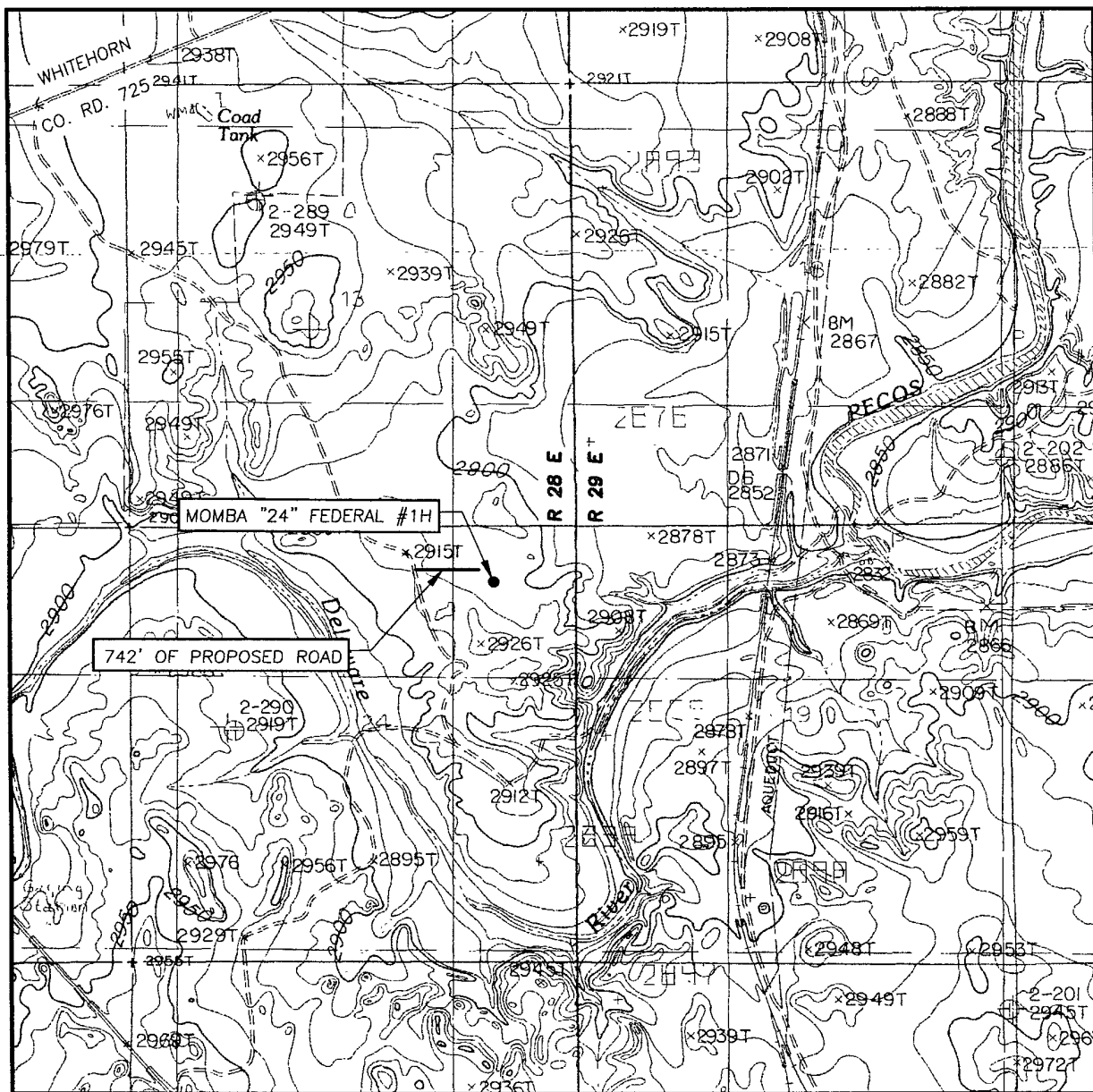


SCALE: 1" = 2 MILES

SEC. 24 TWP. 26-S RGE. 28-E  
 SURVEY N.M.P.M.  
 COUNTY EDDY STATE NEW MEXICO  
 DESCRIPTION 660' FNL & 990' FEL  
 ELEVATION 2912'  
 OPERATOR OGX RESOURCES  
 LEASE MOMBA "24" FEDERAL



PROVIDING SURVEYING SERVICES  
 SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
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SCALE: 1" = 2000'

CONTOUR INTERVAL:  
RED BLUFF, N.M. - 10'

SEC. 24 TWP. 26-S RGE. 28-E

SURVEY \_\_\_\_\_ N.M.P.M.

COUNTY EDDY STATE NEW MEXICO


DESCRIPTION 660' FNL & 990' FEL

ELEVATION 2912'

OPERATOR OGX RESOURCES

LEASE MOMBA "24" FEDERAL

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



PROVIDING SURVEYING SERVICES  
 SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 393-3117

APPLICATION TO DRILL

OGX RESOURCES, LLC.  
 MOMBA "24" FEDERAL #1H  
 UNIT "A" SECTION 24  
 T26S-R28E EDDY CO. NM

In response to questions asked under Section II of Bulliten NTL-6, the following information on the above will be provided.

1. LOCATION: 660' FNL & 990' FEL SECTION 24 T26S-R28E EDDY CO. NM
2. ELEVATION ABOVE SEA LEVEL: 2912' GL
3. GEOLOGICAL NAME OF SURFACE FORMATION: Quaternary Aeolian Deposits.
4. DRILLING TOOLS AND ASSOCIATED EQUIPMENT: Conventional rotary drilling rig using drilling mud as a circulating medium for solids removal from hole.
5. PROPOSED DRILLING DEPTH: MD-11,440' TVD-7400'
6. ESTIMATED TOPS OF GEOLOGICAL FORMATIONS:

Base of Salt	2400'	Brushy Canyon	4800'
Lamar	2690'	Bone Spring	6450'
Bell Canyon	2720'	1st Bone Spring	7330'
Cherry Canyon	3590'	2nd Bone Spring	8050'

7. POSSIBLE MINERAL BEARING FORMATIONS:

Bell Canyon	Oil	Brushy Canyon	Oil
Cherry Canyon	Oil	Bone Spring	Oil

8. CASING PROGRAM:

See  
 CAP →

HOLE SIZE	INTERVAL	OD OF CASING	WEIGHT	THREAD	COLLAR	GRADE	CONDITION
26"	0-40'	20"	NA	NA	NA	Conductor	New
17½"	0-450'	13 3/8"	48#	8-R	ST&C	H-40	New
12¼"	0-2600'	9 5/8"	36#	8-R	ST&C	J-55	New
8 3/4"	0-6800'	5½"	17#	8-R	LT&C	N-80	New
8 3/4"	6800-11,440	5½"	17#	BUTT	BT&C	N-80	New

Casing design factors:

Collapse	1.125	Burst	1.0	Body Yield	1.5	Joint Strength	8-R	1.8
							Buttress	1.6

9. CASING CEMENTING & SETTING DEPTHS:

*See  
COA*

20"	Conductor	Set 40' of 20" conductor and cement to surface with Redi-mix.
13 3/8"	Surface	Run and set 450' of 13 3/8" 48# H-40 ST&C casing. Cement 180 Sx. of 35/65/6 Class "C" Premium Plus POZ + 5% Salt, + 5% MPA-5, + 0.7% Sodium Metasillicate, + 5# LCM/Sx. Yield 2.00, tail in with 200 Sx. of Class "C" cement + 2% CaCl, Yield 1.34, circulate cement to surface.
9 5/8"	Intermediate	Run and set 2600' of 9 5/8" 36# J-55 ST&C casing. Cement with 450 Sx. of 35/65 Class "C" Premium Plus cement + 4% Bentonite, + 5% Salt, + 5% MPA-5, + 0.7% Sodium Metasillicate, + 5# LCM/Sx. Yield 2.02, tail in with 200 Sx. of Class "C" cement + 2% CaCl, Yield 1.34, circulate cement to surface.
5 1/2"	Production	Run and set 11,440' of 5 1/2" casing as follows: 4640' of 5 1/2" 17# N-80 BT&C, 6800' of 5 1/2" 17# N-80 LT&C casing. Cement with 800 Sx. of Premium Plus Class "H" cement + 0.7% FL-62, + 0.4% BA-10A, + 0.1% FL-52, Yield 2.44, tail in with 607 Sx. of 50/50 Class "C" POZ, + 10% Bentonite, + 5% Salt, Yield 1.33, circulate cement to surface.

10. PRESSURE CONTROL EQUIPMENT: Exhibit "E" shows a 900 Series 3000 PSI working pressure B.O.P. consisting of an annular bag type preventor, middle blind rams, and bottom pipe rams. The B.O.P. will be nipped up on the 13 3/8" casing and tested to API specifications. The B.O.P. will be operated at least once in each 24 hour period and the blind rams will be worked when the drill pipe is out of the hole while on trips. Akelly cock will be in the drilling string at all times. A full opening stabbing valve will be on the dreeick floor at all times. Exhibit "E-1" shows a hydraulically operated closing unit and a 3" 5000 PSI working pressure choke manifold with dual adjustable chokes. No abnormal pressures or temperatures are expected while drilling this well.

11. MUD CIRCULATING SYSTEM:

11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD WT.	VISC.	WATER LOSS	TYPE MUD SYSTEM
40-450'	8.6-8.8	30-38	NC	Fresh water Spud mud add paper to contril seepage.
450-2600'	10.0-10.2	29-32	NC	Brine water use paper to control seepage and high viscosity sweeps to clean hole.
* 2600-8300'	8.6-10.1	29-34	NC	Fresh water going to brine add paper to control seepage and use high viscosity sweeps to clean hole.
8300-11.440'	8.6-10.2	34-38	12 cc or less	Same as above add Dynazan//Starch and HB-411 to control water loss and wall cake buildup.

See  
COR

See  
COR

\* 8300' is the TVD of well prior to setting a cement plug to start curve for horizontal well bore.

Sufficient mud materials will be kept on location at all times in order to combat lost circulation , and/or unexpected kicks. In order to run open hole logs, casing, Cores or DST's the mud system may have to be altered to meet these needs and conditions.



12. LOGGING, CORING, AND TESTING PROGRAM:

- A. Open hole logs: Dual Laterolog, SNP, LDT, Gamma Ray, Caliper from 8300' back to the 9 5/8" casing shoe.
- B. Gamma Ray, Neutron from 9 5/8" casing shoe back to surface.
- C. Mud logger will be rigged up on the hole at the Geologists decision
- D. No DST's are planned at this time. Sidewall cores TBD. Gamma Ray in horizontal via MWD.

13. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are expected. There is no known presence of H<sup>2</sup>S in this area. If H<sup>2</sup>S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 4300 PSI, and Estimated BHT 165°.

14. ANTICIPATED STARTING DATE AND DURATION OF OPERATION:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operation and drilling is expected to take 40 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flowlines in order to place well on production.

15. OTHER FACETS OF OPERATIONS:

After running casing, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The BONE SPRING formation will be perforated and stimulated in order to establish production. The well will be swab tested and potentialized as an oil well.

**DRILLING PROGRAM****Geologic Name of Surface Formation:**

Permian

**FORMATION TOPS / ANTICIPATED FRESH WATER, OIL, or GAS / PRESSURES**

<u>Formation</u>	<u>Depth</u>	<u>Frm Pres</u>	<u>Remarks</u>
Base of Salt	2400'	10 ppge	Drig fluid must be saturated salt water
Lamar	2690'	8.4 ppge	Oil / Gas / Formation water
Bell Canyon	2720'	8.4 ppge	Oil / Gas / Formation water /Poss.H <sub>2</sub> S
Cherry Canyon	3590'	8.4 ppge	Oil / Gas / Formation water
Brushy Canyon	4800'	8.4 ppge	Oil / Gas / Formation water
Bone Spring	6450'	8.4 ppge	Oil / Gas / Formation water
1 <sup>st</sup> Bone Spring	7330'	8.4 ppge	Oil / Gas / Formation water
2 <sup>nd</sup> Bone Spring	8050'	8.4 ppge	Oil / Gas / Formation water

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 450' and circulating cement back to surface. Potash/ fresh water sands will be protected by setting 9 5/8" casing at 2600' and circulating cement to the surface. The hydrocarbon producing intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement to surface.

**CASING PROGRAM:**

<u>HOLE SIZE</u>	<u>DEPTH</u>	<u>OD Csg</u>	<u>WEIGHT</u>	<u>COLLAR</u>	<u>GRADE</u>	<u>NEW/USED</u>
17 1/2"	0-450' <i>See COX</i>	13 3/8"	48	STC	H40	New
12 1/4"	0-2600'	9 5/8"	36	STC	J55	New
8 3/4"	0-6800'	5 1/2"	17	LTC	N80	New
	6800-11440	5 1/2"	17	BTC	N80	New
<u>DEPTH</u>	<u>OD Csg</u>	<u>WEIGHT</u>	<u>factors: Burst / Collapse / Tension</u>			
0-450' <i>See COX</i>	13 3/8"	48	3.20	1.43	2.3	
0-2600'	9 5/8"	36	2.93	1.49	4.2	
0-11440' MD	5 1/2"	17	2.33	1.58	1.79	

(51/2 Burst &amp; Collapse Calculated @ 7670' TVD)

**CEMENT PROGRAM:**

**13 3/8" Surface**

Spacer .....50 bbls of fresh water  
 Slurry .....Lead: 35:65:6 – Poz: Prem Plus C + 6% Bentonite + 5% salt + 5% MPA-5 + .7% Sodium Metasilicate + 5 lbs LCM + 97.9 fresh water  
 Tail: Premium Plus C + 2% CaCl<sub>2</sub> + 56.4% Fresh Water

<b>Cement Properties</b>	<b>Lead</b>	<b>Tail</b>
Est Volume (sacks)	180	200
Density (ppg)	12.80	14.80
Yield (ft <sup>3</sup> /sx)	2.00	1.34
Mix Water, gps	10.21	6.36
Thickening Time, hrs:min		~3:30
Free Water, %		0
Fluid Loss, cc's		~850
Top of Cement	surface	

**9 5/8" Intermediate**

Spacer .....30 bbls of fresh water  
 Lead ..... 35:65 – Poz: Prem Plus C + 4% Bentonite + 5% salt + 5% MPA-5 + .7% Sodium Metasilicate + 5 lbs LCM + 99.6% fresh water  
 Tail .....C + 2% CaCl<sub>2</sub> + 56.4% fresh water

<b>Cement Properties</b>	<b>Lead</b>	<b>Tail</b>
Est Volume (sacks)	450	200
Density (ppg)	12.7	14.8
Yield (ft <sup>3</sup> /sx)	2.02	1.34
Mix Water, gps	10.39	6.36
Thickening Time, hrs:min	4:07	3:32
Free Water, %	2.0	0
Fluid Loss, cc's	~750	~600
Top of Cement	surface	

**Kick-Off plug in Pilot Hole for Horizontal**

360 sx Premium Plus H + 1% CD-32 + 29.6% Fresh water  
 17.5 ppg / 0.94 cf/sx / 3.33 mix watr

**5 1/2" Production****Slurry Composition**

Spacer .....30 bbls FW  
 Lead .....Premium Plus H + .7% FL-62 + .4% BA-10A + .1% FL-52 + 45.8% Fresh water  
 Tail .....50:50 Poz C + 10% Bentonite + 5% NaCl + 139.7% Fresh water

**Cement Properties**

	<u>Lead</u>	<u>Tail</u>
Estimated Volume, sx	800	607
Density, ppg	11.8	14.8
Yield, cf/sk	2.44	1.33
Mix water required, gps	14.07	6.33
Free Water, %		
Fluid Loss, cc		
Top of cement, ft	surface	

The above cement volumes will be revised pending fluid and open hole caliper measurements.

**MUD PROPERTIES SUMMARY:**

Depth (feet)	Weight (ppg)	Viscosity (sec/1000cc)	Fluid Loss (cc/30min)	PV (cps)	YP (lb/100ft <sup>2</sup> )	Mud Type
0' - <del>450'</del> <i>See COP</i> Set 13-3/8" Casing	8.6 - 8.8	36 - 38	N/C	6 - 10	6 - 20	Spud Mud
<del>450'</del> - 2,600' Set 9-5/8" Casing	10.0 - 10.1	29 - 30	N/C	0 - 1	0 - 1	Brine
2,600' - 8,300' TVD Pilot Hole	8.4 - 10.0	28 - 29	N/C	0 - 1	0 - 1	Fresh Water To Brine
8,300' - 11,440' MD Set 5-1/2"	8.4 - 10.0	34 - 36	12 - 15	4 - 8	4 - 8	Dynazan / Starch HB 411

**Auxiliary Well Control & Monitoring Equipment:**

A Kelly cock will be in the drill string at all times.

A full opening drill pipe stabbing valve having the appropriate connections will be on the floor at all times.

H<sub>2</sub>S detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" csg is cemented.

**LOGGING, CORING, AND TESTING**

No logs at surface.

Mud loggers on below 13 3/8" casing shoe - no electric logs at intermediate depth

The Vertical Plot (Production) hole will be logged: GR / Dual Laterolog / Neutron-Density / Caliper  
Sidewall cores at depths TBD

No DST's or pressure testing is anticipated.

The horizontal lateral will be mud logged and GR via MWD.

**Potential Hazards:**

No abnormal pressures or temperatures are expected. There is no known presence of H<sub>2</sub>S in this area. If H<sub>2</sub>S is encountered the operator will comply with the provisions of Onshore Oil & Gas Order No.6. No loss circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP is 3750 psi. & BHT is 135° F.

**Anticipated Starting Date & Duration:**

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be after December 1, 2008. Move in and drilling operations will take 38 days with an additional 30 days to complete the well and construct production facilities.

# **OGX Resources**

**Eddy County**

**Momba 24 Fed #1**

**Momba 24**

**OH**

**Plan: Plan #1**

## **Patfinder X & Y Survey Report**

**14 November, 2008**





# Pathfinder Energy Services

## Pathfinder X & Y Survey Report

**Company:** OGX Resources  
**Project:** Eddy County  
**Site:** Momba 24 Fed #1  
**Well:** Momba 24  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Momba 24  
**TVD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**MD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

### Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-2,912.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
100.00	0.00	0.00	100.00	-2,812.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
200.00	0.00	0.00	200.00	-2,712.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
300.00	0.00	0.00	300.00	-2,612.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
400.00	0.00	0.00	400.00	-2,512.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
500.00	0.00	0.00	500.00	-2,412.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
600.00	0.00	0.00	600.00	-2,312.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
700.00	0.00	0.00	700.00	-2,212.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
800.00	0.00	0.00	800.00	-2,112.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
900.00	0.00	0.00	900.00	-2,012.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,000.00	0.00	0.00	1,000.00	-1,912.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,100.00	0.00	0.00	1,100.00	-1,812.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,200.00	0.00	0.00	1,200.00	-1,712.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,300.00	0.00	0.00	1,300.00	-1,612.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,400.00	0.00	0.00	1,400.00	-1,512.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,500.00	0.00	0.00	1,500.00	-1,412.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,600.00	0.00	0.00	1,600.00	-1,312.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,700.00	0.00	0.00	1,700.00	-1,212.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,800.00	0.00	0.00	1,800.00	-1,112.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
1,900.00	0.00	0.00	1,900.00	-1,012.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
2,000.00	0.00	0.00	2,000.00	-912.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
2,100.00	0.00	0.00	2,100.00	-812.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
2,200.00	0.00	0.00	2,200.00	-712.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
2,300.00	0.00	0.00	2,300.00	-612.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
2,400.00	0.00	0.00	2,400.00	-512.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
<b>Base of Salt</b>										
2,500.00	0.00	0.00	2,500.00	-412.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50

# Pathfinder Energy Services

## Pathfinder X & Y Survey Report

**Company:** OGX Resources  
**Project:** Eddy County  
**Site:** Momba 24 Fed #1  
**Well:** Momba 24  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Momba 24  
**TVD Reference:** WELL @ 2912 00ft (Original Well Elev)  
**MD Reference:** WELL @ 2912 00ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

Planned Survey												
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (%/100ft)	Northing (ft)	Easting (ft)		
2,600.00	0.00	0.00	2,600.00	-312.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
2,690.00	0.00	0.00	2,690.00	-222.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
<b>Lamar</b>												
2,700.00	0.00	0.00	2,700.00	-212.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
2,720.00	0.00	0.00	2,720.00	-192.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
<b>Bell Canyon</b>												
2,800.00	0.00	0.00	2,800.00	-112.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
2,900.00	0.00	0.00	2,900.00	-12.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,000.00	0.00	0.00	3,000.00	88.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,100.00	0.00	0.00	3,100.00	188.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,200.00	0.00	0.00	3,200.00	288.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,300.00	0.00	0.00	3,300.00	388.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,400.00	0.00	0.00	3,400.00	488.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,500.00	0.00	0.00	3,500.00	588.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,590.00	0.00	0.00	3,590.00	678.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
<b>Cherry Canyon</b>												
3,600.00	0.00	0.00	3,600.00	688.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,700.00	0.00	0.00	3,700.00	788.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,800.00	0.00	0.00	3,800.00	888.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
3,900.00	0.00	0.00	3,900.00	988.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
4,000.00	0.00	0.00	4,000.00	1,088.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
4,100.00	0.00	0.00	4,100.00	1,188.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
4,200.00	0.00	0.00	4,200.00	1,288.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
4,300.00	0.00	0.00	4,300.00	1,388.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
4,400.00	0.00	0.00	4,400.00	1,488.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
4,500.00	0.00	0.00	4,500.00	1,588.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		
4,600.00	0.00	0.00	4,600.00	1,688.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50		

# Pathfinder Energy Services

## Patfinder X & Y Survey Report

**Company:** OGX Resources  
**Project:** Eddy County  
**Site:** Momba 24 Fed #1  
**Well:** Momba 24  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Momba 24  
**TVD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**MD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

### Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
4,700.00	0.00	0.00	4,700.00	1,788.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
4,800.00	0.00	0.00	4,800.00	1,888.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
<b>Brushy Canyon</b>										
4,900.00	0.00	0.00	4,900.00	1,988.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,000.00	0.00	0.00	5,000.00	2,088.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,100.00	0.00	0.00	5,100.00	2,188.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,200.00	0.00	0.00	5,200.00	2,288.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,300.00	0.00	0.00	5,300.00	2,388.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,400.00	0.00	0.00	5,400.00	2,488.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,500.00	0.00	0.00	5,500.00	2,588.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,600.00	0.00	0.00	5,600.00	2,688.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,700.00	0.00	0.00	5,700.00	2,788.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,800.00	0.00	0.00	5,800.00	2,888.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
5,900.00	0.00	0.00	5,900.00	2,988.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,000.00	0.00	0.00	6,000.00	3,088.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,100.00	0.00	0.00	6,100.00	3,188.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,200.00	0.00	0.00	6,200.00	3,288.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,300.00	0.00	0.00	6,300.00	3,388.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,400.00	0.00	0.00	6,400.00	3,488.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,450.00	0.00	0.00	6,450.00	3,538.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
<b>Bone Spring</b>										
6,500.00	0.00	0.00	6,500.00	3,588.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,600.00	0.00	0.00	6,600.00	3,688.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,700.00	0.00	0.00	6,700.00	3,788.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,800.00	0.00	0.00	6,800.00	3,888.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,900.00	0.00	0.00	6,900.00	3,988.00	0.00	0.00	0.00	0.00	376,015.60	592,478.50
6,922.50	0.00	0.00	6,922.50	4,010.50	0.00	0.00	0.00	0.00	376,015.60	592,478.50

KOP - 6922.50°MD, 0.00°INC, 0.00°AZI, 6922.50°TVD

**Pathfinder Energy Services**  
 Pathfinder X & Y Survey Report

**Company:** OGX Resources  
**Project:** Eddy County  
**Site:** Momba 24 Fed #1  
**Well:** Momba 24  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Momba 24  
**TVD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**MD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

Planned Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg (%/100ft)	Northing (ft)	Easting (ft)	
6,925.00	0.30	175.31	6,925.00	4,013.00	-0.01	0.00	0.01	12.00	376,015.59	592,478.50	
6,950.00	3.30	175.31	6,949.98	4,037.98	-0.79	0.06	0.79	12.00	376,014.81	592,478.56	
6,975.00	6.30	175.31	6,974.89	4,062.89	-2.87	0.24	2.88	12.00	376,012.73	592,478.74	
7,000.00	9.30	175.31	6,999.66	4,087.66	-6.25	0.51	6.28	12.00	376,009.35	592,479.01	
7,025.00	12.30	175.31	7,024.21	4,112.21	-10.92	0.90	10.96	12.00	376,004.68	592,479.40	
7,050.00	15.30	175.31	7,048.49	4,136.49	-16.86	1.38	16.92	12.00	375,998.74	592,479.88	
7,075.00	18.30	175.31	7,072.42	4,160.42	-24.06	1.97	24.15	12.00	375,991.54	592,480.47	
7,100.00	21.30	175.31	7,095.94	4,183.94	-32.50	2.67	32.61	12.00	375,983.10	592,481.17	
7,125.00	24.30	175.31	7,118.98	4,206.98	-42.16	3.46	42.30	12.00	375,973.44	592,481.96	
7,150.00	27.30	175.31	7,141.49	4,229.49	-53.00	4.35	53.18	12.00	375,962.60	592,482.85	
7,175.00	30.30	175.31	7,163.40	4,251.40	-65.00	5.33	65.22	12.00	375,950.60	592,483.83	
7,200.00	33.30	175.31	7,184.64	4,272.64	-78.13	6.41	78.39	12.00	375,937.47	592,484.91	
7,225.00	36.30	175.31	7,205.17	4,293.17	-92.35	7.58	92.66	12.00	375,923.25	592,486.08	
7,250.00	39.30	175.31	7,224.92	4,312.92	-107.61	8.83	107.98	12.00	375,907.99	592,487.33	
7,275.00	42.30	175.31	7,243.84	4,331.84	-123.89	10.16	124.31	12.00	375,891.71	592,488.66	
7,300.00	45.30	175.31	7,261.89	4,349.89	-141.14	11.58	141.61	12.00	375,874.46	592,490.08	
7,325.00	48.30	175.31	7,279.00	4,367.00	-159.30	13.07	159.83	12.00	375,856.30	592,491.57	
7,350.00	51.30	175.31	7,295.14	4,383.14	-178.32	14.63	178.92	12.00	375,837.28	592,493.13	
7,375.00	54.30	175.31	7,310.25	4,398.25	-198.17	16.26	198.83	12.00	375,817.43	592,494.76	
7,400.00	57.30	175.31	7,324.30	4,412.30	-218.77	17.95	219.51	12.00	375,796.83	592,496.45	
7,410.73	58.58	175.31	7,330.00	4,418.00	-227.84	18.69	228.60	12.00	375,787.76	592,497.19	
<b>1st Bone Spring Sd</b>											
7,425.00	60.30	175.31	7,337.25	4,425.25	-240.08	19.70	240.89	12.00	375,775.52	592,498.20	
7,450.00	63.30	175.31	7,349.07	4,437.07	-262.04	21.50	262.92	12.00	375,753.56	592,500.00	
7,475.00	66.30	175.31	7,359.71	4,447.71	-284.58	23.35	285.53	12.00	375,731.02	592,501.85	
7,500.00	69.29	175.31	7,369.16	4,457.16	-307.64	25.24	308.68	12.00	375,707.96	592,503.74	
7,525.00	72.29	175.31	7,377.38	4,465.38	-331.17	27.17	332.28	12.00	375,684.43	592,505.67	

# Pathfinder Energy Services

## Patfinder X & Y Survey Report

**Company:** OGX Resources  
**Project:** Eddy County  
**Site:** Momba 24 Fed #1  
**Well:** Momba 24  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Momba 24  
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**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

### Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,550.00	75.29	175.31	7,384.36	4,472.36	-355.09	29.13	356.29	12.00	375,660.51	592,507.63
7,575.00	78.29	175.31	7,390.07	4,478.07	-379.35	31.12	380.62	12.00	375,636.25	592,509.62
7,600.00	81.29	175.31	7,394.50	4,482.50	-403.87	33.13	405.22	12.00	375,611.73	592,511.63
7,625.00	84.29	175.31	7,397.63	4,485.63	-428.58	35.16	430.02	12.00	375,587.02	592,513.66
7,650.00	87.29	175.31	7,399.47	4,487.47	-453.43	37.20	454.95	12.00	375,562.17	592,515.70
7,672.56	90.00	175.31	7,400.00	4,488.00	-475.90	39.04	477.50	12.00	375,539.70	592,517.54
7,672.67	90.00	175.31	7,400.00	4,488.00	-476.02	39.05	477.61	0.00	375,539.58	592,517.55
<b>Land Curve- 7672.67°MD, 90.00°INC, 175.31°AZI, 7400.00°TVD, 0.00°DLS</b>										
7,692.37	90.00	175.31	7,400.00	4,488.00	-495.65	40.66	497.31	0.00	375,519.95	592,519.16
7,700.00	90.00	175.31	7,400.00	4,488.00	-503.25	41.29	504.94	0.00	375,512.35	592,519.79
7,800.00	90.00	175.31	7,400.00	4,488.00	-602.92	49.46	604.94	0.00	375,412.68	592,527.96
7,900.00	90.00	175.31	7,400.00	4,488.00	-702.58	57.64	704.94	0.00	375,313.02	592,536.14
8,000.00	90.00	175.31	7,400.00	4,488.00	-802.25	65.82	804.94	0.00	375,213.35	592,544.32
8,100.00	90.00	175.31	7,400.00	4,488.00	-901.91	73.99	904.94	0.00	375,113.69	592,552.49
8,200.00	90.00	175.31	7,400.00	4,488.00	-1,001.58	82.17	1,004.94	0.00	375,014.02	592,560.67
8,300.00	90.00	175.31	7,400.00	4,488.00	-1,101.25	90.35	1,104.94	0.00	374,914.35	592,568.85
8,400.00	90.00	175.31	7,400.00	4,488.00	-1,200.91	98.52	1,204.94	0.00	374,814.69	592,577.02
8,500.00	90.00	175.31	7,400.00	4,488.00	-1,300.58	106.70	1,304.94	0.00	374,715.02	592,585.20
8,600.00	90.00	175.31	7,400.00	4,488.00	-1,400.24	114.87	1,404.94	0.00	374,615.36	592,593.37
8,700.00	90.00	175.31	7,400.00	4,488.00	-1,499.91	123.05	1,504.94	0.00	374,515.69	592,601.55
8,800.00	90.00	175.31	7,400.00	4,488.00	-1,599.57	131.23	1,604.94	0.00	374,416.03	592,609.73
8,900.00	90.00	175.31	7,400.00	4,488.00	-1,699.24	139.40	1,704.94	0.00	374,316.36	592,617.90
9,000.00	90.00	175.31	7,400.00	4,488.00	-1,798.90	147.58	1,804.94	0.00	374,216.70	592,626.08
9,100.00	90.00	175.31	7,400.00	4,488.00	-1,898.57	155.76	1,904.94	0.00	374,117.03	592,634.26
9,200.00	90.00	175.31	7,400.00	4,488.00	-1,998.23	163.93	2,004.94	0.00	374,017.37	592,642.43
9,300.00	90.00	175.31	7,400.00	4,488.00	-2,097.90	172.11	2,104.94	0.00	373,917.70	592,650.61
9,400.00	90.00	175.31	7,400.00	4,488.00	-2,197.56	180.29	2,204.94	0.00	373,818.04	592,658.79

# Pathfinder Energy Services

## Patfinder X & Y Survey Report

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**Site:** Momba 24 Fed #1  
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**Database:** EDM 2003.16 Single User Db

Planned Survey												
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)		
9,500.00	90.00	175.31	7,400.00	4,488.00	-2,297.23	188.46	2,304.94	0.00	373,718.37	592,666.96		
9,600.00	90.00	175.31	7,400.00	4,488.00	-2,396.89	196.64	2,404.94	0.00	373,618.71	592,675.14		
9,700.00	90.00	175.31	7,400.00	4,488.00	-2,496.56	204.82	2,504.94	0.00	373,519.04	592,683.32		
9,800.00	90.00	175.31	7,400.00	4,488.00	-2,596.22	212.99	2,604.94	0.00	373,419.38	592,691.49		
9,900.00	90.00	175.31	7,400.00	4,488.00	-2,695.89	221.17	2,704.94	0.00	373,319.71	592,699.67		
10,000.00	90.00	175.31	7,400.00	4,488.00	-2,795.55	229.35	2,804.94	0.00	373,220.05	592,707.85		
10,100.00	90.00	175.31	7,400.00	4,488.00	-2,895.22	237.52	2,904.94	0.00	373,120.38	592,716.02		
10,200.00	90.00	175.31	7,400.00	4,488.00	-2,994.88	245.70	3,004.94	0.00	373,020.72	592,724.20		
10,300.00	90.00	175.31	7,400.00	4,488.00	-3,094.55	253.87	3,104.94	0.00	372,921.05	592,732.37		
10,400.00	90.00	175.31	7,400.00	4,488.00	-3,194.21	262.05	3,204.94	0.00	372,821.39	592,740.55		
10,500.00	90.00	175.31	7,400.00	4,488.00	-3,293.88	270.23	3,304.94	0.00	372,721.72	592,748.73		
10,600.00	90.00	175.31	7,400.00	4,488.00	-3,393.54	278.40	3,404.94	0.00	372,622.06	592,756.90		
10,700.00	90.00	175.31	7,400.00	4,488.00	-3,493.21	286.58	3,504.94	0.00	372,522.39	592,765.08		
10,800.00	90.00	175.31	7,400.00	4,488.00	-3,592.87	294.76	3,604.94	0.00	372,422.73	592,773.26		
10,900.00	90.00	175.31	7,400.00	4,488.00	-3,692.54	302.93	3,704.94	0.00	372,323.06	592,781.43		
11,000.00	90.00	175.31	7,400.00	4,488.00	-3,792.20	311.11	3,804.94	0.00	372,223.40	592,789.61		
11,100.00	90.00	175.31	7,400.00	4,488.00	-3,891.87	319.29	3,904.94	0.00	372,123.73	592,797.79		
11,200.00	90.00	175.31	7,400.00	4,488.00	-3,991.53	327.46	4,004.94	0.00	372,024.07	592,805.96		
11,300.00	90.00	175.31	7,400.00	4,488.00	-4,091.20	335.64	4,104.94	0.00	371,924.40	592,814.14		
11,400.00	90.00	175.31	7,400.00	4,488.00	-4,190.87	343.82	4,204.94	0.00	371,824.73	592,822.32		
11,440.48	90.00	175.31	7,400.00	4,488.00	-4,231.20	347.20	4,245.42	0.00	371,784.40	592,825.70		
<b>PBHL(Momba 24)</b>												

**Pathfinder Energy Services**  
 Patfinder X & Y Survey Report

**Company:** OGX Resources  
**Project:** Eddy County  
**Site:** Momba 24 Fed #1  
**Well:** Momba 24  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Momba 24  
**TVD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**MD Reference:** WELL @ 2912.00ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 2003.16 Single User Db

**Targets**

Target Name - hit/miss target Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL(Momba 24) - plan hits target - Point	0.00	360.00	7,400.00	-4,231.20	347.20	371,784.400	592,825.700	32° 36' 16.009 N	102° 4' 15.782 W

**Formations**

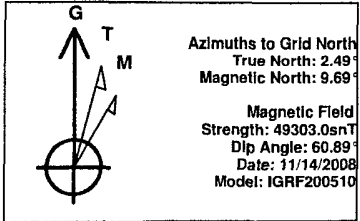
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	8,050.00	2nd Bone Spring Sd		0.00	
6,450.00	6,450.00	Bone Spring		0.00	
3,590.00	3,590.00	Cherry Canyon		0.00	
2,400.00	2,400.00	Base of Salt		0.00	
2,690.00	2,690.00	Lamar		0.00	
7,410.73	7,330.00	1st Bone Spring Sd		0.00	
2,720.00	2,720.00	Bell Canyon		0.00	
4,800.00	4,800.00	Brushy Canyon		0.00	

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,922.50	6,922.50	0.00	0.00	KOP - 6922.50'MD, 0.00°INC, 0.00°AZI, 6922.50'TVD
7,672.67	7,400.00	-476.02	39.05	Land Curve- 7672.67'MD, 90.00°INC, 175.31°AZI, 7400.00'TVD, 0.00°I
11,440.48	7,400.00	-4,231.20	347.20	TD @ 11440.48' MD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

# OGX Resources



**WELL DETAILS: Momba 24**

Ground Elevation: 2912.00  
 RKB Elevation: WELL @ 2912.00ft (Original Well Elev)  
 Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	376015.600	592478.500	32° 36' 57.691 N	102° 4' 21.990 W	

**SECTION DETAILS**

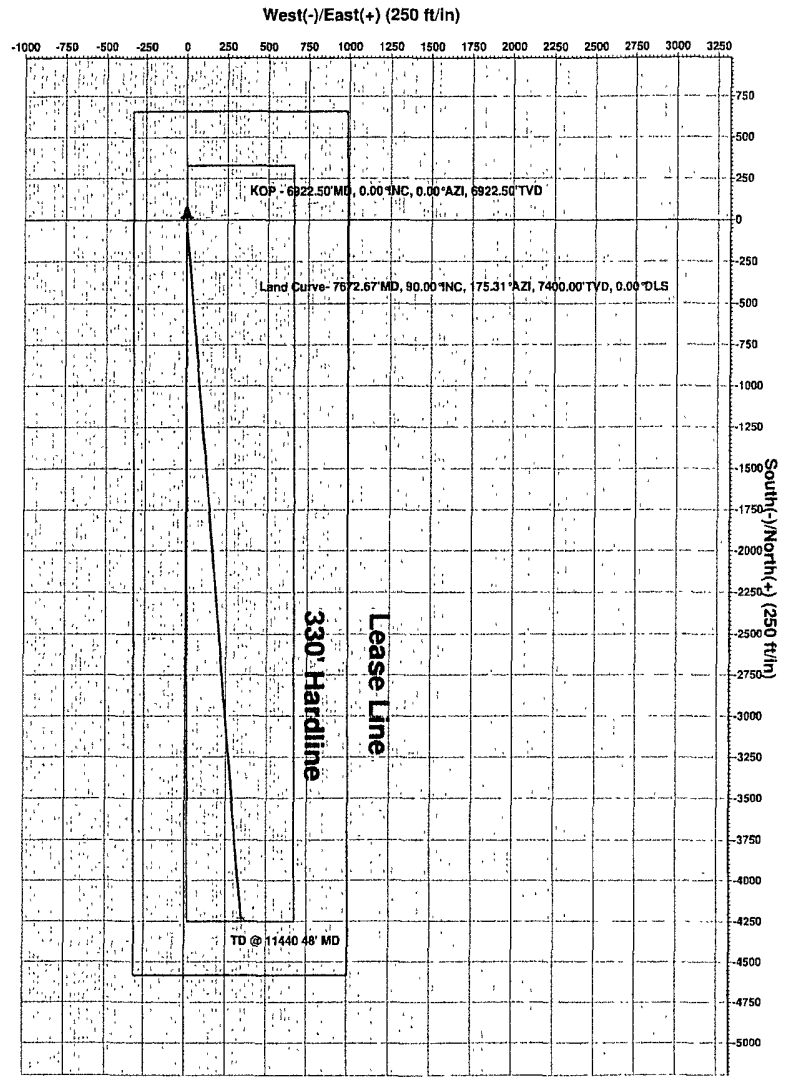
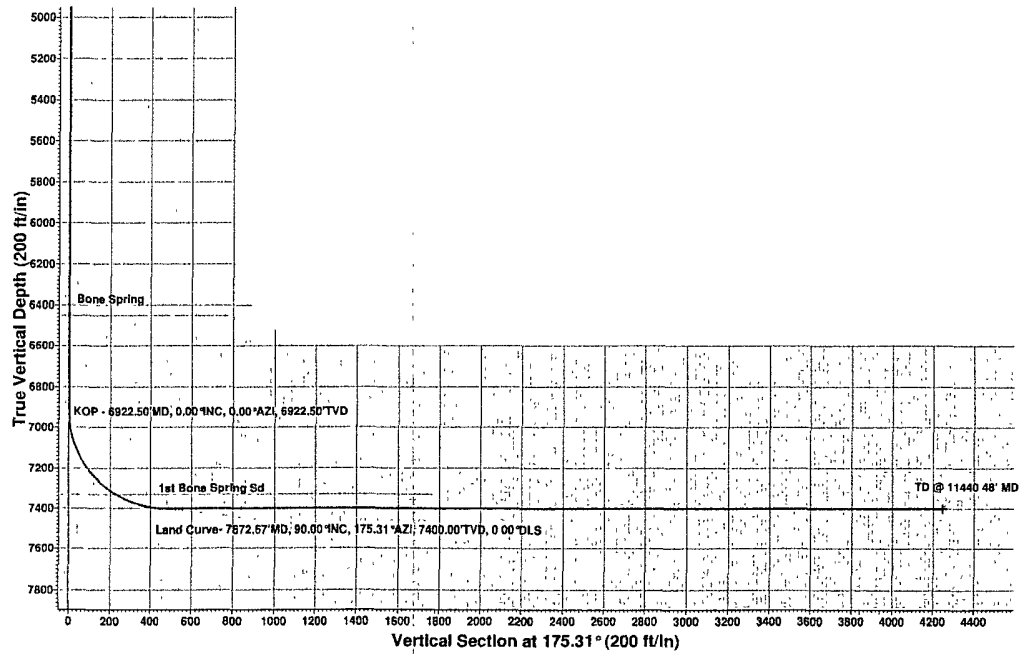
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSac	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	6922.50	0.00	0.00	6922.50	0.00	0.00	0.00	0.00	0.00	0.00
3	7672.56	90.00	175.31	7400.00	-475.90	39.04	12.00	175.31	477.50	
4	7692.37	90.00	175.31	7400.00	-495.65	40.66	0.00	0.00	497.31	
5	11440.48	90.00	175.31	7400.00	-4231.20	347.20	0.00	0.00	4245.42	PBHL(Momba 24)

**WELLBORE TARGET DETAILS (MAP CO-ORDINATES)**

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape Point
PBHL(Momba 24)	7400.00	-4231.20	347.20	371784.400	592825.700	

**Project: Eddy County**  
**Site: Momba 24 Fed #1**  
**Well: Momba 24**  
**Wellbore: OH**  
**Plan: Plan #1 (Momba 24/OH)**

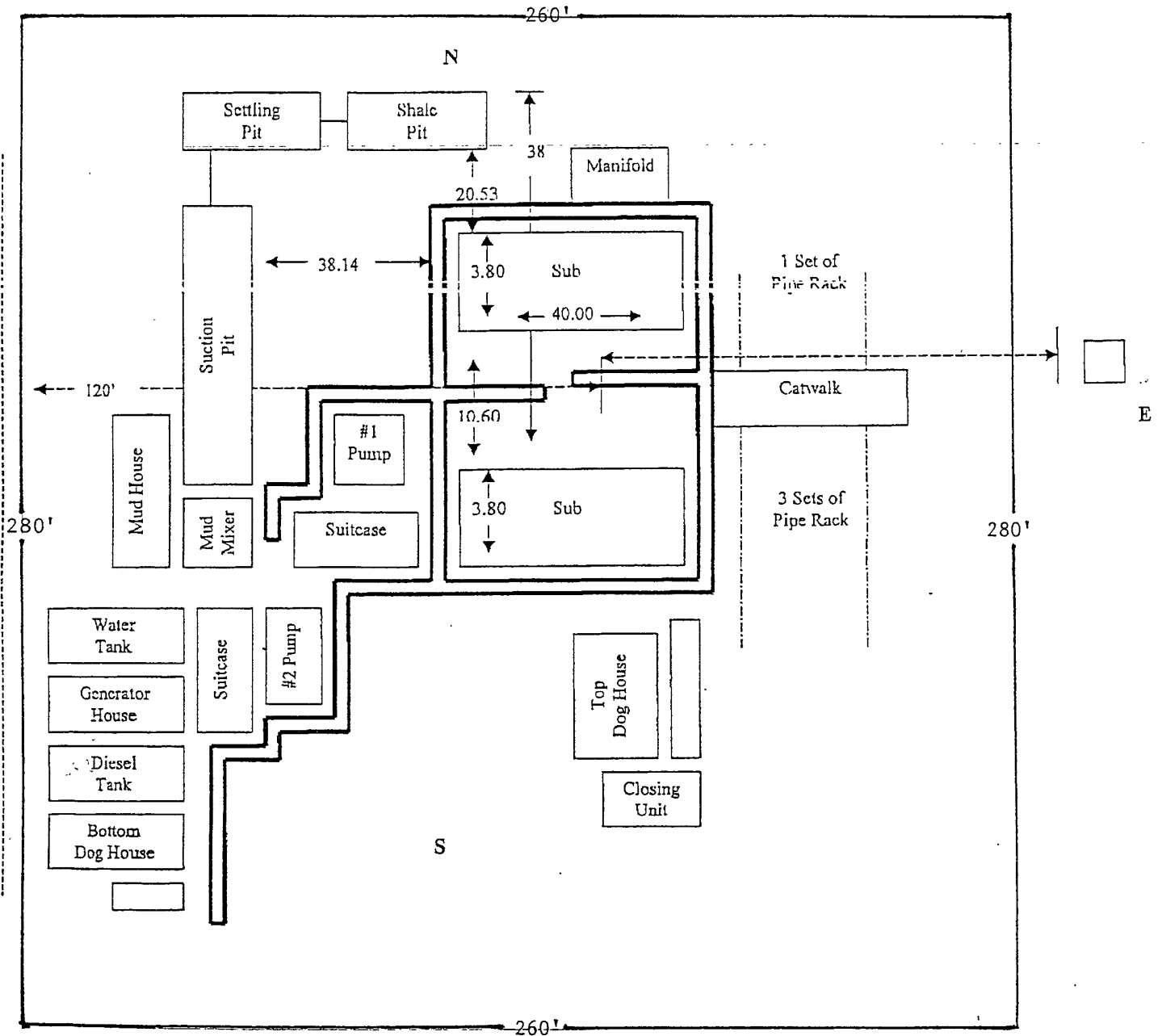
**PROJECT DETAILS: Eddy County**  
 Geodetic System: US State Plane 1927 (Exact solution)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: Texas North Central 4202  
 System Datum: Mean Sea Level  
 Local North: Grid



Plan Plan #1 (Momba 24/OH)  
 Created By: Aaron Pullin Date: 17:05, November 14 2008  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

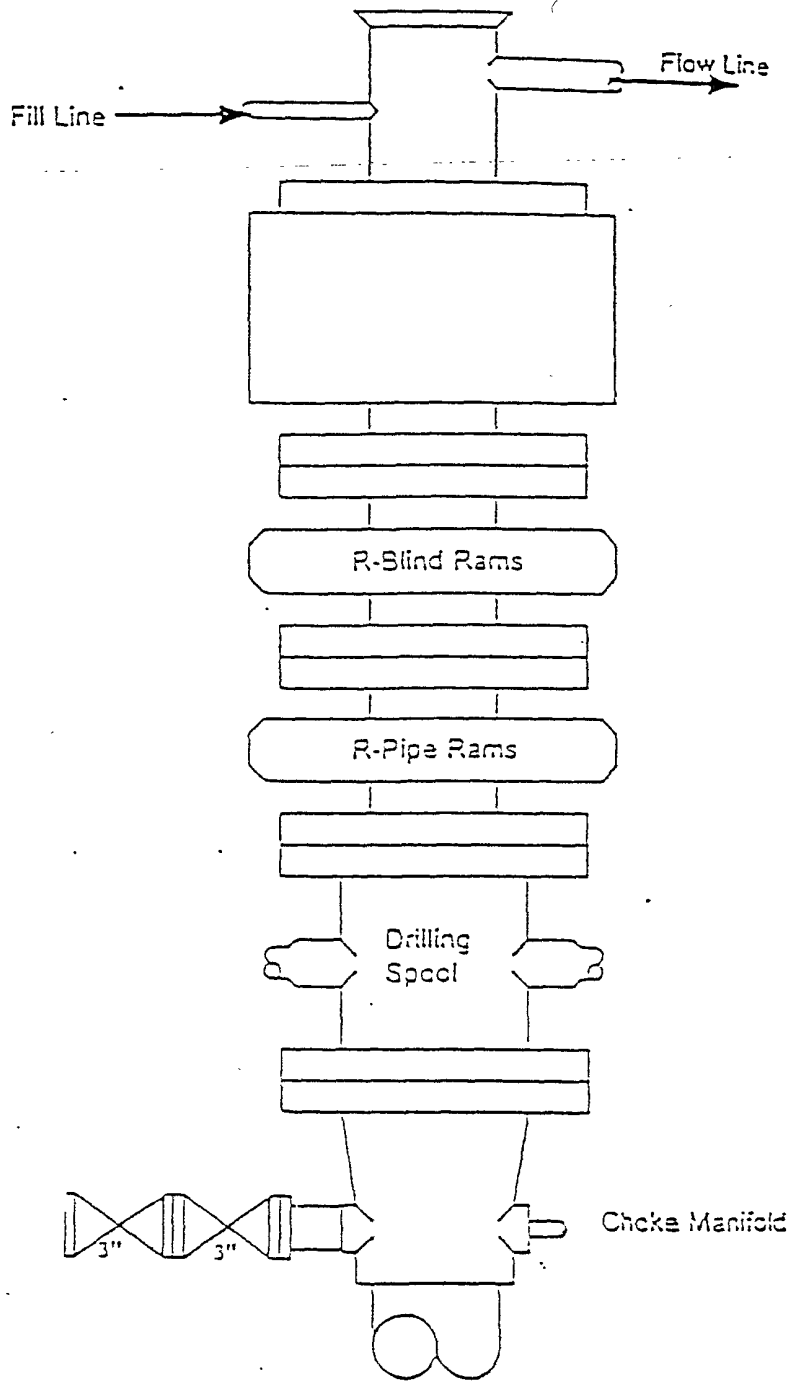


# Rig Plat For Closed Loop Mud System



## EXHIBIT "D" RIG LAY OUT PLAT

OGX RESOURCES, LLC.  
 MOMBA "24" FEDERAL # 1H  
 UNIT "A" SECTION 24  
 T26S-R28E EDDY CO. NM



Type 900 Series  
3000 psi WP

EXHIBIT "E"  
SKETCH OF B.O.P. TO BE USED ON

OGX RESOURCES, LLC.  
MOMBA "24" FEDERAL # 1H  
UNIT "A" SECTION 24  
T26S-R28E EDDY CO. NM

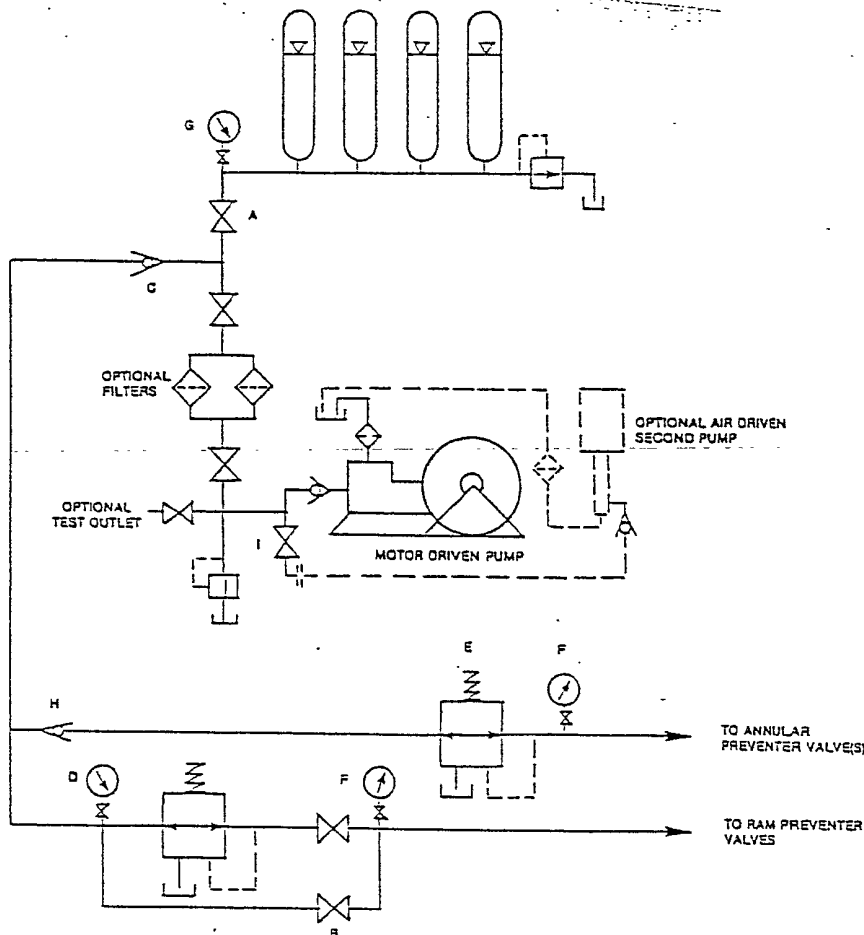


FIGURE K6-1. The schematic sketch of an accumulator system shows required and optional components.

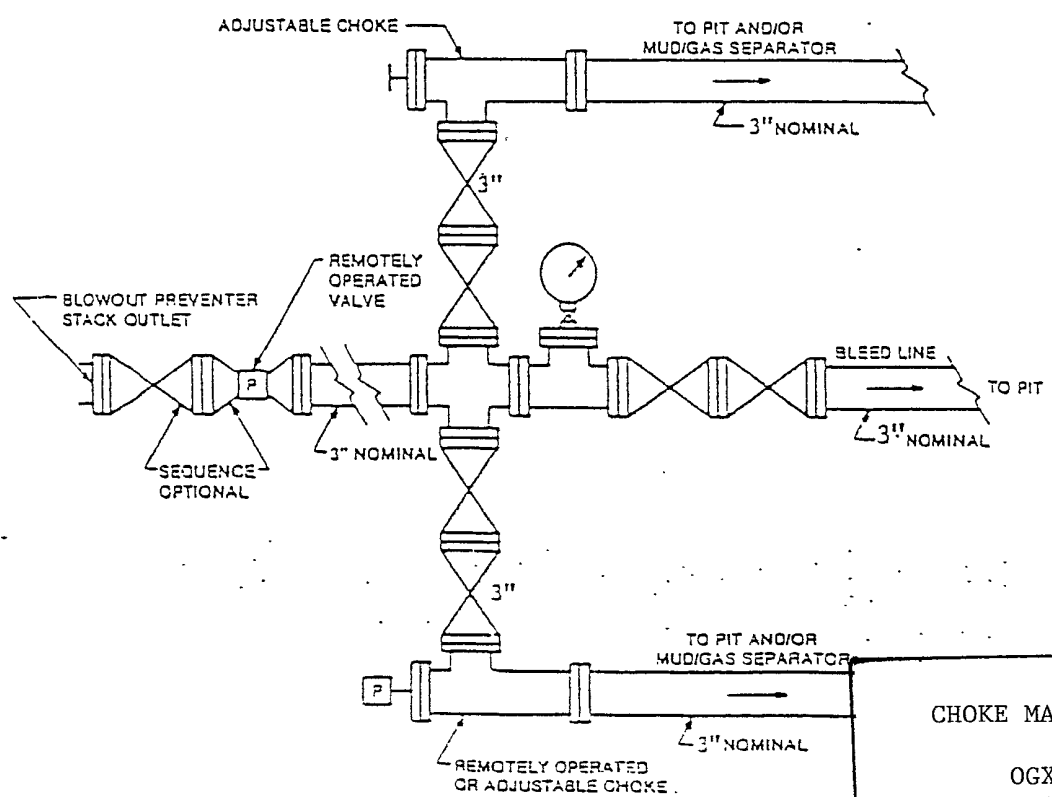


FIGURE K4-2. Typical choke manifold assembly for 5000 rated work pressure service — surface installation.

EXHIBIT "E-1"  
CHOKE MANIFOLD & CLOSING UNIT

OGX RESOURCES, LLC.  
MOMBA "24" FEDERAL # 1H  
UNIT "A" SECTION 24  
T26S-R28E EDDY CO. NM

OGX RESOURCES, LLC.

HYDROGEN SULFIDE CONTINGENCY PLAN  
FOR DRILLING/WORKOVER/FACILITY

This well and its anticipated facility are not expected to have Hydrogen Sulfide releases. However, there may be Hydrogen Sulfide production in the nearby area. There are no Private residences in the area but a contingency plan has been orchestrated. OGX RESOURCES, LLC. Will have a company representative available to rig personnel throughout drilling or production operations. If Hydrogen Sulfide is detected or suspected, monitoring equipment will be acquired for monitoring and/or testing.

OGX RESOURCES, LLC.

HYDROGEN SULFIDE CONTINGENCY PLAN  
FOR DRILLING/WORKOVER/FACILITY

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# OGX RESOURCES, LLC.

## HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

### General H2S Emergency Actions:

1. All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".
2. If for any reason a person must enter the hazardous area, they must wear a SCBA (Self Contained Breathing Apparatus).
3. Always use the "buddy system"
4. Isolate the well/problem if possible
5. Account for all personnel
6. Display the proper colors warning all unsuspecting personnel of the danger at hand.
7. Contact the Company personnel as soon as possible if not at the location (use the enclosed call list as instructed)

**At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of the emergency response agencies and nearby residents.**

### EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1. All personnel will don the self contained breathing apparatus
2. Remove all personnel to the "safe area" (always use the buddy system)
3. Contact company personnel if not on location]
4. Set in motion the steps to protect and or remove the general public to and upwind "safe area" Maintain strict security & safety procedures while dealing with the source.
5. No entry to any unauthorized personnel
6. Notify the appropriate agencies: City Police – City Street(s)  
State Police – State Rd.  
County Sheriff – County Rd.
7. Call the NMOCD

OGX RESOURCES, LLC.

HYDROGEN SULFIDE CONTINGENCY PLAN  
FOR DRILLING/WORKOVER/FACILITY

If at this time the supervising person determines the release of H<sub>2</sub>S cannot be contained to the site location and the general public is in harms way he will take the necessary steps to protect the workers and the public.

EMERGENCY CALL LIST: (Start and continue until ONE of these people has been contacted)

	OFFICE	MOBILE	HOME
Jeff Birkelbach	432-685-1287	432-694-7880	432-553-0391
Donny Leek		432-634-4862	432-399-4489
JW Drilling Co	575-748-8704	575-513-2415 575-513-0321	
State Police	Eddy County		575 -748-9718
State Police	Lea County		575-392-5588
Sheriff	Eddy County		575-746-2701
Sheriff	Lea County		
Emergency Medical Service (Ambulance)	Eddy County Lea County	Eunice	911 or 575-746-2701 911 or 575-394-3258
Emergency Response	Eddy County SERC Lea County		575-476-9620
Artesia Police Dept			575--746-5001
Artesia Fire Dept			575--746-5001
Carlsbad Police Dept			575-885-2111
Carlsbad Fire Dept			575--885-3125

OGX RESOURCES, LLC.

HYDROGEN SULFIDE CONTINGENCY PLAN  
FOR DRILLING/WORKOVER/FACILITY

EMERGENCY CALL LIST (CONT.)

Loco Hills Police Dept		575- 677-2349
Jal Police Dept		575- 395-2501
Jal Fire Dept		575- 395-2221
Jal Ambulance		575- 395-2221
Eunice Police Dept		575- 394-0112
Eunice Fire Dept		575- 394-3258
Eunice Ambulance		575- 394-3258
Hobbs Police Dept		575- 397-3365
Hobbs Fire Dept		575- 397-9308
NMOCD	District 1 (Lea, Roosevelt, Curry)	575- 393-6161
	District 2 (Eddy, Chavez)	575- 748-1283
Lea County Information		575- 393-8203
Callaway Safety	Eddy/Lea Counties	575- 392-2973
BJ Services	Artesia	575- 746-3140
	Hobbs	575- 392-5556
Halliburton	Artesia	1-800-523-2482
	Hobbs	1-800-523-2482
Wild Well Control	Midland	432-550-6202
	Mobile	432-553-1166



# OGX RESOURCES, LLC.

## HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

### PROTECTION OF THE GENERAL PUBLIC (ROE)

- 100 ppm at any public area (any place not associated with this site)
- 500 ppm at any public road (any road with the general public may travel)
- 100 ppm radius of ¼ mile in New Mexico will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture

### CALCULATIONS FOR THE 100 PPM (ROE) "PASQUILL-GIFFORD EQUATION"

$X = [(1.589) (\text{mole fraction}) (Q\text{-volume in std cu ft}) \text{ to the power of } (0.6258)]$

### CALCULATION FOR THE 500 PPM ROE:

$X = [(.4546) (\text{mole fraction}) (Q - \text{volume in std cu ft}) \text{ to the power of } (0.6258)]$

### Example:

If a well/facility has been determined to have 150 / 500 ppm H2S in the gas mixture and the well/facility is producing at a gas rate of 100 MCFPD then:

150 ppm  $X = [(1.589) (.00015) (100,000 \text{ cfd}) \text{ to the power of } (.6258)]$   
 $X = 7 \text{ ft.}$

500 ppm  $X = [(.4546) (.0005) (100,000 \text{ cfd}) \text{ to the power of } (.6258)]$   
 $X = 3.3 \text{ ft.}$

(These calculations will be forwarded to the appropriate District NMOCD office when Applicable)

### PUBLIC EVACUATION PLAN:

- Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
- A trained person in H2S safety shall monitor with detection equipment the H2S concentration, wind and area exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. (All monitoring equipment shall be UL approved, for use in class 1 groups A, B, C & D, Division 1, hazardous locations. All monitor will have a minimum capability of measuring H2S, oxygen and flammable values.)

## OGX RESOURCES, LLC.

### HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

- Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
- The company supervising personnel shall stay in communication with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

#### **PROCEDURE FOR IGNITING AN UNCONTROLABLE CONDITION:**

1. Human life and/or property are in danger.
2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

#### **INSTRUCTION FOR IGNITION:**

1. Two people are required. They must be equipped with positive pressure, self contained breathing apparatus and a "D" ring style full body, OSHA approved safety harness. Non flammable rope will be attached.
2. One of the people will be qualified safety person who will test the atmosphere for H<sub>2</sub>S, oxygen and LFL. The other person will be the company supervisor; he is responsible for igniting the well.
3. Ignite up wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25 mm flare gun shall be used, with a  $\pm$  500 ft. range to ignite the gas.
4. Prior to ignition, make a final check with combustible gases.
5. Following ignition, continue with the emergency actions & procedures as before.

# OGX RESOURCES, LLC.

## HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

### REQUIRED EMERGENCY EQUIPMENT:

#### 1. **Breathing apparatus:**

- Rescue packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity
- Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

#### 2. **Signage & Flagging:**

- One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
- A colored conditioned flag will be on display, reflecting the condition at the site at the time.

#### 3. **Briefing Area:**

- Two perpendicular areas will be designated by signs and readily accessible.

#### 4. **Wind Socks:**

- Two windsocks will be placed in strategic locations, visible from all angles.

#### 5. **H2S Detectors & Alarms:**

- The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible at 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer)
  - Rig Floor
  - Bell Nipple
  - End of flow line or where well bore fluid are being discharged.

#### 6. **Auxiliary Rescue Equipment:**

- Stretcher
- Two OSHA full body harness
- 100 ft. 5/8 inch OSHA approved rope.
- 1 – 20# class ABC fire extinguisher
- Communication via cell phones on location and vehicles on location.

# OGX RESOURCES, LLC.

## HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

### USING SELF CONTAINED BREATHING AIR EQUIPMENT (SCBA):

- (SCBA) SHOULD BE WORN WHEN ANY OF THE FOLLOWING ARE PERFORMED:
  - Working near the top or on the top of a tank
  - Disconnecting any line where H<sub>2</sub>S can reasonably be expected
  - Sampling air in the area to determine if toxic concentration of H<sub>2</sub>S can exist.
  - Working in areas where over 10 ppm on H<sub>2</sub>S has been detected.
  - At any time there is a doubt as the level of H<sub>2</sub>S in the area.
- All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.
- Facial hair and standard eyeglasses are not allowed with SCBA.
- Contact lenses are never allowed with SCBA.
- Air quality shall be continuously checked during the entire operation.
- After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.
- All SCBA shall be inspected monthly.

### RESCUE AND FIRST AID FOR VICTIMS OF HYDROGEN SULFIDE (H<sub>2</sub>S) POISONING:

- Do not panic
- Remain calm and think
- Get on the breathing apparatus

## OGX RESOURCES, LLC.

### HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

- Remove the victim to the safe breathing area as quickly as possible. Up wind and uphill from source or cross wind to achieve upwind.
- Notify emergency response personnel.
- Provide artificial respiration and or CPR, as necessary.
- Remove all contaminated clothing to avoid further exposure.
- A minimum of two personnel on location shall be trained in CPR and First Aid.

# OGX RESOURCES, LLC.

## HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

H2S is extremely toxic. The acceptable ceiling for eight hours of exposure is 10 ppm, which is .001% by volume. H2S is approximately 20% heavier than air (Sp. Gr = 1.19) (Air = 1) and colorless. It forms an explosive mixture with air between 4.3% and 46%. By volume hydrogen sulfide is almost as toxic as hydrogen cyanide and is 5-6 times more toxic than carbon monoxide.

COMMON NAME	CHEMICAL ABBREV.	SPECIFIC GRVTY.	THRESHOLD LIMITS	HAZARDOUS LIMITS	LETHAL CONCENTRATIONS
Hydrogen Sulfide	H2S	1.19	10 ppm 15 ppm	100 ppm/hr	600ppm
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Sulfur Dioxide	SO2	2.21	2 ppm	N/A	1000 ppm
Chlorine	CL2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO2	1.52	5000 ppm	5%	10%
Methane	CH4	0.55	90,000	Combustible @ 5%	N/A

**Threshold Limit:** Concentrations at which it is believed that all workers may be repeatedly exposed, day after day without adverse effects.

**Hazardous Limit:** Concentrations that may cause death.

**Concentrations:** Concentrations that will cause death with short term exposure.

**Threshold Limit:** NIOSH guide to chemical hazards  
(10 ppm)

### PHYSICAL EFFECTS OF HYDROGEN SULFIDE:

<i>CONCENTRATION</i>	<i>PHYSICAL EFFECTS</i>
.001% 10 ppm	Obvious and unpleasant odor. Safe for 8 hr. exposure
.005% 50 ppm	Can cause some flu like symptoms and can cause pneumonia.
.01% 100 ppm	Kills the sense of smell in 3-15 minutes. May irritate the eyes and throat.
.02% 200 ppm	Kills the sense of smell rapidly. Severely irritates the eyes and throat. Severe flu-like symptoms after 4 or more hours. May cause lung damage and or death.
.06% 600 ppm	Loss of consciousness quickly, death will result if not rescued promptly.

SURFACE USE PLAN

OGX RESOURCES, LLC.  
MOMBA "24" FEDERAL #1H  
UNIT "A" SECTION 24  
T26S-R28E EDDY CO. NM

1. EXISTING AND PROPOSED ROADS:

- A. Exhibit "B" is a reproduction of a County General Hi-way map showing existing roads. Exhibit "C" is a reproduction of a USGS topographic map showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. All new roads will be constructed to BLM specifications.
- B. Exhibit "A" SHOWS THE PROPOSED WELL SITE AS STAKED.
- C. Directions to location: From Malaga New Mexico take U. S. Hi-way 285 South for 12.5 miles to CR-725 (Whitehorn Road) turn Left go .75 miles turn Right (South) Follow two-tract road South 1.5± miles location is 900' East of road.
- D. Exhibit "C" is a topographic map showing existing roads and any proposed roads.

2. PLANNED ACCESS ROADS: Approximately 900' of new road will be constructed.

- A. The access roads will be crowned and sitched to a 14' wide travel surface, within a 30' R-O-W.
- B. Gradient of all roads will be less than 5%.
- C. Turn-outs will be constructed where necessary.
- D. If require new access roads will be surface with a minimum of 4-6" of caliche. this material will be obtained from a local source.
- E. Center line for new roads will be flagged, road construction will be done as field conditions require.
- F. Culverts will be placed in the access road as drainage conditions require. Roads will be constructed to use low water crossings for drainage as required by the topographic conditions.

3. LOCATION OF EXISTING WELLS WITHIN A ONE MILE RADIUS: EXHIBIT "A-1"

- A. Water wells - One approximately 1.5 miles Northwest.
- B. Disposal wells - None known
- C. Drilling wells - None known
- D. Producing wells -As shown on exhibit "A-1"
- E. Abandoned wells - As shown on Exhibit "A-1"

SURFACE USE PLAN

OGX RESOURCES, LLC.  
MOMBA "24" FEDERAL #1H  
UNIT "A" SECTION 24  
T26S-R28E EDDY CO. NM

4. If on completion this well is a producer the operator will lay pipelines and construct powerlines along existing road R-O-W's or other existing R-O-W's. Exhibit "C" shows proposed roads , flowlines and powerlines.

5. LOCATION & TYPE OF WATER SUPPLY:

Water will be purchased locally from a commercial source and trucked over the location access roads or piped to location in flexible lines laid on top of the ground.

6. SOURCE OF CONSTRUCTION MATERIAL:

If possible construction material will be obtained from the excavation of the drill site, if additional material is required it will be obtained from a local source and transported over the location access roads as shown on Exhibit "C".

7. METHODS OF HANDLING WASTE:

- A. All trash, junk and other waste material will be contained in trash cages or trash bins in order to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
- B. Sewage from living quarters will be drained into holding tanks and will be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of well.
- C. Where a closed loop mud system is used to drill a well the drilling fluid that remains after the drilling and casing is run or the well is plugged and abandoned will be removed from the location and in some cases may be used on another well or transported to a State approved disposal site. The drilling cuttings that result from drilling the well will likewise be transported to a State approved disposal site.
- D. All water produced while completing this well and completion fluids will be treated in the same procedure as the drilling fluids.
- E. Any remaining salts or mud additive that was not used will be removed by the supplier, this includes all broken sacks and containers.

8. ANCILLARY FACILITIES:

- A. No camps or air strips will be constructed on this location.



SURFACE USE PLAN

OGX RESOURCES, LLC.  
MOMBA "24" FEDERAL #1H  
UNIT "A" SECTION 24  
T26S-R28E EDDY CO. NM

9. WELL SITE LAYOUT:

- A. Exhibit "D" shows the proposed well site layout.
- B. This Exhibit shows the location of reserve pit, sump pits, and living facilities.
- C. Mud pits in the active circulating system will be steel pits and the reserve pits will be unlined unless subsurface conditions encountered during pit construction indicate that a plastic liner is required to contain lateral migration.
- D. If needed the reserve pits will be lined with polyethelene. The pit liner will be no less than 21 mils thick and the liner will be extended at least 3 feet over the top of the dikes and secured in place to keep edge of liner in place.
- E. The reserve pit will be fenced on three sides and fenced with four strands of barbed wire during drilling and completion phases. The 4th side will be fenced after drilling operations are complete and the drilling rig has moved out. If the well is a producer the mud pits will remain fenced in until the mud has dried up enough to break out the pits and reclaimed according to BLM requirements.

10. PLANS FOR RESTORATION OF SURFACE:

Rehabilitation of the location and reserve pits will be allowed to dry properly, fluids may be moved and disposed of in accordance with article 7-E as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any will be reshaped to the original configuration with provisions made to alleviate future erosion. In case of the well completed as a producer the drilling pad will be necessary to construct production facilities. After the area has been shaped and contoured top soil from the spoil pile will be placed over the disturbed area to the extent possible so that revegetation procedures can be accomplished to comply with the BLM specifications.

If the well is a dry hole the pad and road area will be contoured to match the existing terrain. Top soil will be spread to the extent possible and revegetation will be carried out according to the BLM specifications.

Should the well be a producer the previously noted procedures will apply to those areas which are not required for production facilities.

11. OTHER INFORMATION:

- A. The project area is located West of the Delaware River, topography consists of relatively flat plain on the West side of the location and Caprock topography on the Southeast, drainage is to the South and East into the Delaware River. Soils consist of light Tan sandy with caliche pebbles.
- B. The surface and minerals are owned by The U. S. Department of Interior and is administered by The Bureau of Land Management. The surface is used mainly to graze livestock.
- C. A cultural survey will be made of the location and access roads and filed with The Carlsbad Field office The Carlsbad Field Office.
- D. There are no dwellings located within one mile of this location.

APPLICATION TO DRILL

OGX RESOURCES, LLC.  
MOMBA "24" FEDERAL #1H  
UNIT "A" SECTION 24  
T26S-R28E EDDY CO. NM

Bureau of Land Management  
RECEIVED  
DEC 11 2008  
Carlsbad Field Office  
Carlsbad, NM

CERTIFICATION

I HEREBY CERTIFY THAT I OR PERSONS UNDER NMY DIRECT SUPERVISION HAVE INSPECTED THE PROPOSED DRILL SIRE AND THE ACCESS ROAD ROUTES, THAT I AM FAMILIAR WITH THE CONDITIONS THAT CURRENTLY EXIST, THAT THE STATEMENTS MADE IN THIS PLAN ARE TO THE BEST OF MY KNOWLEDGE ARE TRUE AND CORRECT, AND THAT THE WORK ASSOCIATED WITH THE OPERATIONS PROPOSED HEREIN WILL BE PERFORMED BY OGX RESOURCES, LLC. ITS CONTRACTORS AND/OR ITS SUB-CONTRACTORS AND IS IN CONFORMANCE WITH THIS PLANS AND TERMS AND THE CONDITIONS UNDER WHICH IT IS APPROVED. THIS STATEMENT IS SUBJECT TO THE PROVISIONS OF U.S.C. FOR FILING A FALSE REPORT.

OPERATOR'S REPRESENTATIVES:

BEFORE CONSTRUCTION

TIERRA EXPLORATION, INC  
P. O. BOX 2188  
HOBBS, NEW MEXICO 88241  
JOE JANICA 575-391-8503  
CELL 575-390-1598

DURING & AFTER CONSTRUCTION

OGX RESOURCES, LLC.  
P. O. BOX 2064  
MIDLAND, TEXAS 79701  
JEFF BIRKELBACH 432-685-1287  
CELL 432-553-0391

NAME Joe T. Janica *Joe T. Janica*  
TITLE Permit Eng.  
DATE 12/09/08

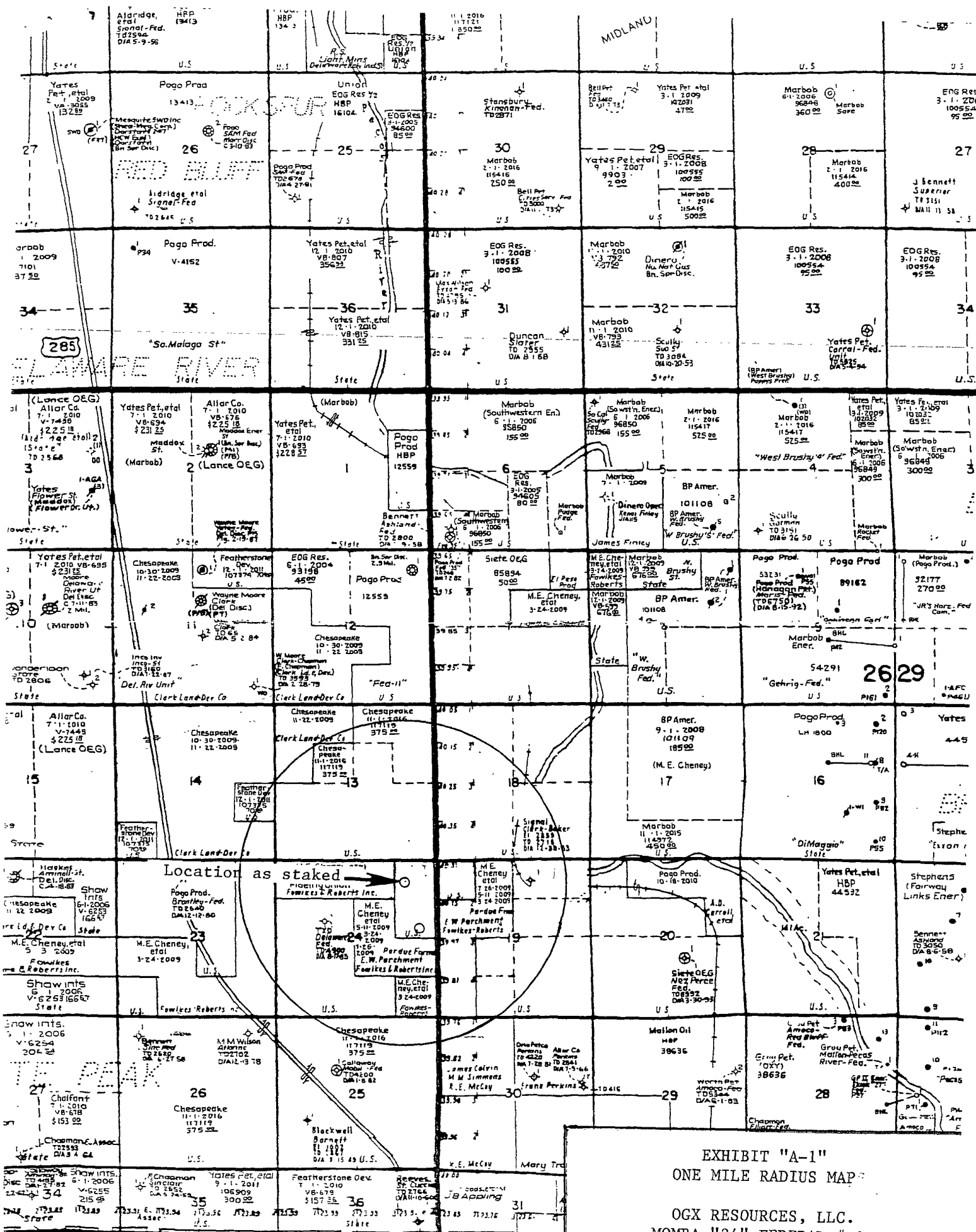
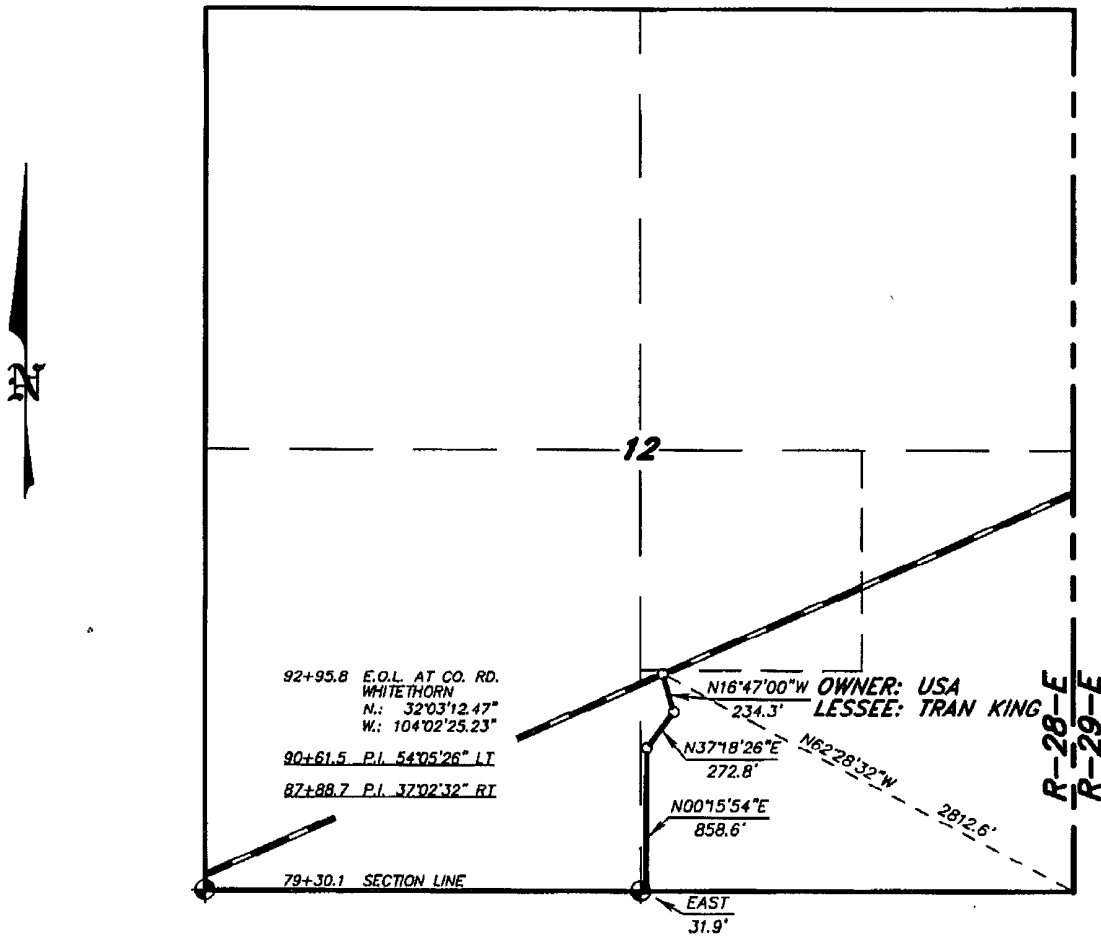


EXHIBIT "A-1"  
 ONE MILE RADIUS MAP  
 OGX RESOURCES, LLC.  
 MOMBA "24" FEDERAL # 1H  
 UNIT "A" SECTION 24  
 T26S-R28E EDDY CO. NM

CULBERSON, East

**SECTION 12, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.**

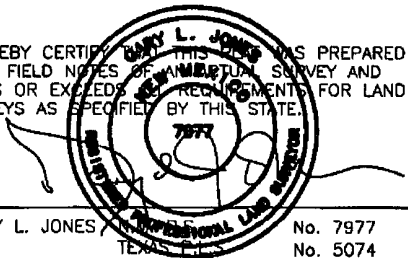


**LEGAL DESCRIPTION**

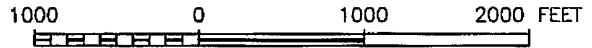
A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTION 12, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

SECTION 12 = 1365.7 FEET = 82.77 RODS = 0.25 MILES = 0.94 ACRES

I HEREBY CERTIFY THAT THIS SURVEY WAS PREPARED FROM FIELD NOTES OF AN ORIGINAL SURVEY AND MEETS OR EXCEEDS THE REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.



GARY L. JONES, No. 7977  
TEXAS, No. 5074



**OGX RESOURCES LLC**

REF: PROP. AND EXISTING LEASE ROAD TO THE MOMBA "24" FED #1H

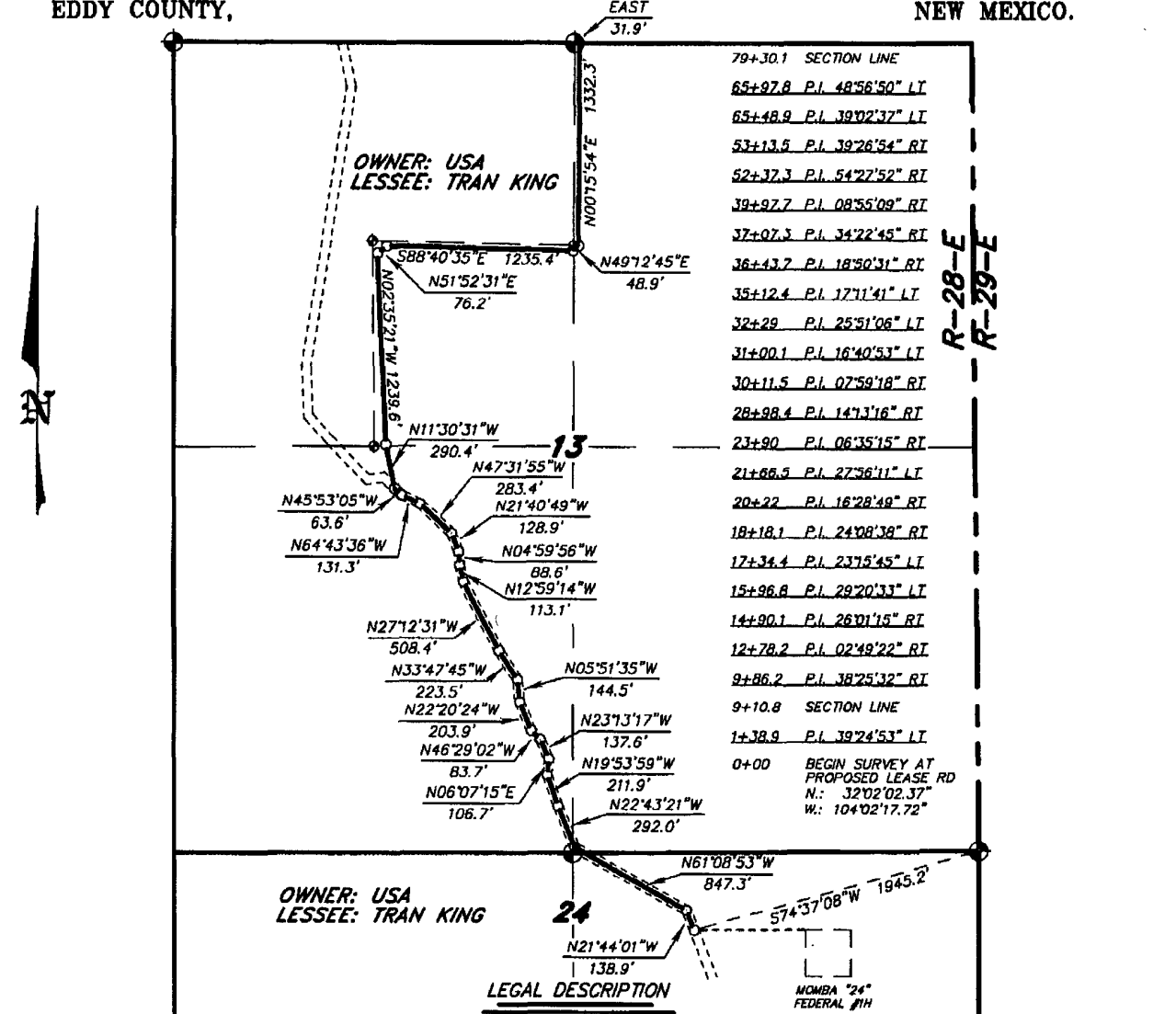
A LEASE ROAD CROSSING USA LAND IN  
SECTION 12, TOWNSHIP 26 SOUTH, RANGE 28 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 21300 Drawn By: J. M. SMALL

Date: 04-14-2009 Disk: JMS 21300 Survey Date: 04-13-2009 Sheet 2 of 2 Sheets

**SECTIONS 13&24, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.**



A STRIP OF LAND 30.0 FEET WIDE, LOCATED IN SECTIONS 13&24, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

SECTION 13 = 7019.3 FEET = 425.41 RODS = 1.33 MILES = 4.83 ACRES  
 SECTION 24 = 910.8 FEET = 55.20 RODS = 0.17 MILES = 0.63 ACRES  
 TOTAL = 7930.1 FEET = 480.61 RODS = 1.50 MILES = 5.46 ACRES

I HEREBY CERTIFY THAT THIS SURVEY WAS PREPARED FROM FIELD NOTES OF AN ORIGINAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES No. 7977  
 TEXAS REG. No. 5074

**BASIN SURVEYS** P.O. BOX 1786—HOBBS, NEW MEXICO

W.O. Number: 21300 Drawn By: J. M. SMALL  
 Date: 04-14-2009 Disk: JMS 21300

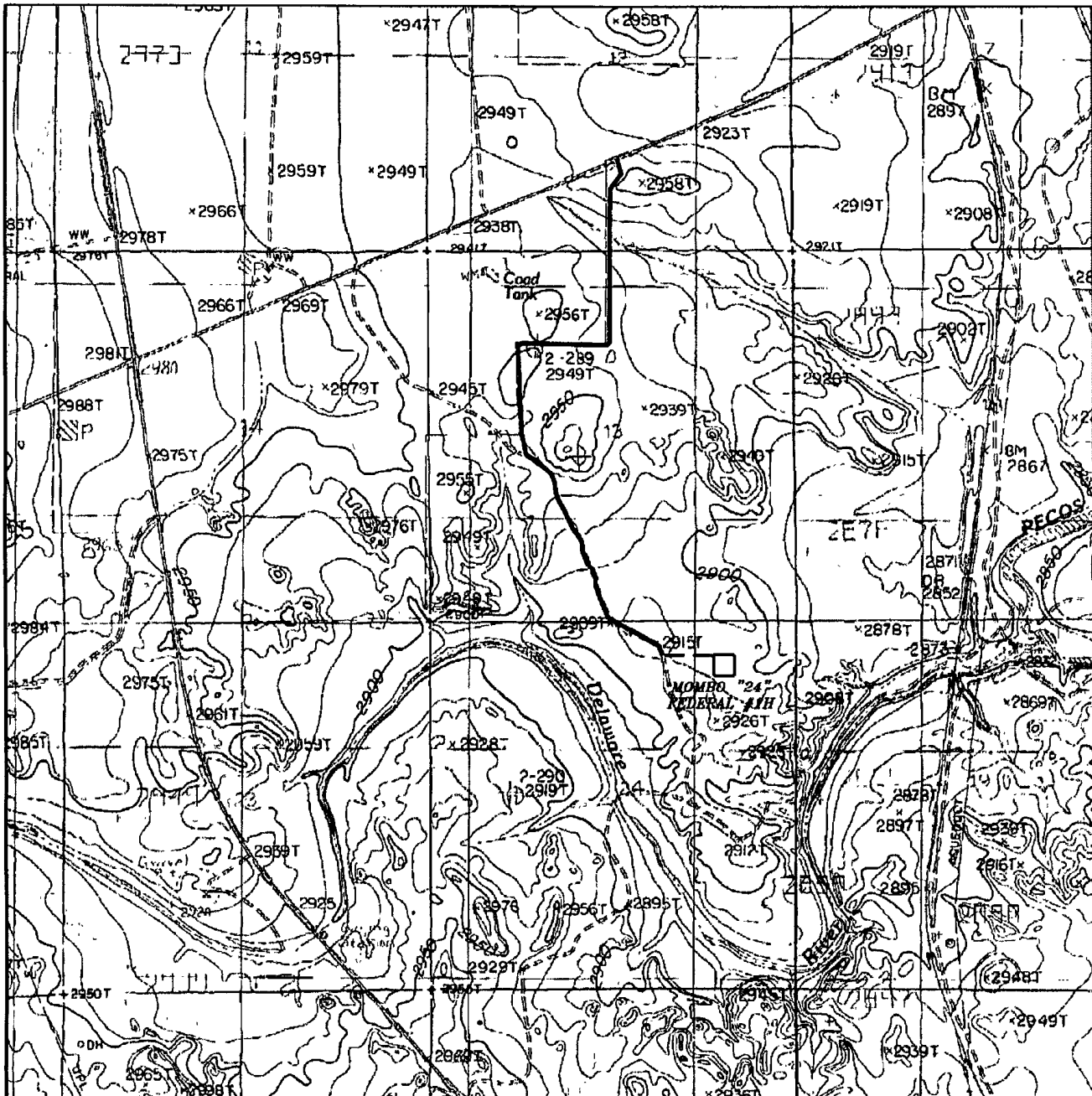
1000 0 1000 2000 FEET

**OGX RESOURCES LLC**

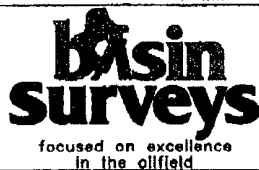
REF: PROP. AND EXISTING LEASE ROAD TO THE MOMBA "24" FED #1H

A LEASE ROAD CROSSING USA LAND IN SECTIONS 13&24, TOWNSHIP 26 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 04-13-2009 Sheet 1 of 2 Sheets



PROP. AND EXISTING LEASE ROAD TO THE MOMBA "24" FED #1H  
 Sections 12,13&24, Township 26 South, Range 28 East,  
 N.M.P.M., Eddy County, New Mexico.



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

W.O Number: JMS 21300

Survey Date: 04-13-2009

Scale: 1" = 2000'

Date: 04-14- 2008

OGX  
 RESOURCES  
 LLC

# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OGX Resources LLC
LEASE NO.:	NM12559
WELL NAME & NO.:	1H Momba 24 Federal
SURFACE HOLE FOOTAGE:	660' FNL & 990' FEL
BOTTOM HOLE FOOTAGE:	350' FSL & 660' FEL
LOCATION:	Section 24, T. 26 S., R 28 E., NMPM
COUNTY:	Eddy County, New Mexico

## TABLE OF CONTENTS

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

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
  - Cultural
  - Berming
  - Communitization Agreement
  - Rancher Fresh Water Line
- Construction**
  - V-Door**
  - Notification
  - Topsoil
  - Reserve Pit
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- Road Section Diagram**
- Drilling**
  - Surface casing setting depth
- Production (Post Drilling)**
  - Well Structures & Facilities
- Interim Reclamation**
- Final Abandonment/Reclamation**



## **I. GENERAL PROVISIONS**

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

## **II. PERMIT EXPIRATION**

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

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

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

## **IV. NOXIOUS WEEDS**

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

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

### **Riparian Area**

The well pad and any collection facilities that are needed will be bermed to contain/control any spills or leaks on pad.

### **Communitization Agreement**

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

### **V-Door West**

#### **Rancher Fresh Water Line**

Just south of the intersection and locked gate going to private is the land owners water line, a fresh water storage tank, and a cattle drinking trough. The water line follows the road route from this facility several miles south and should be mitigated and protected, during construction. After construction, the fresh water line should be placed on the east side of the new road so as to be protected from the road traffic.

## **VI. CONSTRUCTION**

### **V-Door West**

#### **A. NOTIFICATION**

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

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

#### **B. TOPSOIL**

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

#### **C. RESERVE PITS**

Tanks are required for drilling operations: No Pits.

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

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

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

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

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

Surfacing of the well pad is not required.

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

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

## F. ON LEASE ACCESS ROADS

### Road Width

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

### Surfacing

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

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

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

### Crowning

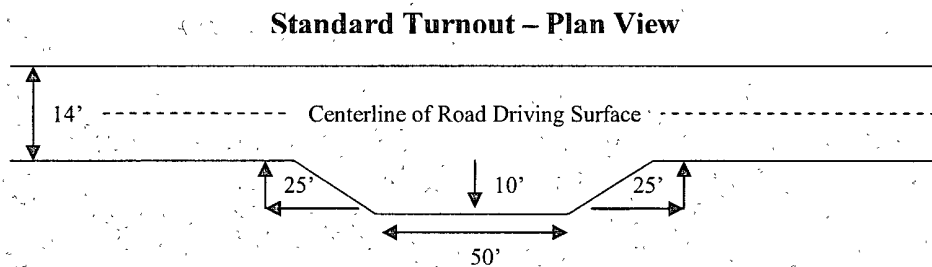
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### Ditching

Ditching shall be required on both sides of the road.

### Turnouts

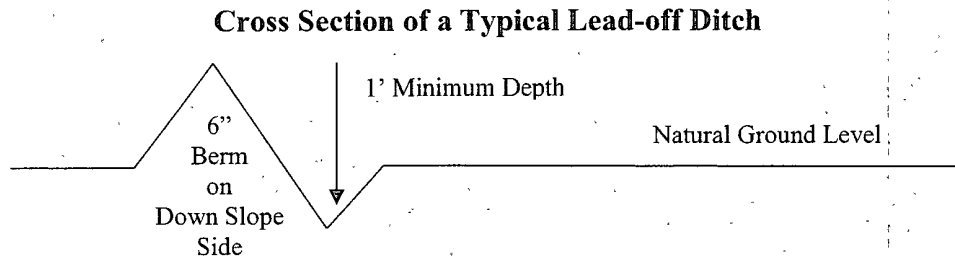
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



## Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill 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.



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

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

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

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

### Culvert Installations

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

### Cattleguards

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

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

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

**Fence Requirement**

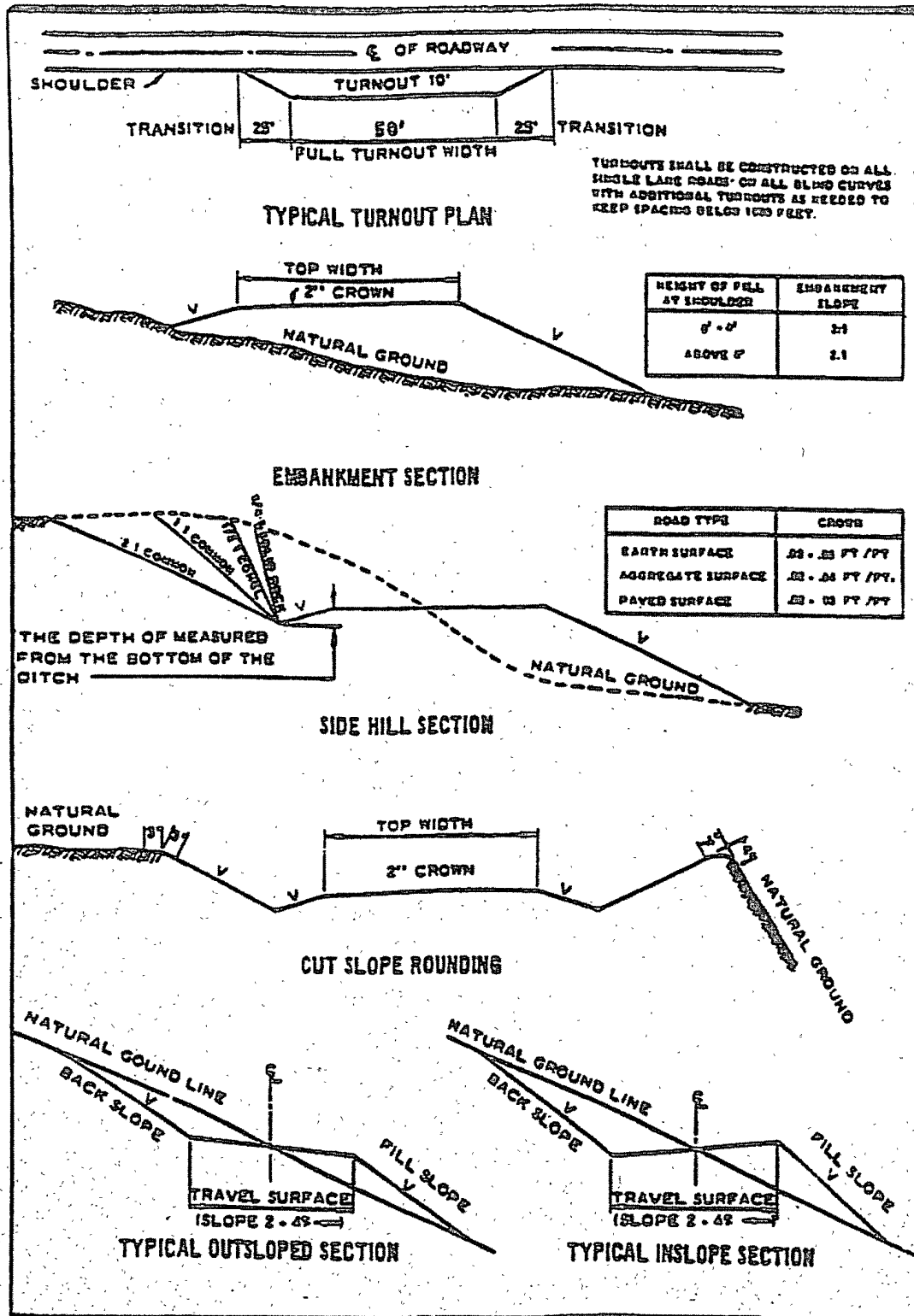
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

**Public Access**

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

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

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

**Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. 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.
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 are located, this does not include the dog house or stairway area.

### 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.**

**Medium cave/karst.**

**Possible lost circulation in the Delaware Mountain Group.**

1. The 13-3/8 inch surface casing shall be set at approximately 625 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. Fresh water mud to be used to setting depth.
  - 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 9-5/8 inch intermediate casing is:
  - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Casing to be set in the Lamar Limestone or Fletcher Anhydrite. Brine water mud to be used to setting depth. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst concerns.**

**Pilot hole must have a plug at the bottom if a solid plug is not being set from bottom to kick off point. Bottom plug to be a minimum of 185' in length and is to be tagged.**

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

3. 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. **Additional cement will be required as excess cement calculated to a negative 6%.**

4. 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.
  - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
  - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

#### **D. DRILL STEM TEST**

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

**WWI 011009**

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

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

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

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

#### **Containment Structures**

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

#### **Painting Requirement**

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

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

### **A. INTERIM RECLAMATION**

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

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

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

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

Seed Mixture 4, for Gypsum 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>
Alkali Sacaton ( <i>Sporobolus airoides</i> )	1.0
DWS Four-wing saltbush ( <i>Atriplex canescens</i> )	5.0

DWS: DeWinged Seed

\*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.