

OCD-ARTESIA

JUL 17 2009

FORM APPROVED  
OMB No. 1004-0137  
Expires July 31, 2010

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. NMNM107373/NMNM025953 BHL
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 N/A
2. Name of Operator OGX Resources, LLC OGRID 217955 Jeff Birkelbach, (432) 685-1287		7. If Unit or CA Agreement, Name and No. N/A
3a. Address P.O. Box 2064 Midland, TX 79702	3b. Phone No. (include area code) (432) 685-1287	8. Lease Name and Well No. Mongo 25 Fed Com #2H
3a. Address P.O. Box 2064 Midland, TX 79702		9. API Well No. 30-015-37164
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1980' FNL & 374' FEL, Unit H At proposed prod. zone 1980' FNL & 350' FWL, Unit E		10. Field and Pool, or Exploratory Rock Spur, Delaware/Bone Spring
14. Distance in miles and direction from nearest town or post office* Approximately 4 miles SE from Malaga, New Mexico		11. Sec., T. R. M. or Blk. and Survey or Area Sec 25, T24S, R28E
15. Distance from proposed* 374' location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease 160	17. Spacing Unit dedicated to this well 160
18. Distance from proposed location* N/A to nearest well, drilling, completed, applied for, on this lease, ft	19. Proposed Depth 11818'MD; 7275'TVD	20. BLM/BIA Bond No. on file NMB 000244
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2912' GL	22. Approximate date work will start* 06/15/2009	23. Estimated duration 45 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:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM

25. Signature Vicki Johnston	Name (Printed/Typed) Vicki Johnston (281) 468-2448	Date 4/9/09
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Title

Agent for OGX Resources, LLC

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date JUL 08 2009
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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)

CARLSBAD CONTROLLED WATER BASIN

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

## EXHIBIT A

## DISTRICT I

1625 N. French Dr., Hobbs, NM 88240

## DISTRICT II

1301 W. Grand Avenue, Artesia, NM 88210

## DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

## DISTRICT IV

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

State of New Mexico  
Energy, Minerals and Natural Resources Department

## OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-371 64	Pool Code 64450	Pool Name Willow Lake <del>Rock Spur</del> ; Bone Spring
Property Code 37751	Property Name MONGO "25" FEDERAL COM	Well Number 2H
OGRID No. 217955	Operator Name OGX RESOURCES, L.L.C.	Elevation 2912'

## Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	25	24 S	28 E		1980	NORTH	374	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
E	25	24 S	28 E		1980	NORTH	350	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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

		<p><b>OPERATOR CERTIFICATION</b></p> <p>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 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.</p> <p>Signature: <i>Jeff Birkelbach</i> Date: _____</p> <p>Printed Name: Jeff Birkelbach</p>
<p><b>SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>Date Surveyed: FEBRUARY 18, 2009</p> <p>Signature of Surveyor: <i>Gary L. Jones</i></p> <p>Professional Surveyor: <i>Gary L. Jones</i></p> <p>W.O. <i>W.O. Jones</i></p> <p>Certificate No. Gary L. Jones 7977</p> <p>BASIN SURVEYS</p>		

**ATTACHMENT TO FORM 3160-3  
DRILLING PROGRAM  
MONGO 25 FED COM #2H**

**LOCATION OF PROPOSED WELL:**

Surface: 1980' FNL & 374' FEL; Sec 25 T24S R28E, Eddy County, New Mexico  
 Bottom Hole: 1980' FNL & 350' FWL; Sec 25 T24S R28E, Eddy County, New Mexico

**GEOLOGIC NAME OF SURFACE LOCATION:** Permian**FORMATION TOPS / ANTICIPATED FRESH WATER, OIL, OR GAS / PRESSURES:**

FORMATION	DEPTH	FRM PRESSURE	REMARKS
Rustler	700'	10 ppge	<del>Drig fluid must be saturated salt water</del>
Basal Anhydrite	2450'	10 ppge	Drig fluid must be saturated salt water
Lamar	2690'	8.4 ppge	
Bell Canyon	2720'	8.4 ppge	Oil / Gas / Formation water / Poss. H <sub>2</sub> S
Cherry Canyon	3580'	8.4 ppge	Oil / Gas / Formation water
Brushy Canyon	4790'	8.4 ppge	Oil / Gas / Formation water
Bone Spring	6430'	8.4 ppge	Oil / Gas / Formation water
1 <sup>st</sup> Bone Spring	7320'	8.4 ppge	Oil / Gas / Formation water

FRESH 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 550' and circulating cement back to surface. Potash/ fresh water sands will be protected by setting 8-5/8" casing at 2550' 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 500' above the 8-5/8" casing shoe.

**CASING PROGRAM:**

HOLE SIZE	DEPTH	OD CSG	WEIGHT	COLLAR	GRADE	NEW/ USED
17 1/2"	0-550'	13-3/8"	48	STC	H40	New
12 1/4"	0-2550'	8-5/8"	36	STC	J55	New
7-7/8"	0-6500' MD	5 1/2"	17	LTC	N80	New
7-7/8"	6500-11817' MD	5 1/2"	17	BTC	N80	New

DEPTH	OD CSG	WEIGHT	FACTORS: BURST	COLLAPSE	TENSION
0-550'	13-3/8"	48	1.36	3.23	12.7
0-2550'	8-5/8"	32	1.16	1.92	4.6
0-11817' MD	5 1/2"	17	1.25	1.42	1.67

**PRESSURE CONTROL EQUIPMENT:**

Exhibit "E" shows a 900 Series 5000 PSI working pressure B.O.P. consisting of an annular bag type preventer with 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 operated when the drill pipe is out of the hole on trips. Exhibit "F" shows a hydraulically-operated closing unit and a 3" 5000 PSI working pressure choke manifold with dual adjustable chokes. No abnormal pressures or abnormal temperatures are expected during the drilling of this well.

**PROPOSED MUD CIRCULATION SYSTEM:**

DEPTH (feet)	WEIGHT (ppg)	VISCOSITY (sec/1000cc)	FLUID LOSS (cc/30min)	PV (cps)	YP (lb/100ft <sup>2</sup> )	MUD TYPE
0 – 550'	8.6 – 8.8	36 – 38	N/C	6 – 10	6 – 20	Spud Mud
Set 13-3/8" Casing						
550' – 2,550'	10.0 – 10.1	29 – 30	N/C	0 – 1	0 – 1	Brine
Set 8-5/8" Casing						
2,550' – 6,850' TVD	8.4 – 10.0	28 – 29	N/C	0 – 1	0 – 1	Fresh Water To Brine
6,850' – 11,817' MD	8.4 – 10.0	34 – 36	12 – 15	4 – 8	4 – 8	Dynazan / Starch
Set 5½"						HB 411

**AUXILIARY WELL CONTROL AND 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 5½" casing 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 (Production) hole will be logged above kick-off point: GR/Dual Laterolog/Neutron-Density/Caliper

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 3150 psi. & BHT is 115° F.

**ANTICIPATED STARTING DATE AND DURATION:**

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be after June 15, 2009. Move in and drilling operations will take 30 days with an additional 30 days to complete the well and construct production facilities.

**CEMENT PROGRAM:** - See COA**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

CEMENT PROPERTIES	LEAD	TAIL
Est. Volume (sacks)	200	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	

**8 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

CEMENT PROPERTIES	LEAD	TAIL
Est. Volume (sacks)	450	200
Density (ppg)	12.70	14.80
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:**

NONE REQUIRED

**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	LEAD	TAIL
Est. Volume (sacks)	800	600
Density (ppg)	11.80	14.80
Yield (cf/sk)	2.44	1.34
Mix Water, gps	14.07	6.33
Free Water, %		
Fluid Loss, cc's		
Top of Cement	surface	

Note: The above cement volumes will be revised pending fluid and open-hole caliper measurements

**Mongo 25 Fed Com #2H  
Rock Spur (Delaware/Bone Spring) Field  
Sec 25 T24S R28E  
Eddy County, New Mexico  
Drilling Procedure  
March 2009**

**General Information**

Lease:	Mongo 25 Federal	AFE BCP:	\$
Well No.:	2H	AFE ACP:	
Field:	Rock Spur	AFE Total:	
County:	Eddy	AFE NO:	90150XX
State:	New Mexico	API No.:	30-015-XXXX
Section:	25	Permit Date:	00/00/09
Township:	24S	Permit TVD:	7,275'
Range:	28E	Proposed MD:	11,818'
Section Ties:	1980 FNL & 374 FEL	Drilling Days:	28
Ground Level:	2912'	KB:	
Latitude:	N:32°11'25.18"	Longitude	W:104°01'59.61"

**Well Objectives**

The primary objective of this well is to drill vertically to kick-off point (+/- 6850), log & commence a horizontal lateral in the First bone Spring Sand.

**Directions To Well**

From Hwy 285 & CR 721 – East on Pully for 1.2 mi. to lease road. On lease road, go South ½ mi. turning East for ½ mi. North to location

**Special Drilling Considerations**

1. No hunting for game is permitted. No fire arms are to be taken to the location. Keep trash picked up on location and road.
2. Do not run hard-banded or hard-faced drill pipe in casing without consulting OGX.
3. Cement must be circulated on surface and intermediate. If cement does not circulate, run a temperature survey and contact the BLM and Operations Engineer for remedial instructions.
4. BOP equipment will be NU on the 13-3/8" surface casing. All safety and well control equipment should be rigged up and operational prior to drilling out the 13-3/8" casing shoe.
5. Anytime DP is not in the BOP – the blind rams are closed.

OGX Resources Contact List			
Operations Engineer	Steve Douglas	Mobile: 432-934-6800 Home: 432-682-1734	
Operations Engineer	Jeff Birkelbach	Office: 432-685-1287 Home: 432-694-7880 Mobile: 432-553-0391	
Vice President-Operations	Kip Agar	Office: 432-685-1287 Mobile: 432-631-1736 Home: 432-685-4114	
Geologist	Bill Hardie	Office: 432-685-1287 Cell: 432-553-0259	
Production Foreman		Mobile: Home: Pager:	
Production Foreman-Assistant		Mobile: Home:	
Landman		Office: 432-685-1287	
Regulatory	Joe Janica Ann Richey	Office: 575-391-8503 Office: 432-684-6381	
Drilling Well Supervision	Donny Leek	Cell: 432-634-4862 Home: 432-399-4489	

Emergency Contact List			
Service	Vendor	Telephone Number	Contact / Location
Ambulance/Fire		Office: 575-885-2111	Carlsbad
Helicopter	Odessa Regional	Office: 432-624-3571	Odessa
Hospital		Office: 575-887-6633	Carlsbad
Sheriff's Office		Office: 575-887-7551	Carlsbad
State Police		Office: 575-885-3137	Carlsbad

Vendor Contact List			
Service	Vendor	Telephone Number	Contact / Location
Rig Contractor	Adobe	Office: Rig Mobile: Cell:	
Casing	DGM Supply	Office 432-686-0628 Cell 432-556-8750	Rooster McCaugnhey
Directional Drilling		Office: Cell:	
Cementing	BJ Services	Office: 575-746-3140 Cell 432-556-6357	Artesia Randy Kuiper
Mud	Newpark	Cell: 432-697-8661 Office 432-	Midland
Mud Logging	Suttles	Office:: 432-687-3148	Frank Suttles
Open Hole Logs	Schlumberger	Office. 575-	Hobbs
Regulatory	BLM  NMOCD	Office: 575-887-6544 575-361-2822  Office: 575-393-6161 575-748-1283	Carlsbad Cement Notification  Hobbs Artesia
Water-Fresh	Black River Machine & Water	Office: 575-706-5324 Mobile: 575-785-2319	Jim Davis
Wellhead	Cameron	Office: 575-397-1325 Cell 575-631-2614	Jon Bulman
BOP Testing/NU	Monahans Nippleup	Office. 800-753-7558 Cell: 432-940-8527	Vernon Venters
Pit Lining & Poly Line	Dubose	Office: 432-550-9956 Cell: 432-894-5049	Buckshot
Pipe & Rentals	Smith International	Office: 432-570-0065 Cell: 432-425-6534	Ronnie Burnett
Dirt Contractor	B & H	Cell: 575-706-0551	Justin Magby
Closed Loop		Cell:	
Bits	Hughes Tool Co.	Office: 575-392-1284 Mobile: 432- 230-7799	Hobbs Scott Newland - Midland
Liner Hanger	Halliburton	Office: 432-682-4305 Cell 432-631-4626	Midland Lynn Talley
Forklift		Office: Cell:	
Fuel	United	Office. 575-885-5560 Cell	Carlsbad Devan Spearman
Water – Brine & Fresh	Great Basin  JWS  C&R	Office: 575-628-3323 Cell 575-706-1432  Office: 575-748-1352 Cell: 575-748-5140  Office: 575-887-6697 Cell:	Randy Billett  Dimas Herrera  Danhy Franco
Casing Crew	Bull Roger's	Office: 575-393-9342 Cell: 575-390-2008	Nathan Jernigan





## **OGX Resources**

**Eddy County (NAD 83)  
Mongo 25 Fed Com #2H  
Mongo 25 #2H  
OH**

**Plan: Plan #1**

## **Pathfinder X & Y Survey Report**

**16 March, 2009**



# OGX

Project: Eddy County (NAD 83)  
 Site: Mongo 25 Fed Com #2H  
 Well: Mongo 25 #2H  
 Wellbore: OH  
 Plan: Plan #1 (Mongo 25 #2H/OH)



Azimuths to Grid North  
 True North: -0.16°  
 Magnetic North: 7.89°  
 Magnetic Field  
 Strength: 48800.3snT  
 Dip Angle: 60.14°  
 Date: 03/16/2009  
 Model: IGRF200510

# PATHFINDER

## WELL DETAILS: Mongo 25 #2H

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

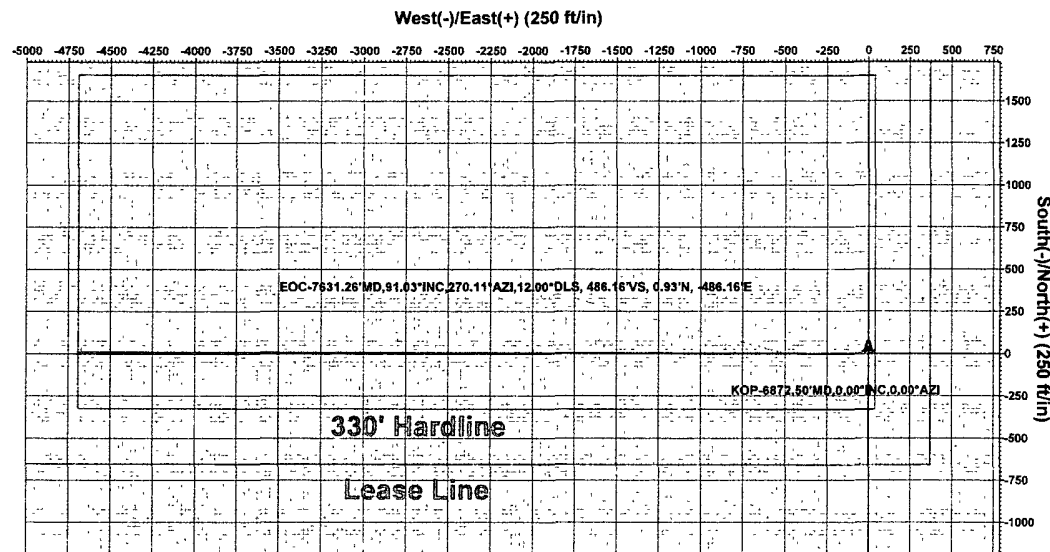
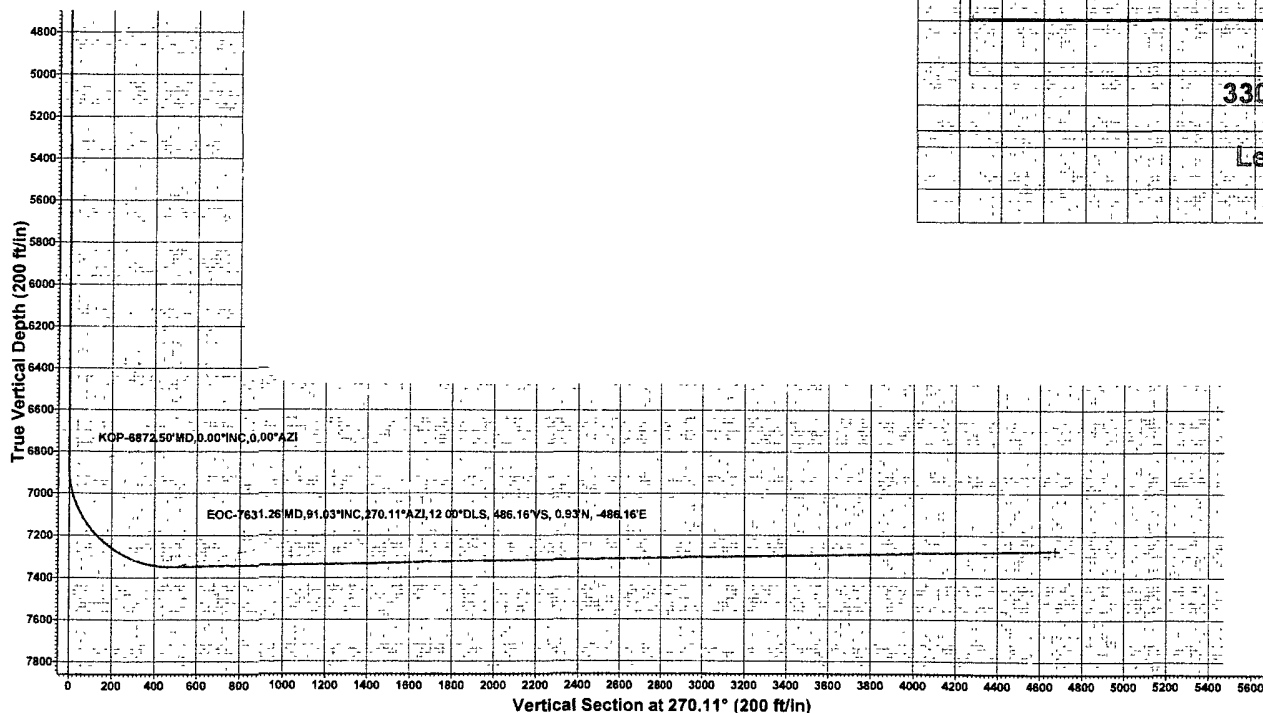
+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	433105.075	634178.313	32° 11' 25.178 N	104° 1' 59.571 W	

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6872.50	0.00	0.00	6872.50	0.00	0.00	0.00	0.00	0.00	
3	7631.26	91.03	270.11	7350.00	0.93	-486.16	12.00	270.11	486.16	
4	11817.96	91.03	270.11	7274.74	8.97	-4672.18	0.00	0.00	4672.19	PBHL (Mongo #2H)

## WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PBHL (Mongo #2H)	7275.00	8.55	-4672.18	433113.628	629506.133	Point



PROJECT DETAILS: Eddy County (NAD 83)  
 Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: New Mexico Eastern Zone  
 System Datum: Mean Sea Level  
 Local North: Grid

Plan: Plan #1 (Mongo 25 #2H/OH)

Created By: Nate Bingham Date: 16:42, March 16 2009

Checked: \_\_\_\_\_ Date: \_\_\_\_\_



# Pathfinder Energy Services

Pathfinder X & Y Survey Report



**Company:** OGX Resources  
**Project:** Eddy County (NAD 83)  
**Site:** Mongo 25 Fed Com #2H  
**Well:** Mongo 25 #2H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Mongo 25 #2H  
**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:** Midland Database

**Project** Eddy County (NAD 83)

**Map System:** US State Plane 1983  
**Geo Datum:** North American Datum 1983  
**Map Zone:** New Mexico Eastern Zone

**System Datum:** Mean Sea Level

**Site** Mongo 25 Fed Com #2H

<b>Site Position:</b>		<b>Northing:</b>	433,105.075 ft	<b>Latitude:</b>	32° 11' 25.178 N
<b>From:</b> Map		<b>Easting:</b>	634,178.313 ft	<b>Longitude:</b>	104° 1' 59.571 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>	0.16 °

**Well** Mongo 25 #2H

<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	433,105.075 ft	<b>Latitude:</b>	32° 11' 25.178 N
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	634,178.313 ft	<b>Longitude:</b>	104° 1' 59.571 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	2,912.00 ft

**Wellbore** OH

<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	03/16/2009	8.05	60.14	48,800

**Design** Plan #1

## Audit Notes:

**Version:** **Phase:** PLAN **Tie On Depth:** 0.00

<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	270.11

**Survey Tool Program** **Date** 03/16/2009

<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	11,817.74	Plan #1 (OH)	MWD	MWD - Standard



# Pathfinder Energy Services

Pathfinder X & Y Survey Report



**Company:** OGX Resources  
**Project:** Eddy County (NAD 83)  
**Site:** Mongo 25 Fed Com #2H  
**Well:** Mongo 25 #2H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Mongo 25 #2H  
**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:** Midland Database

## 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	433,105.08	634,178.31
100.00	0.00	0.00	100.00	-2,812.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
200.00	0.00	0.00	200.00	-2,712.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
300.00	0.00	0.00	300.00	-2,612.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
400.00	0.00	0.00	400.00	-2,512.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
500.00	0.00	0.00	500.00	-2,412.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
600.00	0.00	0.00	600.00	-2,312.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
700.00	0.00	0.00	700.00	-2,212.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
800.00	0.00	0.00	800.00	-2,112.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
900.00	0.00	0.00	900.00	-2,012.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,000.00	0.00	0.00	1,000.00	-1,912.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,100.00	0.00	0.00	1,100.00	-1,812.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,200.00	0.00	0.00	1,200.00	-1,712.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,300.00	0.00	0.00	1,300.00	-1,612.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,400.00	0.00	0.00	1,400.00	-1,512.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,500.00	0.00	0.00	1,500.00	-1,412.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,600.00	0.00	0.00	1,600.00	-1,312.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,700.00	0.00	0.00	1,700.00	-1,212.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,800.00	0.00	0.00	1,800.00	-1,112.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
1,900.00	0.00	0.00	1,900.00	-1,012.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,000.00	0.00	0.00	2,000.00	-912.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,100.00	0.00	0.00	2,100.00	-812.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,200.00	0.00	0.00	2,200.00	-712.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,300.00	0.00	0.00	2,300.00	-612.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,400.00	0.00	0.00	2,400.00	-512.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,500.00	0.00	0.00	2,500.00	-412.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,600.00	0.00	0.00	2,600.00	-312.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



**Company:** OGX Resources  
**Project:** Eddy County (NAD 83)  
**Site:** Mongo 25 Fed Com #2H  
**Well:** Mongo 25 #2H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Mongo 25 #2H  
**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:** Midland Database

### 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)
2,700.00	0.00	0.00	2,700.00	-212.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,800.00	0.00	0.00	2,800.00	-112.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
2,900.00	0.00	0.00	2,900.00	-12.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,000.00	0.00	0.00	3,000.00	88.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,100.00	0.00	0.00	3,100.00	188.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,200.00	0.00	0.00	3,200.00	288.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,300.00	0.00	0.00	3,300.00	388.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,400.00	0.00	0.00	3,400.00	488.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,500.00	0.00	0.00	3,500.00	588.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,600.00	0.00	0.00	3,600.00	688.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,700.00	0.00	0.00	3,700.00	788.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,800.00	0.00	0.00	3,800.00	888.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
3,900.00	0.00	0.00	3,900.00	988.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,000.00	0.00	0.00	4,000.00	1,088.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,100.00	0.00	0.00	4,100.00	1,188.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,200.00	0.00	0.00	4,200.00	1,288.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,300.00	0.00	0.00	4,300.00	1,388.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,400.00	0.00	0.00	4,400.00	1,488.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,500.00	0.00	0.00	4,500.00	1,588.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,600.00	0.00	0.00	4,600.00	1,688.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,700.00	0.00	0.00	4,700.00	1,788.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,800.00	0.00	0.00	4,800.00	1,888.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
4,900.00	0.00	0.00	4,900.00	1,988.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,000.00	0.00	0.00	5,000.00	2,088.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,100.00	0.00	0.00	5,100.00	2,188.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,200.00	0.00	0.00	5,200.00	2,288.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,300.00	0.00	0.00	5,300.00	2,388.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31



# Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: OGX Resources  
 Project: Eddy County (NAD 83)  
 Site: Mongo 25 Fed Com #2H  
 Well: Mongo 25 #2H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference: Well Mongo 25 #2H  
 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: Midland Database

## 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)
5,400.00	0.00	0.00	5,400.00	2,488.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,500.00	0.00	0.00	5,500.00	2,588.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,600.00	0.00	0.00	5,600.00	2,688.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,700.00	0.00	0.00	5,700.00	2,788.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,800.00	0.00	0.00	5,800.00	2,888.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
5,900.00	0.00	0.00	5,900.00	2,988.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,000.00	0.00	0.00	6,000.00	3,088.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,100.00	0.00	0.00	6,100.00	3,188.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,200.00	0.00	0.00	6,200.00	3,288.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,300.00	0.00	0.00	6,300.00	3,388.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,400.00	0.00	0.00	6,400.00	3,488.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,500.00	0.00	0.00	6,500.00	3,588.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,600.00	0.00	0.00	6,600.00	3,688.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,700.00	0.00	0.00	6,700.00	3,788.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,800.00	0.00	0.00	6,800.00	3,888.00	0.00	0.00	0.00	0.00	433,105.08	634,178.31
6,872.50	0.00	0.00	6,872.50	3,960.50	0.00	0.00	0.00	0.00	433,105.08	634,178.31
<b>KOP-6872.50°MD,0.00°INC,0.00°AZI</b>										
6,875.00	0.30	270.11	6,875.00	3,963.00	0.00	-0.01	0.01	12.00	433,105.08	634,178.31
6,900.00	3.30	270.11	6,899.98	3,987.98	0.00	-0.79	0.79	12.00	433,105.08	634,177.52
6,925.00	6.30	270.11	6,924.89	4,012.89	0.01	-2.88	2.88	12.00	433,105.08	634,175.43
6,950.00	9.30	270.11	6,949.66	4,037.66	0.01	-6.27	6.27	12.00	433,105.09	634,172.04
6,975.00	12.30	270.11	6,974.21	4,062.21	0.02	-10.96	10.96	12.00	433,105.10	634,167.36
7,000.00	15.30	270.11	6,998.49	4,086.49	0.03	-16.92	16.92	12.00	433,105.11	634,161.39
7,025.00	18.30	270.11	7,022.42	4,110.42	0.05	-24.14	24.14	12.00	433,105.12	634,154.17
7,050.00	21.29	270.11	7,045.94	4,133.94	0.06	-32.61	32.61	12.00	433,105.14	634,145.71
7,075.00	24.29	270.11	7,068.99	4,156.99	0.08	-42.29	42.29	12.00	433,105.16	634,136.02
7,100.00	27.29	270.11	7,091.49	4,179.49	0.10	-53.17	53.17	12.00	433,105.18	634,125.14



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



**Company:** OGX Resources  
**Project:** Eddy County (NAD 83)  
**Site:** Mongo 25 Fed Com #2H  
**Well:** Mongo 25 #2H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**  
**Database:**

Well Mongo 25 #2H  
WELL @ 2912.00ft (Original Well Elev)  
WELL @ 2912.00ft (Original Well Elev)  
Grid  
Minimum Curvature  
Midland Database

### 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)
7,125.00	30.29	270.11	7,113.40	4,201.40	0.13	-65.21	65.21	12.00	433,105.20	634,113.10
7,150.00	33.29	270.11	7,134.65	4,222.65	0.15	-78.38	78.38	12.00	433,105.23	634,099.93
7,175.00	36.29	270.11	7,155.17	4,243.17	0.18	-92.64	92.64	12.00	433,105.25	634,085.67
7,200.00	39.29	270.11	7,174.93	4,262.93	0.21	-107.96	107.96	12.00	433,105.28	634,070.35
7,225.00	42.29	270.11	7,193.85	4,281.85	0.24	-124.29	124.29	12.00	433,105.31	634,054.02
7,250.00	45.29	270.11	7,211.90	4,299.90	0.27	-141.59	141.59	12.00	433,105.35	634,036.72
7,275.00	48.29	270.11	7,229.01	4,317.01	0.31	-159.81	159.81	12.00	433,105.38	634,018.51
7,300.00	51.29	270.11	7,245.15	4,333.15	0.34	-178.90	178.90	12.00	433,105.42	633,999.42
7,325.00	54.29	270.11	7,260.27	4,348.27	0.38	-198.80	198.80	12.00	433,105.46	633,979.51
7,350.00	57.29	270.11	7,274.33	4,362.33	0.42	-219.48	219.48	12.00	433,105.50	633,958.84
7,375.00	60.29	270.11	7,287.28	4,375.28	0.46	-240.85	240.85	12.00	433,105.54	633,937.46
7,400.00	63.29	270.11	7,299.10	4,387.10	0.50	-262.88	262.88	12.00	433,105.58	633,915.43
7,425.00	66.28	270.11	7,309.75	4,397.75	0.55	-285.50	285.50	12.00	433,105.62	633,892.82
7,450.00	69.28	270.11	7,319.20	4,407.20	0.59	-308.64	308.64	12.00	433,105.67	633,869.68
7,475.00	72.28	270.11	7,327.43	4,415.43	0.64	-332.24	332.24	12.00	433,105.71	633,846.07
7,500.00	75.28	270.11	7,334.41	4,422.41	0.68	-356.24	356.25	12.00	433,105.76	633,822.07
7,525.00	78.28	270.11	7,340.12	4,428.12	0.73	-380.58	380.58	12.00	433,105.81	633,797.73
7,550.00	81.28	270.11	7,344.56	4,432.56	0.78	-405.18	405.18	12.00	433,105.85	633,773.13
7,575.00	84.28	270.11	7,347.70	4,435.70	0.83	-429.98	429.98	12.00	433,105.90	633,748.33
7,600.00	87.28	270.11	7,349.54	4,437.54	0.87	-454.91	454.91	12.00	433,105.95	633,723.40
7,625.00	90.28	270.11	7,350.07	4,438.07	0.92	-479.90	479.90	12.00	433,106.00	633,698.41
7,631.26	91.03	270.11	7,350.00	4,438.00	0.93	-486.16	486.16	12.00	433,106.01	633,692.15
<b>EOC-7631.26°MD,91.03°INC,270.11°AZI,12.00°DLS, 486.16°VS, 0.93°N, -486.16°E</b>										
7,700.00	91.03	270.11	7,348.76	4,436.76	1.07	-554.89	554.89	0.00	433,106.14	633,623.42
7,800.00	91.03	270.11	7,346.97	4,434.97	1.26	-654.87	654.87	0.00	433,106.33	633,523.44
7,900.00	91.03	270.11	7,345.17	4,433.17	1.45	-754.86	754.86	0.00	433,106.52	633,423.46
8,000.00	91.03	270.11	7,343.37	4,431.37	1.64	-854.84	854.84	0.00	433,106.72	633,323.47



# Pathfinder Energy Services

## Pathfinder X & Y Survey Report



**Company:** OGX Resources  
**Project:** Eddy County (NAD 83)  
**Site:** Mongo 25 Fed Com #2H  
**Well:** Mongo 25 #2H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Mongo 25 #2H  
**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:** Midland Database

### 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)
8,100.00	91.03	270.11	7,341.57	4,429.57	1.83	-954.82	954.82	0.00	433,106.91	633,223.49
8,200.00	91.03	270.11	7,339.78	4,427.78	2.03	-1,054.81	1,054.81	0.00	433,107.10	633,123.51
8,300.00	91.03	270.11	7,337.98	4,425.98	2.22	-1,154.79	1,154.79	0.00	433,107.29	633,023.52
8,400.00	91.03	270.11	7,336.18	4,424.18	2.41	-1,254.77	1,254.78	0.00	433,107.48	632,923.54
8,500.00	91.03	270.11	7,334.38	4,422.38	2.60	-1,354.76	1,354.76	0.00	433,107.68	632,823.56
8,600.00	91.03	270.11	7,332.59	4,420.59	2.79	-1,454.74	1,454.74	0.00	433,107.87	632,723.57
8,700.00	91.03	270.11	7,330.79	4,418.79	2.98	-1,554.72	1,554.73	0.00	433,108.06	632,623.59
8,800.00	91.03	270.11	7,328.99	4,416.99	3.18	-1,654.71	1,654.71	0.00	433,108.25	632,523.60
8,900.00	91.03	270.11	7,327.19	4,415.19	3.37	-1,754.69	1,754.70	0.00	433,108.44	632,423.62
9,000.00	91.03	270.11	7,325.40	4,413.40	3.56	-1,854.68	1,854.68	0.00	433,108.64	632,323.64
9,100.00	91.03	270.11	7,323.60	4,411.60	3.75	-1,954.66	1,954.66	0.00	433,108.83	632,223.65
9,200.00	91.03	270.11	7,321.80	4,409.80	3.94	-2,054.64	2,054.65	0.00	433,109.02	632,123.67
9,300.00	91.03	270.11	7,320.00	4,408.00	4.14	-2,154.63	2,154.63	0.00	433,109.21	632,023.69
9,400.00	91.03	270.11	7,318.21	4,406.21	4.33	-2,254.61	2,254.61	0.00	433,109.40	631,923.70
9,500.00	91.03	270.11	7,316.41	4,404.41	4.52	-2,354.59	2,354.60	0.00	433,109.60	631,823.72
9,600.00	91.03	270.11	7,314.61	4,402.61	4.71	-2,454.58	2,454.58	0.00	433,109.79	631,723.74
9,700.00	91.03	270.11	7,312.81	4,400.81	4.90	-2,554.56	2,554.57	0.00	433,109.98	631,623.75
9,800.00	91.03	270.11	7,311.01	4,399.01	5.10	-2,654.54	2,654.55	0.00	433,110.17	631,523.77
9,900.00	91.03	270.11	7,309.22	4,397.22	5.29	-2,754.53	2,754.53	0.00	433,110.36	631,423.78
10,000.00	91.03	270.11	7,307.42	4,395.42	5.48	-2,854.51	2,854.52	0.00	433,110.56	631,323.80
10,100.00	91.03	270.11	7,305.62	4,393.62	5.67	-2,954.50	2,954.50	0.00	433,110.75	631,223.82
10,200.00	91.03	270.11	7,303.82	4,391.82	5.86	-3,054.48	3,054.49	0.00	433,110.94	631,123.83
10,300.00	91.03	270.11	7,302.03	4,390.03	6.06	-3,154.46	3,154.47	0.00	433,111.13	631,023.85
10,400.00	91.03	270.11	7,300.23	4,388.23	6.25	-3,254.45	3,254.45	0.00	433,111.32	630,923.87
10,500.00	91.03	270.11	7,298.43	4,386.43	6.44	-3,354.43	3,354.44	0.00	433,111.52	630,823.88
10,600.00	91.03	270.11	7,296.63	4,384.63	6.63	-3,454.41	3,454.42	0.00	433,111.71	630,723.90
10,700.00	91.03	270.11	7,294.84	4,382.84	6.82	-3,554.40	3,554.40	0.00	433,111.90	630,623.92





# Pathfinder Energy Services

Pathfinder X & Y Survey Report



**Company:** OGX Resources  
**Project:** Eddy County (NAD 83)  
**Site:** Mongo 25 Fed Com #2H  
**Well:** Mongo 25 #2H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**  
**Database:**

Well Mongo 25 #2H  
WELL @ 2912.00ft (Original Well Elev)  
WELL @ 2912.00ft (Original Well Elev)  
Grid  
Minimum Curvature  
Midland Database

## 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)
10,800.00	91.03	270.11	7,293.04	4,381.04	7.02	-3,654.38	3,654.39	0.00	433,112.09	630,523.93
10,900.00	91.03	270.11	7,291.24	4,379.24	7.21	-3,754.37	3,754.37	0.00	433,112.28	630,423.95
11,000.00	91.03	270.11	7,289.44	4,377.44	7.40	-3,854.35	3,854.36	0.00	433,112.47	630,323.96
11,100.00	91.03	270.11	7,287.65	4,375.65	7.59	-3,954.33	3,954.34	0.00	433,112.67	630,223.98
11,200.00	91.03	270.11	7,285.85	4,373.85	7.78	-4,054.32	4,054.32	0.00	433,112.86	630,124.00
11,300.00	91.03	270.11	7,284.05	4,372.05	7.98	-4,154.30	4,154.31	0.00	433,113.05	630,024.01
11,400.00	91.03	270.11	7,282.25	4,370.25	8.17	-4,254.28	4,254.29	0.00	433,113.24	629,924.03
11,500.00	91.03	270.11	7,280.46	4,368.46	8.36	-4,354.27	4,354.28	0.00	433,113.43	629,824.05
11,600.00	91.03	270.11	7,278.66	4,366.66	8.55	-4,454.25	4,454.26	0.00	433,113.63	629,724.06
11,700.00	91.03	270.11	7,276.86	4,364.86	8.74	-4,554.23	4,554.24	0.00	433,113.82	629,624.08
11,800.00	91.03	270.11	7,275.06	4,363.06	8.94	-4,654.22	4,654.23	0.00	433,114.01	629,524.09
11,817.96	91.03	270.11	7,274.74	4,362.74	8.97	-4,672.17	4,672.18	0.00	433,114.04	629,506.14

BHL-11817.96°MD,91.03°INC,270.11°AZI, 7274.74°TVD, 4672.18°VS, 8.97°N, -4672.18°E - PBHL (Mongo #2H)



# Pathfinder Energy Services

Pathfinder X & Y Survey Report



**Company:** OGX Resources  
**Project:** Eddy County (NAD 83)  
**Site:** Mongo 25 Fed Com #2H  
**Well:** Mongo 25 #2H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Mongo 25 #2H  
**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:** Midland Database

## 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 (Mongo #2H) - plan hits target - Point	0.00	0.00	7,275.00	8.55	-4,672.18	433,113.628	629,506.133	32° 11' 25.388 N	104° 2' 53.943 W

## Plan Annotations

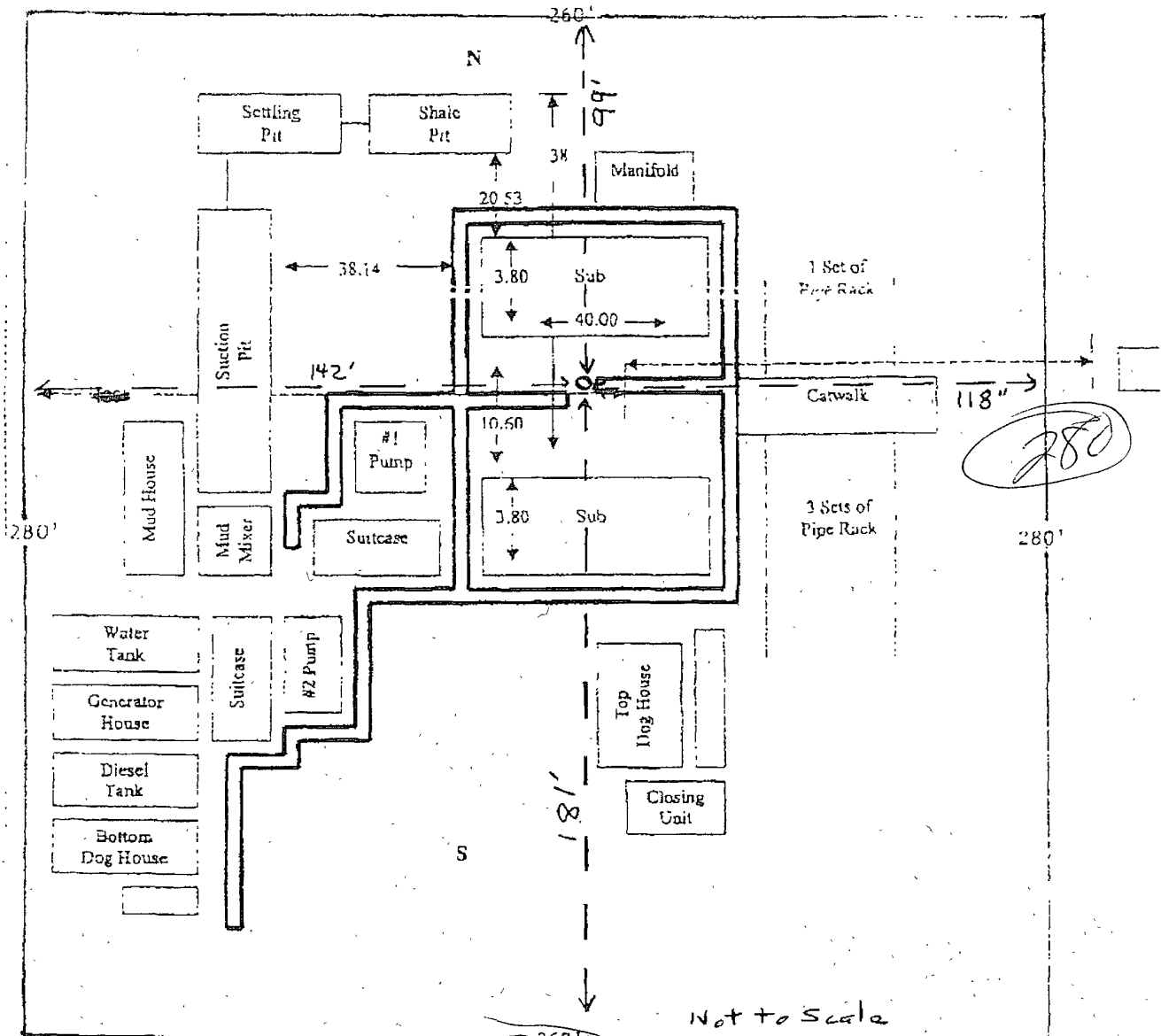
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,872.50	6,872.50	0.00	0.00	KOP-6872.50°MD,0.00°INC,0.00°AZI
7,631.26	7,350.00	0.93	-486.16	EOC-7631.26°MD,91.03°INC,270.11°AZI,12.00°DLS, 486.16°VS, 0.93°N
11,817.96	7,274.74	8.97	-4,672.18	BHL-11817.96°MD,91.03°INC,270.11°AZI, 7274.74°TVD, 4672.18°VS, 8

Checked By: _____	Approved By: _____	Date: _____
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EXHIBIT D-1  
DRILLING RIG LAYOUT  
CLOSED LOOP MUD SYSTEM

OGX RESOURCES, LLC  
MONGO 25 FED COM #2H

SEC 25 T24S R28E  
EDDY COUNTY, NM

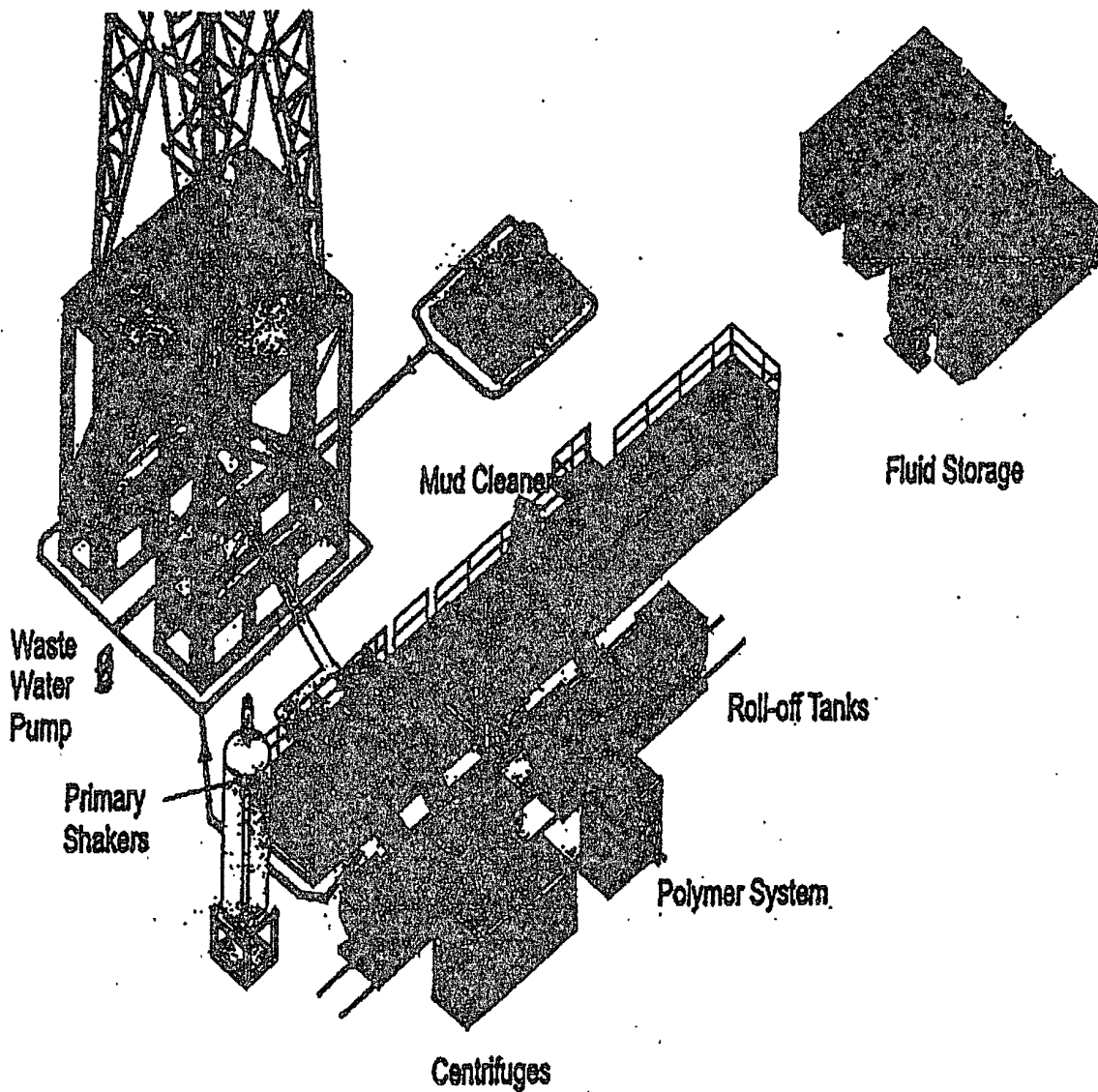


OK CRL 05/12/00

**EXHIBIT D-2  
DRILLING RIG LAYOUT  
CLOSED LOOP SYSTEM  
WITH ROLL-OFF TANKS**

**OGX RESOURCES, LLC  
MONGO 25 FED COM #2H**

**SEC 25 T24S R28E  
EDDY COUNTY, NM**



**MI SWACO**

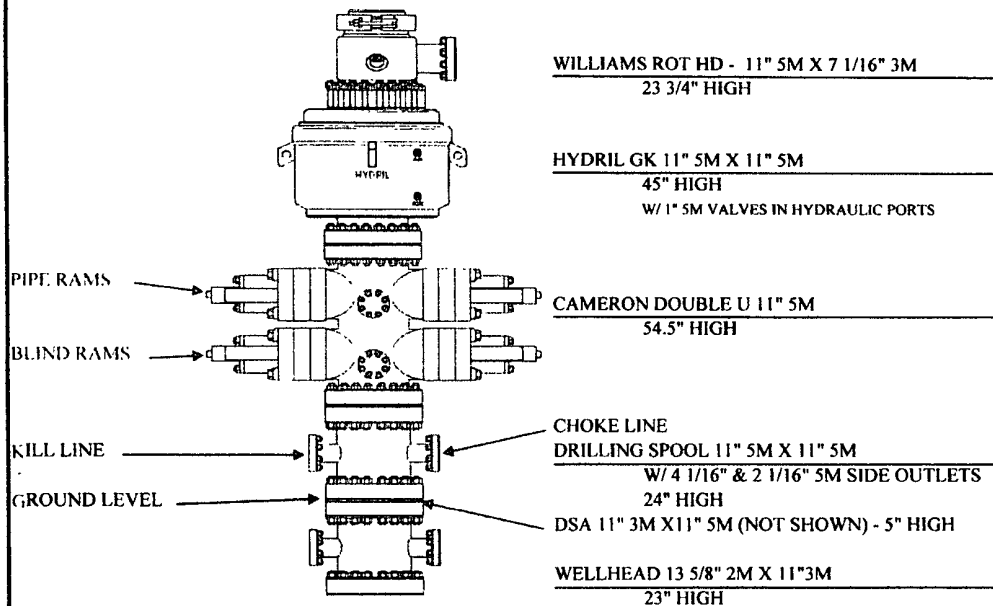
**MI SWACO**

8622 Andrews Hwy  
Odessa, Texas 79765  
(432) 860-2944

**EXHIBIT E  
OGX RESOURCES  
BOP SCHEMATIC**

WELL: MONGO 25 FED COM #2H

DATE: 3/9/2009



WELLHEAD ( NORTH)

W/ 1 1 9/16" 3M WKM VALVE

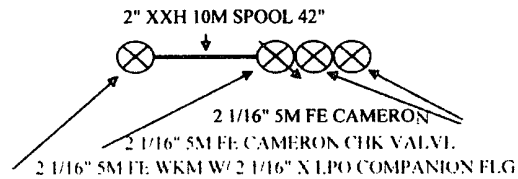
WELLHEAD (SOUTH)

W/ 1 2" TAPPED BP W/ NEEDLE VALVE

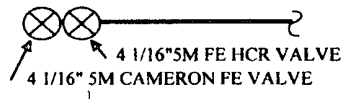
2" 3M BLIND FLG

TOTAL HEIGHT F/ TOP WELLHEAD TO TOP ROT HD = 147.67" = 12.3'

**KILL LINE**



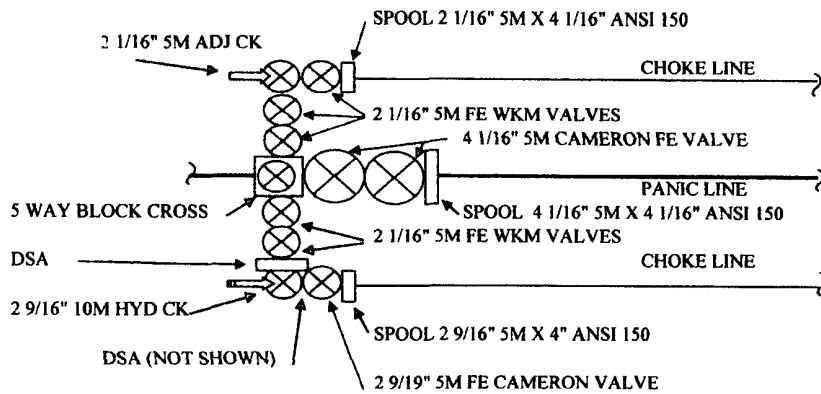
**CHOKER LINE**



**EXHIBIT F**  
**OGX RESOURCES**  
**CHOKE MANIFOLD**

WELL: MONGO 25 FED COM #2H

DATE: March 23, 2009



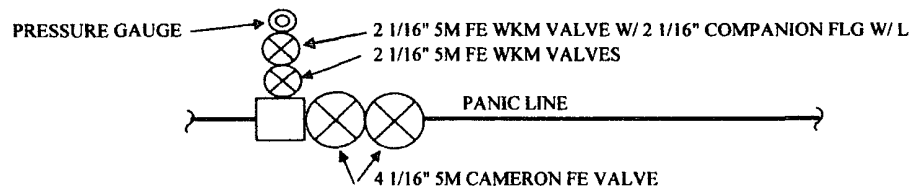
**CHOKE LINES (BLUE)** - 4" 0.237" WALL W/ 4" ANSI 150 FLANGES - ID= 4.026"

- 1 ALL VALVES BALON TYPE "F" W/ ANSI 150 FLANGES - FULL OPEN 4X4X4.  
OR 4" DSI 150 FE LUF- N GATE VALVE W/ NACE TRIM.(FULL OPEN)
- 2 ONE CK TO SEPARATOR W/ TEE TO PIT
- 3 ONE CK TO SEPARATOR W/ TEE TO FLARE PIT

**PANIC LINE (RED)** - 4" 0.156" WALL W/ 4" LIGHT WALL ANSI 150 FLGS - ID=4.188"

- 1 PANIC LINE - NO VALVES OR CONNECTIONS
- 2 PANIC LINE TO FLARE PIT - DOES NOT GO THRU WATERMELLON.

**5 WAY BLOCK CROSS**



# **OGX RESOURCES, LLC**

**HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY PLAN  
FOR DRILLING / COMPLETING / WORKOVER / FACILITY  
WITH THE EXPECTATION OF H<sub>2</sub>S IN EXCESS OF 100 PPM**

**OGX RESOURCES, LLC  
NEW DRILL WELL  
Mongo 25 Fed Com #2H  
SL: 1980' FNL & 374' FEL, Unit H  
BHL: 1980' FNL & 350' FWL, Unit E  
Sec 25, T24S, R28E  
Eddy County, New Mexico**

**This well/facility is not expected to have H<sub>2</sub>S, but the following is submitted as requested.**

## **TABLE OF CONTENTS**

I.	General Emergency Plan	Page 3
II.	Emergency Procedure for Uncontrolled Release of H <sub>2</sub> S	Page 3
III.	Emergency Numbers for Notification	Page 4
IV.	Protection of the General (ROE) Radius of Exposure	Page 5
V.	Public Evacuation Plan	Page 6
VI.	Procedure for Igniting an Uncontrollable Condition	Page 6
VII.	Required Emergency Equipment	Page 7
VIII.	General Equipment Inspection Procedures	Page 8
IX.	Rescue & First Aid for Victims of H <sub>2</sub> S Poisoning	Page 8
X.	Using Self-Contained Breathing Apparatus (SCBA)	Page 9
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XIV.	Vicinity Map	Page 13



## **GENERAL H2S EMERGENCY ACTIONS**

In the event of any evidence of H<sub>2</sub>S emergency, the following plan will be initiated:

1. All personnel will immediately evacuate to an upwind and if possible uphill "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 representative 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 emergency response agencies and residents.

## **EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H<sub>2</sub>S**

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 representative if not on location.
4. Set in motion the steps to protect and/or remove the general public to any upwind "safe area." Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies:  
City Police - City streets  
State Police - State Roads  
County Sheriff - County Roads
7. Call the New Mexico Oil Conservation Division.

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 harm's way, he will immediately notify public safety personnel.

**EMERGENCY CALL LIST**  
**OGX Resources, LLC**

	<u>Office</u>	<u>Cell</u>
OGX Resources, LLC	432-685-1287	
Donny Leek, Consultant	432-685-1287	432-634-4862
Jeff Birkelbach, OGX Operations	432-685-1287	432-553-0391
Steve Douglas, OGX Operations	432-685-1287	432-934-6800
Kip Agar, OGX President	432-685-1287	432-631-1736

**EMERGENCY RESPONSE NUMBERS**

EMERGENCY – DIAL 911

Eddy County Sheriff's Office - Artesia	575-746-9888
Police / Fire / Ambulance Department - Carlsbad	575-885-2111
Police / Fire / Ambulance Department - Artesia	575-746-5000
Eddy County Emergency Management - Carlsbad	575-887-7551
BLM – Carlsbad	575-361-2822
State Police Department	575-437-1313
State Emergency Response Center (SERC)	505-827-9126
New Mexico Oil Conservation Division - Artesia	575-748-1283
Hospital – Carlsbad	575-887-4100
Areocare	806-747-8923
Chemtrec	800-424-9300
Flight for Life – Lubbock, Texas	806-743-9911
Med Flight Air Ambulance – Albuquerque, New Mexico	505-842-4433
OSHA – Lubbock, Texas	800-692-4204

## **PROTECTION OF THE GENERAL RADIUS OF EXPOSURE (ROE)**

In the event greater than 100 ppm H<sub>2</sub>S is present, the ROE calculations will be done to determine if the following conditions exist and whether the Plan must be activated:

- 100 ppm at any public area (any place not associated with this site)
- 500 ppm at any public road (any road which the general public may travel).
- 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H<sub>2</sub>S could be present in concentrations greater than 100 ppm in the gas mixture.

**Calculation for the 100 ppm ROE:** (H<sub>2</sub>S concentrations in decimal form)

$$\text{ROE} = [(1.589)(\text{H}_2\text{S concentration})(Q)] (^{0.6258}) \quad \begin{array}{l} 10,000 \text{ ppm} + = .01 \\ 1,000 \text{ ppm} + = .001 \end{array}$$

**Calculation for the 500 ppm ROE:**  $\begin{array}{l} 100 \text{ ppm} + = .0001 \\ 10 \text{ ppm} + = .00001 \end{array}$

$$\text{ROE} = [(0.4546)(\text{H}_2\text{S concentration})(Q)] (^{0.6258})$$

EXAMPLE: If a well/facility has been determined to have 650 ppm H<sub>2</sub>S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFD then:

$$\begin{array}{ll} \text{ROE for 100 ppm} & \text{ROE} = [(1.589)(.00065)(200,000)] ^{0.6258} \\ & \text{ROE} = 28.1' \end{array}$$

$$\begin{array}{ll} \text{ROE for 500 ppm} & \text{ROE} = [(0.4546)(.00065)(200,000)] ^{0.6258} \\ & \text{ROE} = 12.8' \end{array}$$

These calculations will be forwarded to the appropriate NMOCD district office when applicable.

## **PUBLIC EVACUATION PLAN**

When the supervisor has determined that the general public will be involved, the following plan will be implemented.

1. Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
2. A trained person in H<sub>2</sub>S safety shall monitor with detection equipment the H<sub>2</sub>S concentration, wind and area of exposure. 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 I Groups A, B, C & D, Division I hazardous locations. All monitors will have a minimum capability of measuring H<sub>2</sub>S, oxygen, and flammable values.
3. 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.
4. The company representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the affected area is safe to enter.

## **PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION**

The decision to ignite a well should be a last resort with one, if not both, of the following conditions:

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

### **Instructions for Igniting the Well:**

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA-approved safety harness. Non-flammable rope will be attached.
2. One of the people will be a qualified safety person who will test the atmosphere for H<sub>2</sub>S, oxygen and LFL. The other person will be the designated company representative.
3. Ignite upwind from a distance no closer than necessary. Make sure that the ignition site has the maximum escape avenue available. A 25mm flare gun with a range of approximately +/- 500 feet shall be used to ignite the gas.
4. Before igniting, check for the presence of combustible gases.
5. After igniting, continue emergency actions and procedures as before.

## **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 / Escape 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 and Flagging**

- One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site:

(LEASE NAME & WELL NO.)  
CAUTION – POTENTIAL POSION GAS  
HYDROGEN SULFIDE  
NO ADMITTANCE WITHOUT AUTHORIZATION

- A Colored Condition flag will be on display reflecting the condition at the site at that time: Green=Normal Conditions; Yellow= Potential Danger; Red=Danger, H<sub>2</sub>S Present

### **3. Windsocks**

- One 36" wind sock, located at Protection Center, at a visible height above the rig floor.
- One 36" wind sock, located at visible height from pit areas.

### **4. H<sub>2</sub>S Detectors and Alarms**

- H<sub>2</sub>S monitors with alarms will be located on the rig floor, at the bell nipple, and at the floe line. These monitors will be set for visual at 10 ppm with red light, and audible at 15 ppm.
- Hand-operated detectors with tubes
- H<sub>2</sub>S monitor tester

### **5. Auxiliary Rescue Equipment**

- Stretcher
- 100' of 5/8" OSHA-approved rope
- One 20 lb. Class ABC fire extinguisher
- Communication via radio communication equipment, cell phones on location and vehicles on location

### **1. Mud Inspection Devices**

Garret Gas Tran or HACH tester for inspection of sulfide concentration in mud system.

### **2. Blowout Prevention Equipment**

The well shall have hydraulic BOP Equipment for the anticipated BHP of 1500 PSI. Equipment is to be tested on installation.

### **3. Combustible Gas Detector**

There shall be one combustible Gas Detector on location at all times.

### **4. BOP Testing**

BOP, Choke Line, and Kill Line will be tested.

### **5. Special Control Equipment**

- A. Hydraulic BOP Equipment with remote control on ground
- B. Rotating head

### **6. Evacuation Plan**

Evacuation routes should be established and discussed with all rig personnel prior to spudding each well.

### **12. Designated Area**

Designated briefing area(s) will be clearly designated by visible signs and readily accessible.

## **GENERAL EQUIPMENT INSPECTION PROCEDURES**

### **PERFORM EACH TOUR:**

1. Check fire extinguishers for proper charge
2. Check breathing equipment
3. Check operation of H<sub>2</sub>S Detection System

### **PERFORM EACH WEEK:**

1. Check each piece of breathing equipment for Demand Regulator function. This requires that the bottle be opened and the mask assembly be put on tight enough to receive air when inhaling.
2. Blow Out Preventer skills
3. Check supply pressure on BOP accumulator stand-by source
4. Check all SKA-PAC units for operation. Demand Regulator, escape bottle air volumes, and supply bottle air volumes.
5. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to don.
6. Check pressure on breathing equipment air bottles for full charge.
7. Confirm pressure on all supply air bottles.
8. Perform breathing equipment drills with on-site personnel.
9. Check the following supplies for availability:
  - a. Emergency telephone list
  - b. Hand-operated H<sub>2</sub>S detectors and tubes

## **RESCUE & FIRST AID FOR VICTIMS OF H<sub>2</sub>S POISONING**

- Do not panic.
- Remain calm and think.
- Hold your breath (do not inhale first).
- Put on the breathing apparatus.
- Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind to achieve upwind.
- Notify emergency response personnel that the victim(s) have been exposed to H<sub>2</sub>S gas.
- Provide artificial respiration and/or CPR as necessary. Briefly apply chest pressure – arm lift method of artificial respiration to clean the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.
- Remove all contaminated clothing to avoid further exposure.
- Everyone on location shall be trained in CPR and First Aid for eyes and skin contact with liquid H<sub>2</sub>S. Everyone should master these necessary skills.

## **USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)**

1. Written procedures shall be prepared covering safe use of SCBA's in dangerous atmosphere, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available SCBA.
2. SCBA's shall be inspected frequently at random to insure that they are properly used, cleaned and maintained.
3. Anyone who may use the SCBA's shall be trained in how to insure proper face piece-to-face seal. They shall wear SCBA's in normal air and then wear them in a test atmosphere. Beard and/or sideburns and eyeglasses will not allow a proper seal. Anyone who may be reasonably expected to wear SCBA's should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses or contact lenses. Facial hair, standard eyeglasses, and contact lenses are not allowed with SCBA.
4. Maintenance and care of SCBA:
  - a. A program for maintenance and care of SCBA shall include the following:
    - i. Inspection for defects, including leak checks
    - ii. Cleaning and disinfecting
    - iii. Repair
    - iv. Storage
  - b. Inspection -- SCBA for emergency use shall be inspected monthly and the following permanent records kept of these inspections:
    - i. Fully charged cylinders
    - ii. Regulator and warning device operation
    - iii. Condition of face piece and connections
    - iv. Elastomer or rubber parts shall be stretched or massaged to keep them pliable and prevent deterioration
  - c. Routinely-used SCBA's shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.
5. All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location, and persons required to use SCBA shall be certified physically fit for breathing equipment usage by the local Company physician at least annually.
6. SCBA's should be worn when any of the following are performed:
  - a. Working near the top or on top of a tank, unless test reveals less than 10 ppm of H<sub>2</sub>S.
  - b. Disconnecting any line where H<sub>2</sub>S can reasonably be expected.
  - c. Sampling air in the area to determine if toxic concentrations of H<sub>2</sub>S exist.
  - d. Working in areas where over 10 ppm of H<sub>2</sub>S has been detected.
  - e. At any time there is a doubt of the level of H<sub>2</sub>S in the area.

## TOXIC EFFECTS OF H<sub>2</sub>S POISONING

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity-1.192) and is colorless and transparent. It forms an explosive mixture with air between 4.3 & 46% by volume. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gases are compared below in Table I. Toxicity table for H<sub>2</sub>S and physical effects are shown in Table II.

**Table I**  
Toxicity of Various Gases

Common Name	Symbol	Sp. Gravity	TLV	HLV	LLV
Hydrogen Cyanide	HCN	.94	10 ppm	150 ppm/Hr	300 ppm
Hydrogen Sulfide	H <sub>2</sub> S	1.18	10 ppm	250 ppm/Hr	600 ppm
Sulfide Dioxide	SO <sub>2</sub>	2.21	5 ppm		1000 ppm
Chlorine	Cl	2.45	1 ppm	4 ppm/Hr	1000 ppm
Carbon Monoxide	CO	.97	50 ppm	400 ppm/Hr	1000 ppm
Carbon Dioxide	CO <sub>2</sub>	1.52	5000 ppm	5%	10%
Methane	CH <sub>4</sub>	.55	90,000 ppm	Combustible Above 5% in Air	

### **Definitions**

- A. TLV—Threshold Limit Value-Concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.
- B. HLV—Hazardous Limit - Concentration that will cause death with short-term exposure.
- C. LLV—Lethal Limit Value - Concentration that will cause death with short-term exposure.

**TABLE II**  
Physical Effects of H<sub>2</sub>S

Percent	PPM	Concentration Grains	Physical Effects
0.001	<10	0.65	Obvious and unpleasant odor.
0.002	10	1.30	Safe for 8 hours of exposure.
0.010	100	6.48	Kills sense of smell in 3-15 minutes. May sting eyes and throat.
0.020	200	12.96	Kills sense of smell; stings eyes and throat.
0.050	500	32.96	Dizziness, cessation of breathing begins in a few minutes. Needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; death will result if not rescued promptly.
0.100	1000	64.3	Unconscious at once, followed by death within minutes.



## **PHYSICAL PROPERTIES OF H<sub>2</sub>S**

The properties of all gases are usually described in the context of seven major categories:

COLOR  
ODOR  
VAPOR DENSITY  
EXPLOSIVE LIMITS  
FLAMMABILITY  
SOLUBILITY (IN WATER)  
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

### **COLOR – TRANSPARENT**

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence, a fact that makes the gas extremely dangerous to be around.

### **ODOR – ROTTEN EGGS**

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs." For this reason it earned its common name "sour gas." However, H<sub>2</sub>S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

### **VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192**

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H<sub>2</sub>S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

### **EXPLOSIVE LIMITS – 4.3% TO 46%**

Mixed with the right proportion of air or oxygen, H<sub>2</sub>S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

### **FLAMMABILITY**

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO<sub>2</sub>), another hazardous gas that irritates the eyes and lungs.

### **SOLUBILITY – 4 TO 1 RATIO WITH WATER**

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H<sub>2</sub>S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H<sub>2</sub>S may release the gas into the air.

### **BOILING POINT – (-76 degrees Fahrenheit)**

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

# LOCATION MAP

DISTRICT I  
1823 N. French Dr., Hobbs, NM 88240

DISTRICT II  
1801 W. Grand Avenue, Artesia, NM 88210

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

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

State of New Mexico  
Energy, Minerals and Natural Resources Department

**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

Form C-102  
Revised October 12, 2008

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 5 Copies

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name <b>MONGO "25" FEDERAL COM</b>	Well Number <b>2H</b>
OGMID No.	Operator Name <b>OGX RESOURCES, L.L.C.</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
H	25	24 S	28 E		1980	NORTH	374	EAST	EDDY

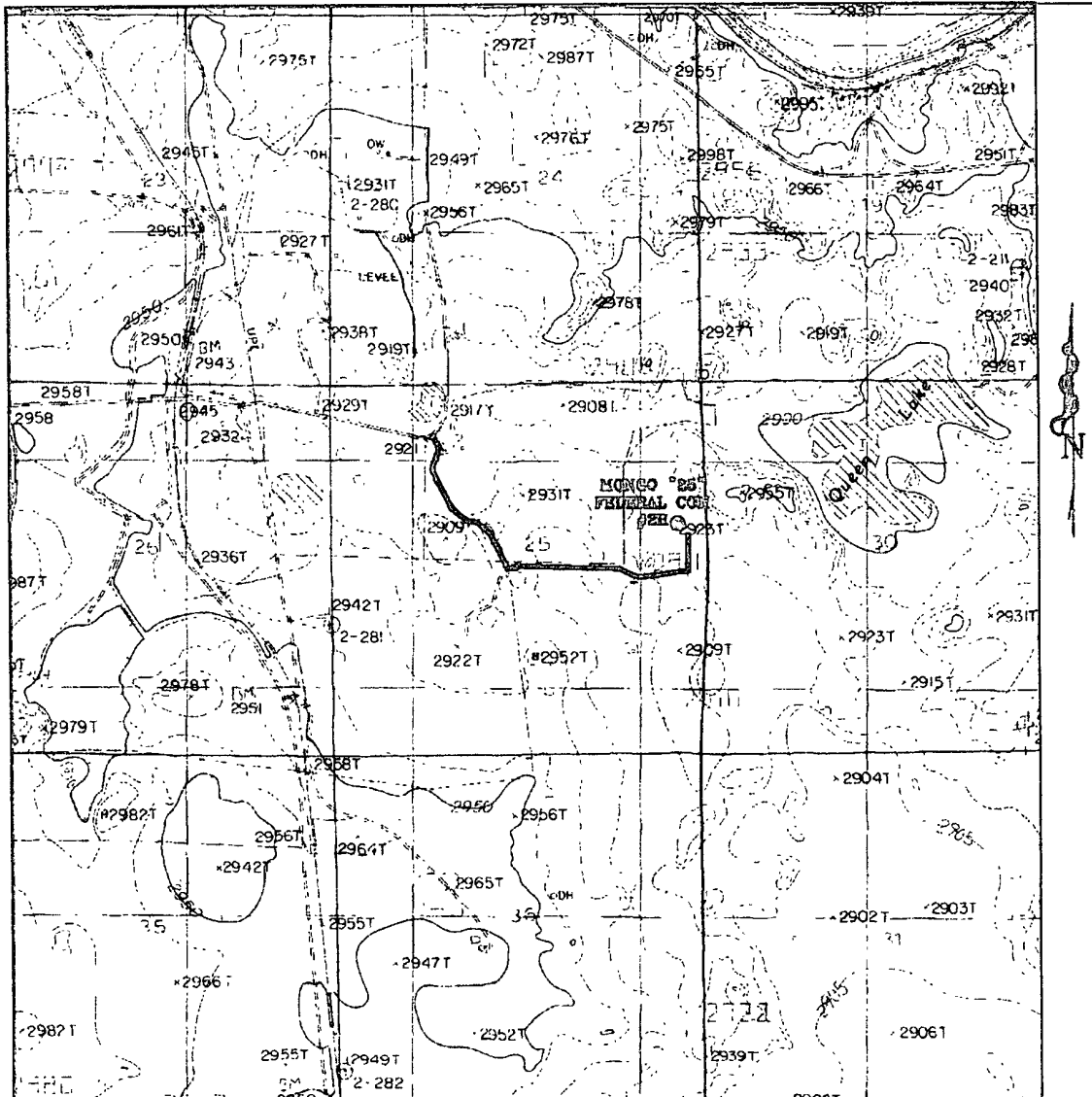
### Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West Line	County
E	25	24 S	28 E		1980	NORTH	350	WEST	EDDY
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						


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

	<b>OPERATOR CERTIFICATION</b>  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 undivided mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.  Signature _____ Date _____  Printed Name _____
	<b>SURVEYOR CERTIFICATION</b>  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.  FEBRUARY 18, 2009  Data Surveyed _____ Signature _____ Professional Surveyor   Certificate No. Gary L. Jones 7977  BASIN SURVEYS

## VICINITY MAP



**MONGO "25" FEDERAL COM #2H**  
 Located at 1980' FNL and 374' FEL  
 Section 25, Township 24 South, Range 28 East,  
 N.M.P.M., Eddy County, New Mexico.

 focused on excellence in the oilfield	P.O. Box 1786 1120 N. West County Rd. Hobbs, New Mexico 88241	<b>OGX</b> <b>RESOURCES,</b> <b>L.L.C.</b>
	(575) 383-7316 - Office (575) 382-2206 - Fax basin-surveys.com	W.O. Number: 21104
		Survey Date: 02-18-2009
		Scale: 1" = 2000' Date: 02-18-2009

## SURFACE USE PLAN OF OPERATIONS

OGX Resources LLC

### **Mongo 25 Fed Com #2H**

SL: 1980' FNL & 374' FEL, UNIT H, Sec 25, T24S, R28E, Eddy, NM

BHL: 1980' FNL & 350' FWL, UNIT E, Sec 25, T24S, R28E, Eddy, NM

#### **1. Existing Roads:**

- a. The well site and elevation plat for the proposed well are reflected on the Well Location and Acreage Dedication Plat; Form C-102 (Exhibit A). The well was staked by Basin Surveys. Cody Layton, BLM Natural Resource Specialist attended the staking.
- b. All roads into the location are depicted on Exhibits B-1–B-3.
- c. Directions to Location: From the junction of Highway 285 and County Road 721, go east on Pulley for 1.2 miles to lease road. On lease road, go south 0.5 miles turning east for 0.5 miles to proposed lease road.

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

- a. The well site layout, Exhibit G, shows the existing lease road. The proposed access road begins at the lease road and trends north approximately 540 feet.
- b. The maximum width of the road will be 15'. It will be crowned and made 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.

#### **3. Location of Existing Wells:**

- a. Exhibits C-1–C-3 show all existing and proposed wells within a one-mile radius of the proposed location.

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

Necessary production facilities for this well will be located on the well pad per BLM specifications.

#### **5. Location and Types of Water Supply:**

This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in Exhibits B-1—B-3.

#### **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. All roads will be constructed of 6" rolled and compacted caliche. Per BLM recommendation, will use extra caliche from other nearby locations for roads, if available.

#### **7. Methods of Handling Waste Material:**

- a. All trash, junk, and other waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.
- b. The supplier will pick up salts, including broken sacks, remaining after completion of well.

- c. 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.
- d. A Closed Loop System will be used. All drilling fluid will be circulated over shaker(s) with cuttings discharged into roll off container. During and after drilling operations, liquids (which apply), all drill cuttings and drilling fluids will be hauled and disposed of at CRI (Controlled Recovery Incorporated – Permit #R-9166).
- e. Roll-off containers will be lined and de-watered with fluids recirculated into system.
- f. Additional tank will be used to capture unused drilling fluid or cement returns from casing jobs.
- g. Equipment will be maintained 24 hours/day by solids control personnel and/or rig crews on location.
- h. Disposal of fluids to be transported by the following companies:
  - i. Controlled Recovery Incorporated – Permit #R-9166
  - ii. GMI – Permit #711-019-001

**8. Ancillary Facilities:**

No campsite or other facilities will be constructed as a result of this well.

**9. Well Site Layout:**

- a. Exhibits D-1 & D-2 show the proposed well site layout with relative location and dimensions of the well pad, mud pits, and trash pit, and the location of major rig components. The V-door will be to the East, and the steel pits will be located to the North.
- b. Mud pits in the active circulating system will be steel pits.
- c. The ground surface at the drilling location is essentially flat.
- d. A Closed-Loop System will be used.
- e. The pad area has been staked and flagged.

**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. Any unguarded pits containing fluids will be fenced until they are filled.
- c. The location and road will be rehabilitated as recommended by the BLM.
- d. 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.

**11. Surface Ownership:**

- a. The surface is owned by the U.S. Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region being grazing of livestock and production of oil and gas.
- b. The proposed road routes and the surface location will be restored as directed by the BLM.

**12. Other Information:**

- a. The area surrounding the well site is grassland. The topography is loamy soil, shallow to caliche, numerous gravels, small hills to generally flat. The vegetation consists of creosote, acacia, mesquite, prickly pear, four-wing salt bush, and various grasses. No wildlife was observed, but it is likely that deer, rabbits, coyotes, and rodents traverse the area.
- b. There is no permanent or live water in the general proximity of this location.
- c. There are no dwellings within two miles of well site.
- d. A Cultural Resources Examination was completed by Boone Archaeology and forwarded to the BLM office in Carlsbad, New Mexico.

**13. Bond Coverage:**

Bond Coverage is Nationwide; Bond # NMB-000244

**14. Operators Representative:**

The OGX Resources, LLC representative responsible for ensuring compliance of the Surface Use Plan of Operations is listed below:

Name: Jeff Birkelbach  
Title: Operations Manager  
OGX Resources LLC  
P.O. Box 2064 Midland, TX 79702  
(432) 685-1287 office  
(432) 553-0391 cell

**15. Exhibits:**

- |           |  |
|-----------|--|
| A         | Well Location & Acreage Dedication Map   |
| B-1 – B-3 | Area Road Maps                           |
| C-1 – C-3 | One-Mile Radius Vicinity Oil & Gas Maps  |
| D-1 – D-2 | Drilling Rig Layout                      |
| E         | BOPE Schematic                           |
| F         | Choke Manifold Schematic                 |
| G         | Well Pad Site and Proposed Lease Road    |
| H         | Drilling Procedure – General Information |

**OGX Resources, L.L.C.  
MONGO 25 FEDERAL COM #2H  
SL: 1980' FNL & 374' FEL, UNIT H  
BHL: 1980' FNL & 350' FWL, UNIT E  
Sec 25, T24S, R28E  
Eddy County, New Mexico**

**OPERATOR CERTIFICATION**

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with conditions which 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 OGX Resources, L.L.C., is responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

4/9/09  
Date

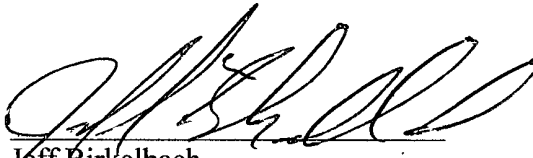
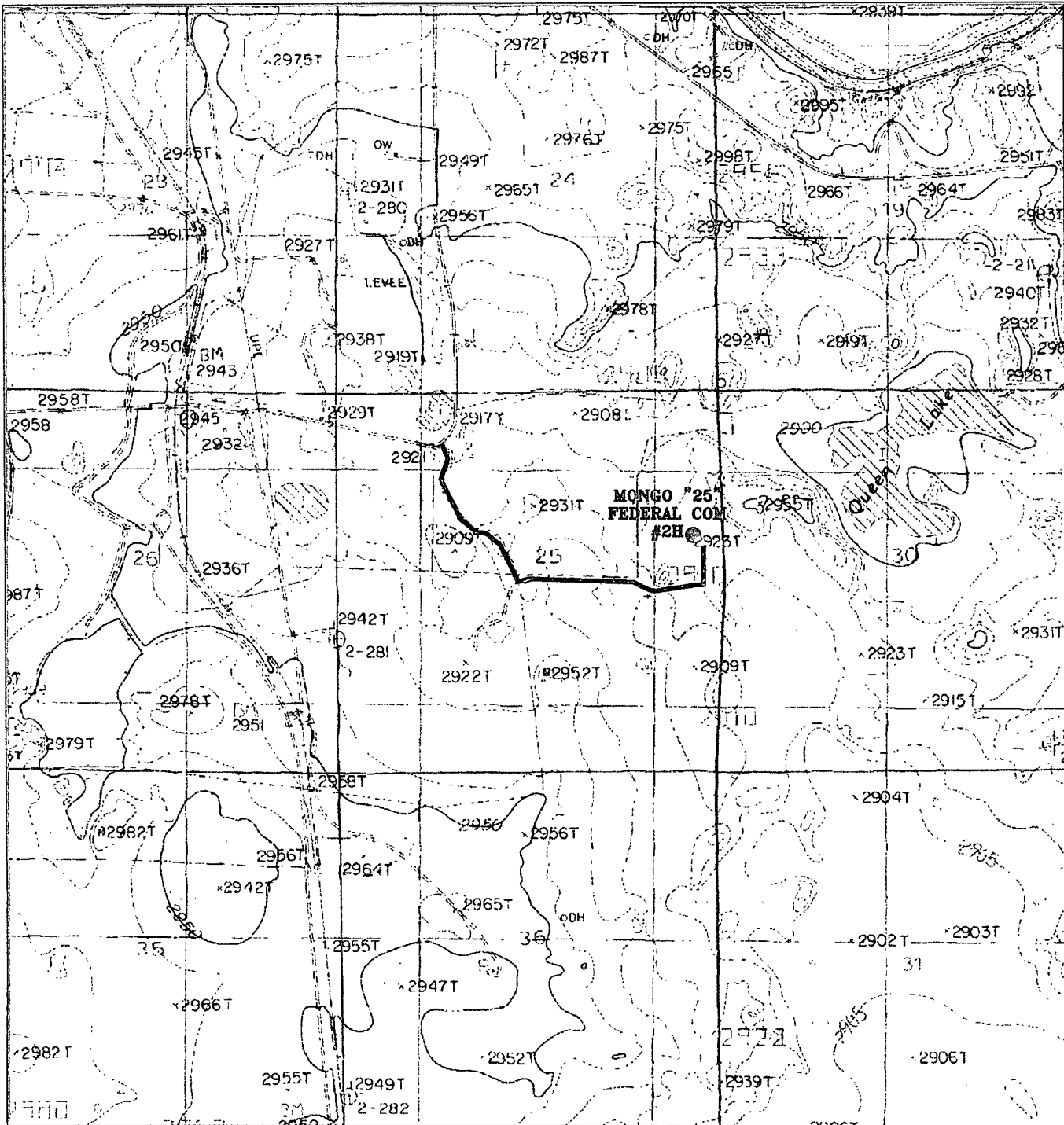
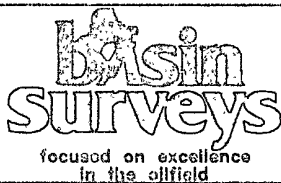
  
Jeff Birkelbach  
Operations Manager  
OGX Resources, L.L.C.

EXHIBIT B-1



**MONGO "25" FEDERAL COM #2H**  
 Located at 1980' FNL and 374' FEL  
 Section 25, Township 24 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: 21104

Survey Date: 02-18-2009

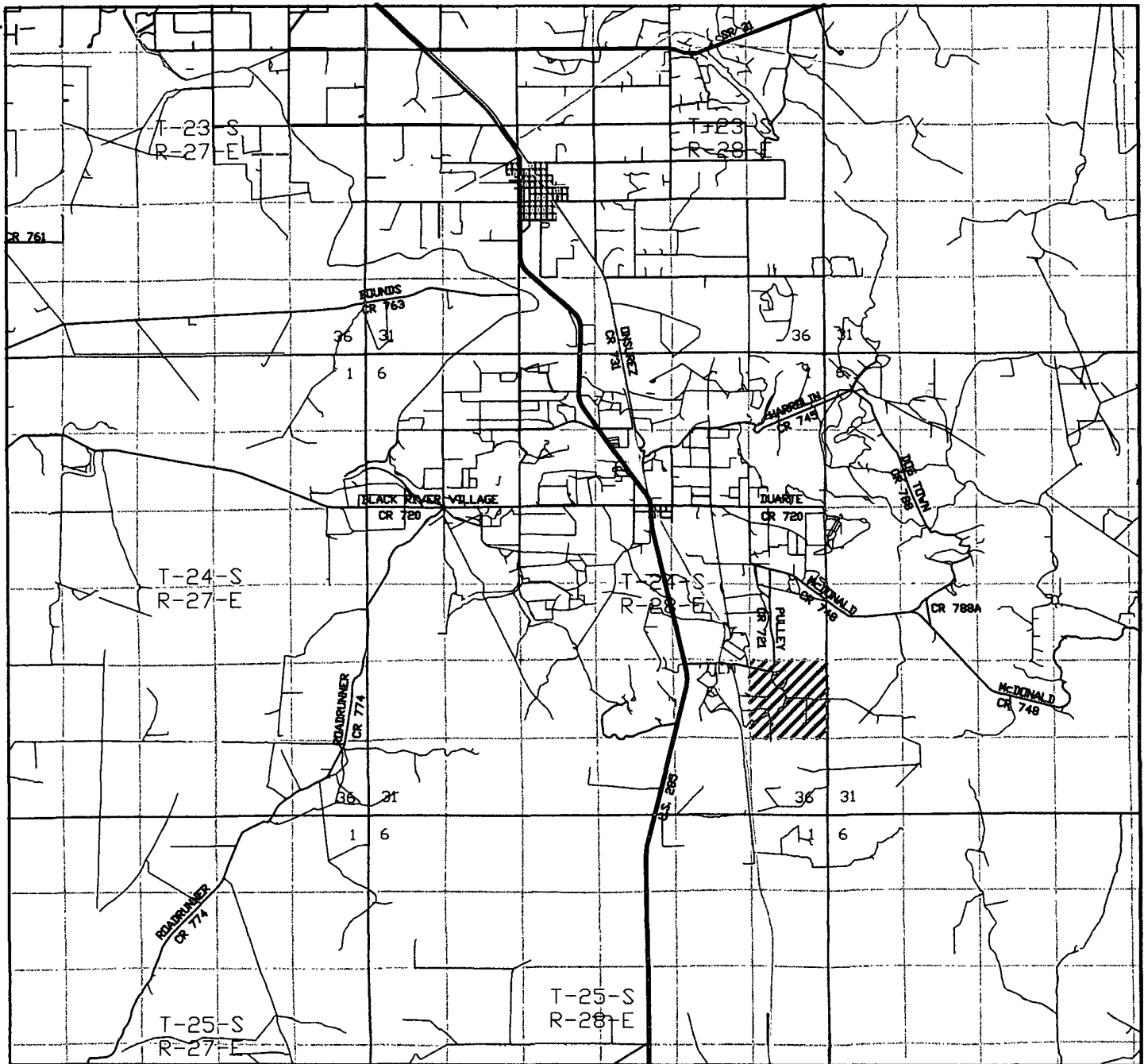
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Date: 02-19-2009

**OGX**  
**RESOURCES,**  
**L.L.C.**



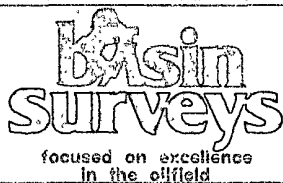
EXHIBIT B-2



**MONGO "25" FEDERAL COM #2H**

Located at 1980' FNL and 374' FEL

Section 25, Township 24 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

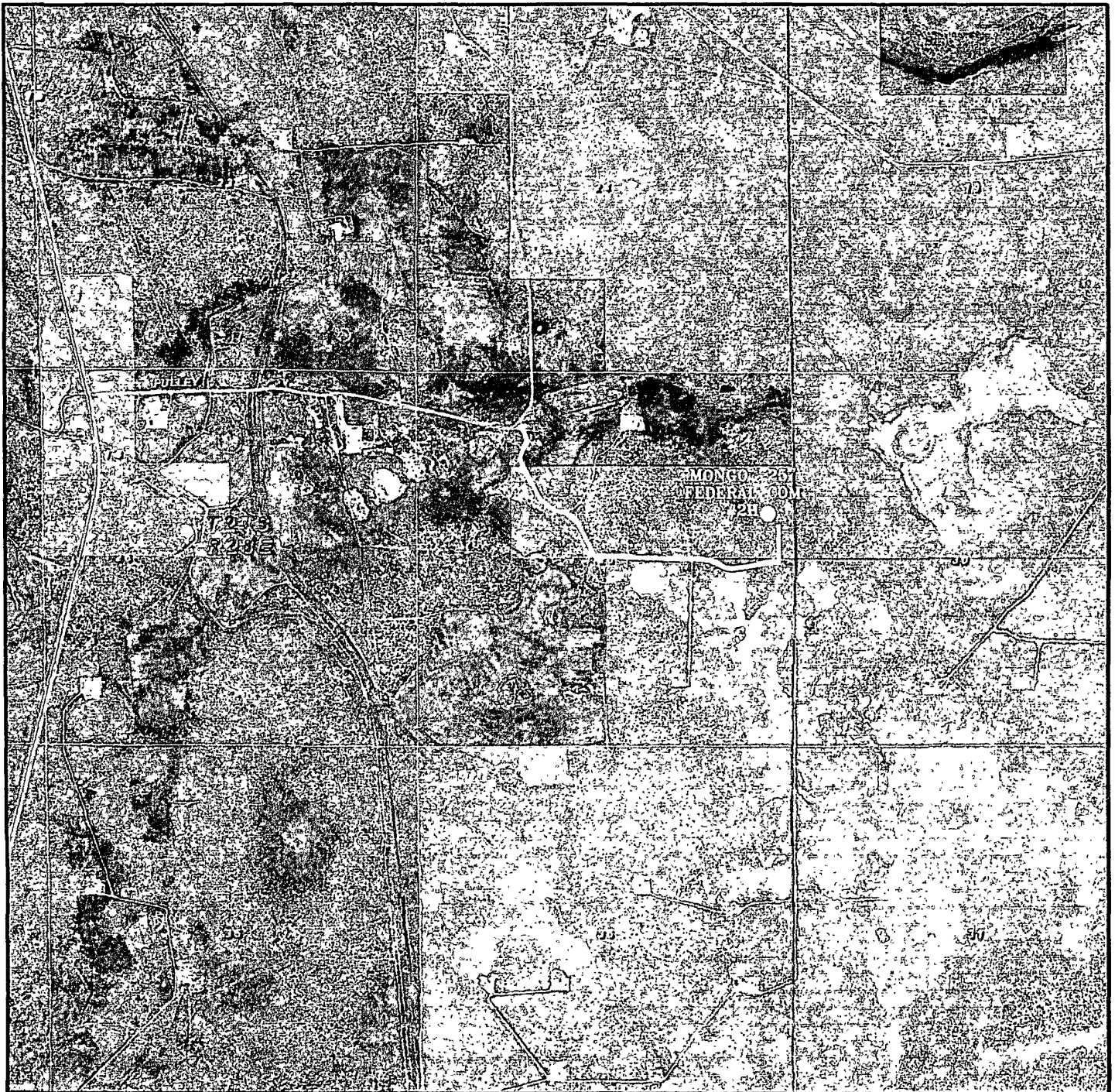
W.O. Number: 21104

Survey Date: 02-18-2009

Scale: 1" = 2000'

Date: 02-19-2009

**OGX  
RESOURCES,  
L.L.C.**



**MONGO "25" FEDERAL COM #2H**  
 Located at 1980' FNL and 374' FEL  
 Section 25, Township 24 South, Range 28 East,  
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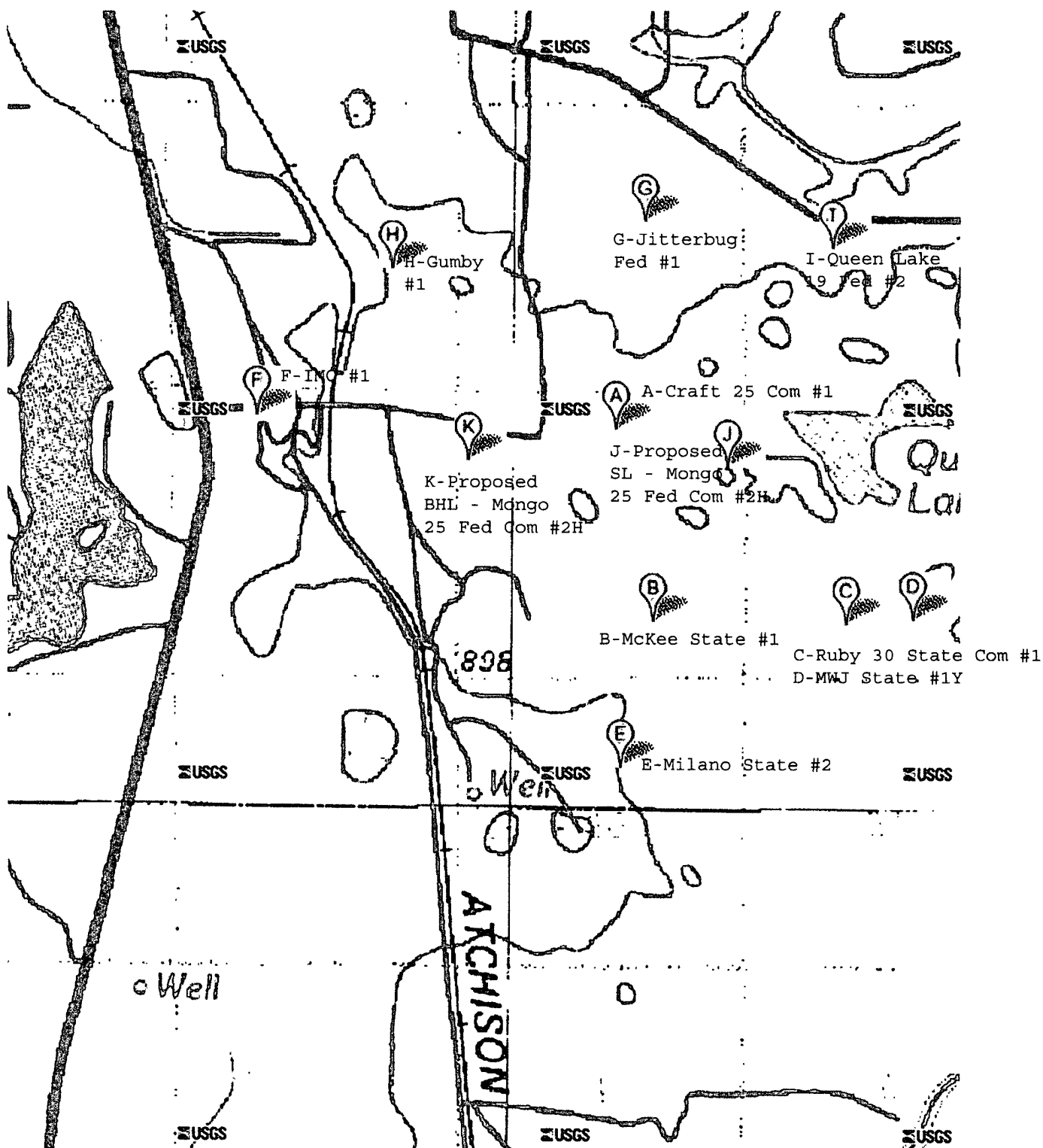
W.O. Number: 21104

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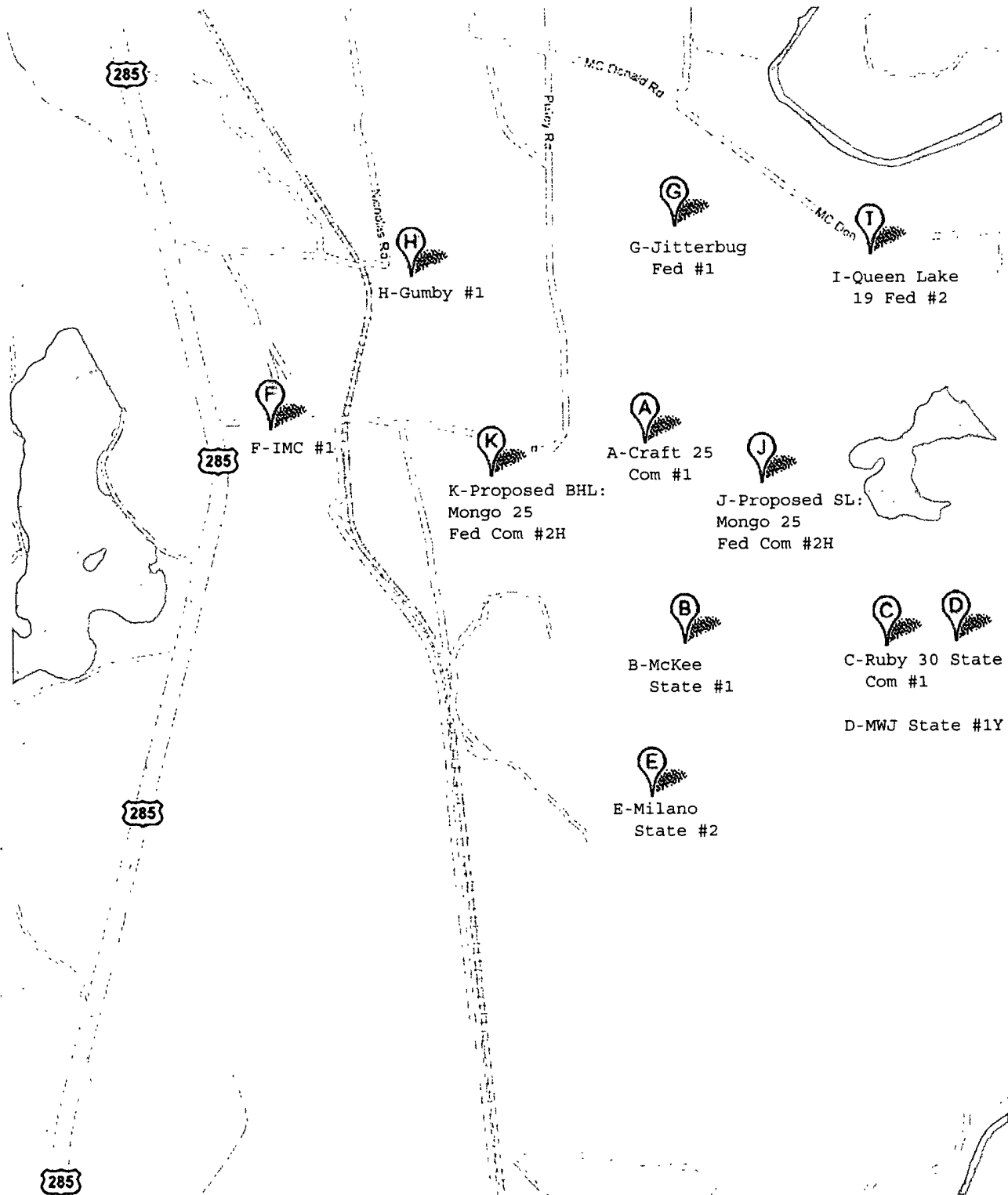
YELLOW TINT - USA LAND  
 BLUE TINT - STATE LAND  
 NATURAL COLOR - FEE LAND

**OGX**  
**RESOURCES,**  
**L.L.C.**

EXHIBIT C-1  
VICINITY OIL & GAS MAP



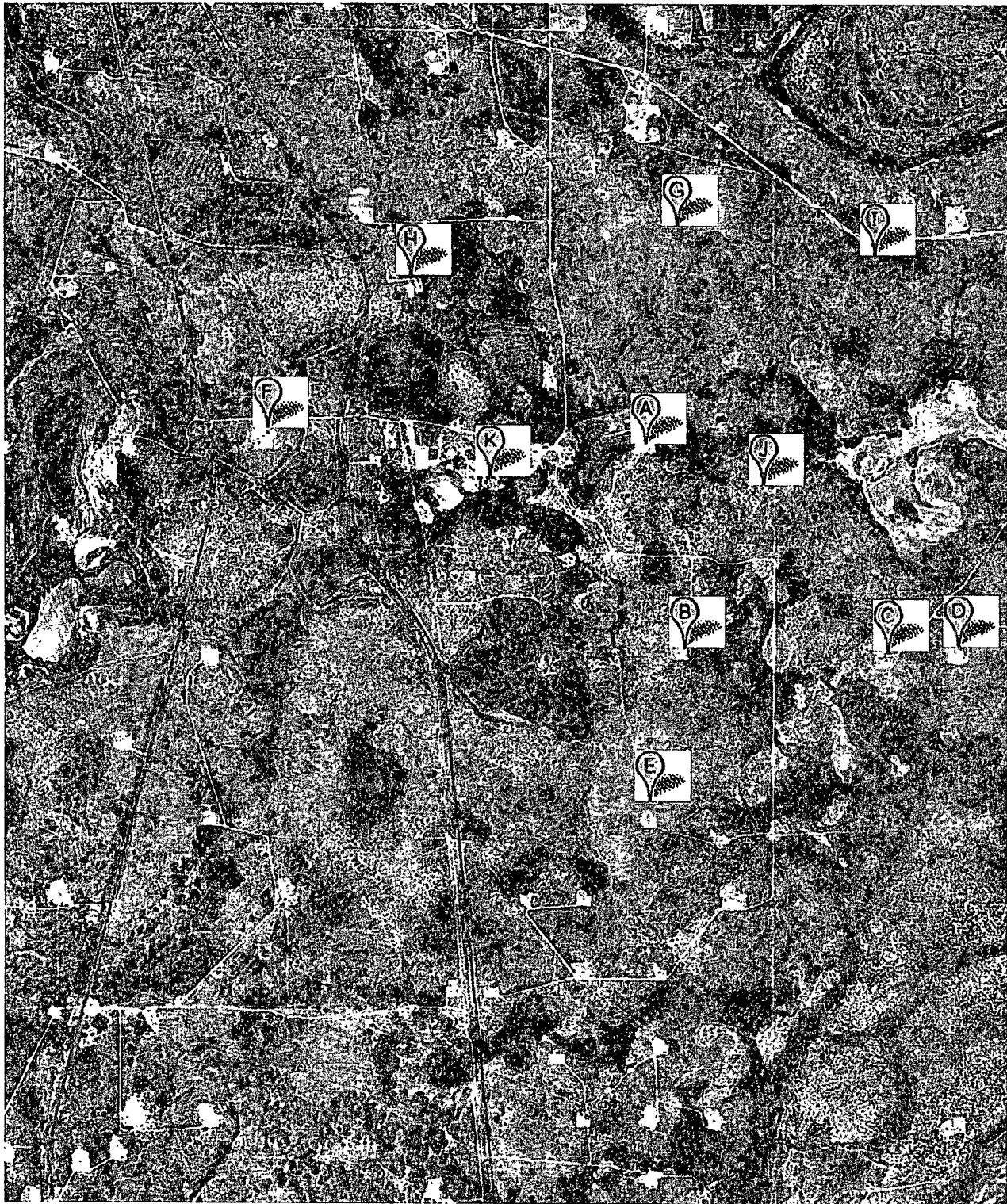
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EXHIBIT C-2  
VICINITY OIL & GAS MAP

Map data ©2009 Tele Atlas - Terms of Use

## EXHIBIT C-3

## VICINITY OIL &amp; GAS MAP



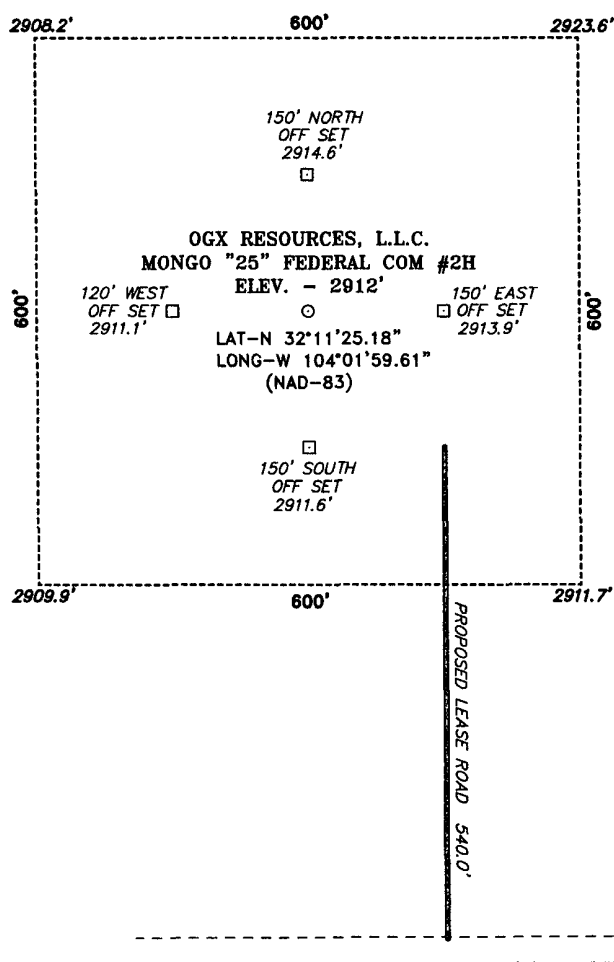
A-Craft 25 Com #1  
B-McKee State #1  
C-Ruby 30 State Com #1  
D-MWJ State #1Y  
E-Milano State #2  
F-IMC #1

G-Jitterbug Fed #1  
H-Gumby #1  
I-Queen Lake 19 Fed #2  
J-Proposed SL: Mongo 25 Fed Com #2H  
K-Proposed BHL: Mongo 25 Fed Com #2H

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## EXHIBIT G

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



SCALE: 1" = 200'

## DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF HWY 285 AND CO. RD. 721;  
GO EAST ON PULLY FOR 1.2 MILES TO LEASE ROAD,  
ON LEASE ROAD GO SOUTHERLY 0.5 MILES TURNING  
EAST FOR 0.5 MILES TO PROPOSED LEASE ROAD.

**OGX RESOURCES, L.L.C.**

REF: MONGO "25" FEDERAL COM #2H / Well Pad Topo

THE MONGO "25" FEDERAL COM #2H LOCATED 1980' FROM

THE NORTH LINE AND 374' FROM THE EAST LINE OF

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 28 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 21104

Drawn By: J. M. SMALL

Date: 02-19-2009

Disk: JMS 21104

Survey Date: 02-18-2009

Sheet 1 of 1 Sheets



## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OGX Resources LLC
LEASE NO.:	NM-25953
WELL NAME & NO.:	Mongo 25 Fed Com #2H
SURFACE HOLE FOOTAGE:	1980' FNL & 374' FEL
BOTTOM HOLE FOOTAGE:	1980' FNL & 350' FWL
LOCATION:	Section 25, T. 24 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**
  - Communitization Agreement
  - Cave/Karst
- ☐ **Construction**
  - Notification
  - Topsoil
  - Reserve Pit
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
  - High cave/karst
- ☐ **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)

### **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. Operator to supply NMOC order or description of pool which details the vertical and horizontal extent of pool to verify that requested communitization is within an approved and established pool.

### **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) 234-5972 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.

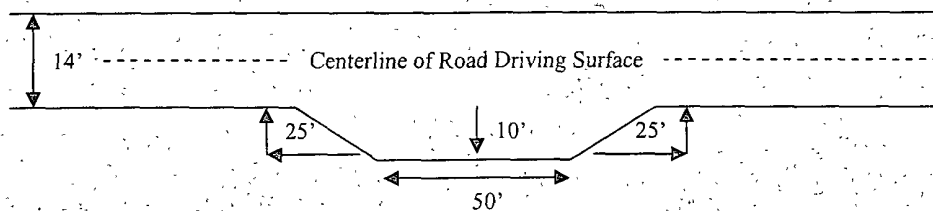
### **Ditching**

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:

**Standard Turnout – Plan View**

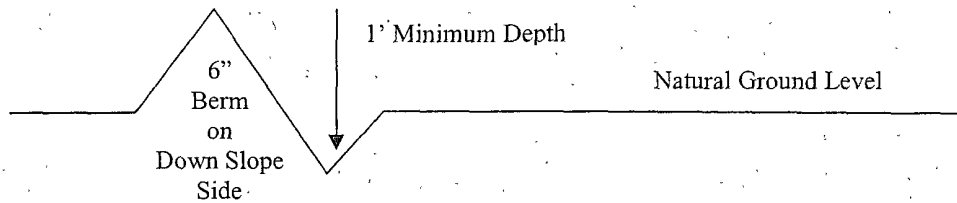


### **Drainage**

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

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

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



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

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

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

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

#### **Culvert Installations**

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

#### **Cattleguards**

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

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

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

**Fence Requirement**

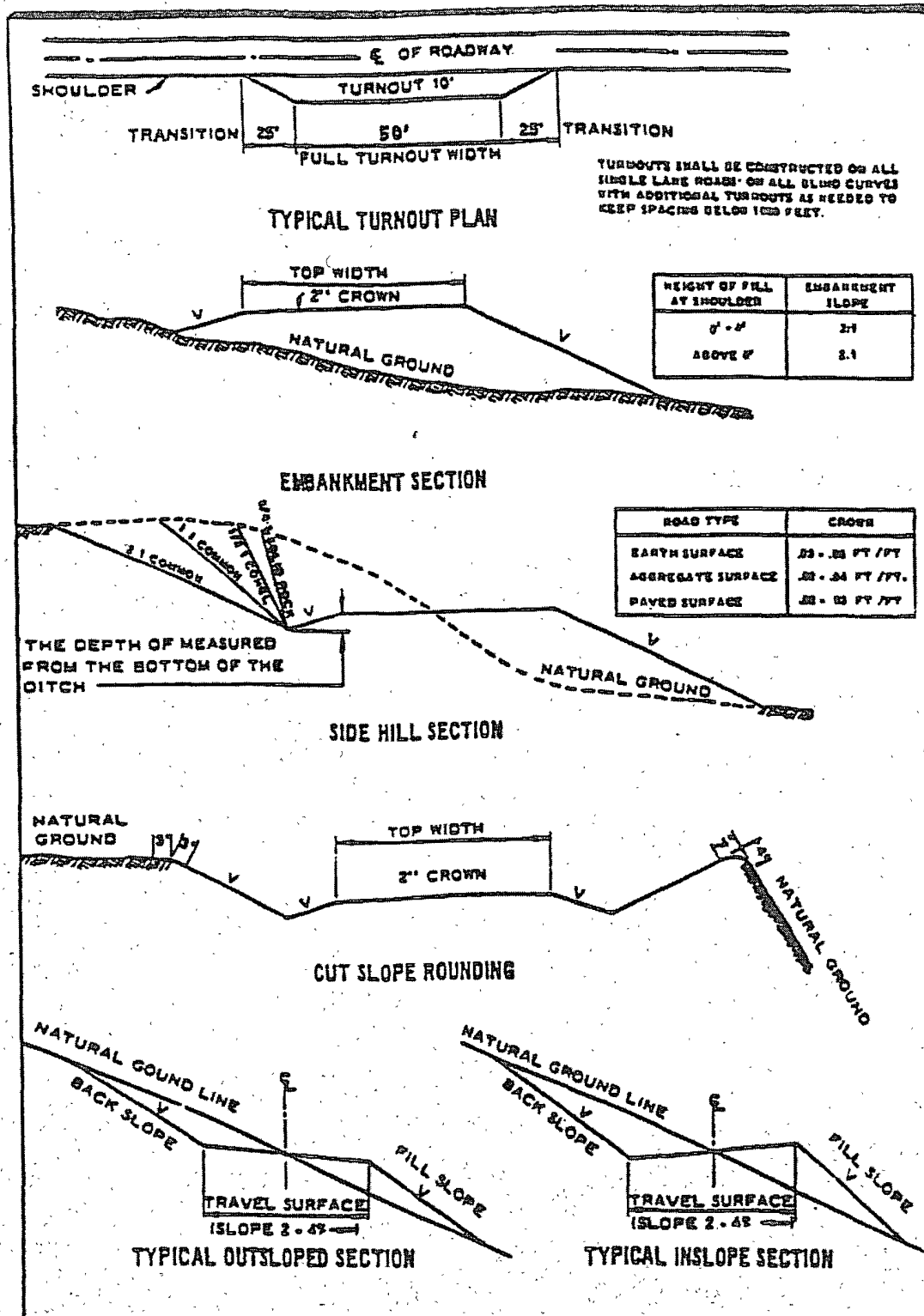
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

**Public Access**

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **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.
4. A Gamma Ray/Neutron log should be run from the base of the 8-5/8 inch intermediate casing to surface to define the Rustler and salt formations.

### B. CASING

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

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



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

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

**High cave/karst.**

**Possible lost circulation in the Triassic redbeds and the Castile Group.**

1. The 13-3/8 inch surface casing shall be set **at approximately 550 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. Rustler Anhydrite could be encountered shallower.**
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:
  - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **The casing is to be set in the Fletcher Anhydrite or Lamar Limestone at approximately 2550'. Additional cement may be required since the excess calculates to less than 10%. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst concerns.**

**Formation below the 8-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.**

**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.

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 **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. The tests shall be done by an independent service company.

b. The results of the test shall be reported to the appropriate BLM office.

c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

**D. DRILL STEM TEST**

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

**RGH 061409**

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

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

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass ( <i>Eragrostis intermedia</i> )	0.5
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sideoats grama ( <i>Bouteloua curtipendula</i> )	5.0

\*Pounds of pure live seed:

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

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

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

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