

OCD Hobbs
RECEIVED

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FEB 23 2011

HOBBSOCD

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM- 12559	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name _____	
2. Name of Operator OGX RESOURCES, LLC. (JEFF BIRKELBACH 432-685-1287)		7. If Unit or CA Agreement, Name and No. _____	
3a. Address P. O. BOX 2064 MIDLAND, TEXAS 79702		8. Lease Name and Well No. (38514) COTTONMOUTH "24" FEDERAL COM. #1H	
3b. Phone No. (include area code) 432-685-1287		9. API Well No. 70-015-38507	
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 105' FSL & 745' FWL SEC. 24 T26S-R28E At proposed prod. zone 990' FSL & 330' FWL SEC. 23 T26S-R28E <i>Becomes orthodox at approximately 7250 MD</i>		10. Field and Pool, or Exploratory TECOLOTE PEAK -Delaware (59170)	
11. Sec., T. R. M. or Blk. and Survey or Area SECTION 24 T26S-R28E		12. County or Parish EDDY CO.	
13. State NM		14. Distance in miles and direction from nearest town or post office* Approximately 15 miles South of Malaga New Mexico	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 105'		16. No. of acres in lease 320	
17. Spacing Unit dedicated to this well 160' 200' run Joe Janica 12/21/10		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. NA	
19. Proposed Depth TVD-6850' MD-12,473'		20. BLM/BIA Bond No. on file NMB_000244	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2961 GL		22. Approximate date work will start* WHEN APPROVED	
23. Estimated duration 25 days		24. Attachments	

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

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Joe T. Janica</i>	Name (Printed/Typed) Joe T. Janica	Date 11/29/10
Title Permit Eng.		

Approved by (Signature) <i>/s/ James Stovall</i>	Name (Printed/Typed) _____	Date FEB 18 2011
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on page 2)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

KZ 02/01/11

CARLSBAD CONTROLLED WATER BASIN

Approval Subject to General Requirements
& Special Stipulations Attached

APPLICATION TO DRILL

OGX RESOURCES, LLC.
 COTTONMOUTH "24" FEDERAL COM. # 1H
 UNIT "M" SECTION 24
 T26S-R28E EDDY CO. NM

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

1. LOCATION: 105' FSL & 745' FWL SECTION 24 T26S-R28E EDDY CO. NM
2. ELEVATION ABOVE SEA LEVEL: 2961' GL
3. GEOLOGICAL NAME OF SURFACE FORMATION: Quaternary Aeolian Deposits;
4. DRILLING TOOLS AND ASSOCIATED EQUIPMENT: Conventional rotary drilling rig using drilling mud as a circulating medium for the removal of solids from the hole.
5. PROPOSED DRILLING DEPTH: TVD-6850' MD-12,473'
6. ESTIMATED TOPS OF GEOLOGICAL FORMATIONS:

Basal Anhydrite	2420'	Cherry Canyon	3500'
Lamar Lime	2600'	Brushy Canyon	4700'
Bell Canyon	2630'	Bone Spring	6350'
7. POSSIBLE MINERAL BEARING FORMATIONS:

Bell Canyon	Oil/Gas/Water		
Cherry Canyon	Oil/Gas/Water	Brushy Canyon	Oil/Gas/Water
		Bone Spring	Oil/Gas?Water
8. CASING PROGRAM:

see COA

HOLE SIZE	INTERVAL	CASING OD	WEIGHT	THREAD	COLLAR	GRADE	CONDITION
26"	0-40'	20"	NA	NA	NA	Conductor	New
17½"	0-425' 450'	13 3/8"	48#	8-R	ST&C	H-40	New
11"	0-2525'	8 5/8"	32#	8-R	ST&C	J-55	New
7 7/8"	0-6400'	5½"	17#	8-R	LT&C	P-110	New
7 7/8"	6400-12,472'	5½"	17#	Buttress	BT&C	P-110	New

CASING SAFETY FACTORS: Collapse 1.125 Burst 1.00 Body Yield 1.5
 Joint Strength 8-Round 1.8
 Buttress 1.6

APPLICATION TO DRILL

OGX RESOURCES, LLC.
COTTONMOUTH "24" FEDERAL COM. # 1H
UNIT "M" SECTION 24
T26S-R28E EDDY CO. NM

9. CASING CEMENTING AND SETTING DEPTHS:

20"	Conductor	Set 40' of 20" conductor pipe and cement to surface with Redi-Mix.
13 3/8"	Surface	Run and set ^{450'} 425' of 13 3/8" 48# H-40 ST&C casing. Cement with 225 Sx. of 35/65/6 Class "C" Premium Plus POZ cement + 6% Bentonite, + 5% Salt, + 5% MPA-5, + 0.7% Sodium Metasilicate, + 5# LCM/Sx. Yield 2.00, tail in with 200 Sx. of Class "C" Premium Plus cement + 2% CaCl, Yield 1.34, circulate cement to surface.
8 5/8"	Intermediate	Run and set 2525' of 8 5/8" 32# J-55 ST&C casing. Cement with 300 Sx. of 35/65 Premium Plus Class "C" POZ cement, + 4% Bentonite, + 5% Salt, + 5% MPA-5, + 0.7% Sodium Metasilicate, + 5# LCM/Sx. Yield 2.02, tail in with 200 Sx. of of Class "C" cement + 2% CaCl, Yield 1.34, circulate cement to surface.
5 1/2"	Production	Run and set 12,472' of 5 1/2" casing as follows: 6072' of 5 1/2" 17# P-110 BT&C, 6400' of 5 1/2" 17# LT&C P-110 casing. Cement with 400 Sx. of 35/65 Premium Plus Class "C" POZ cement + 4% Bentonite, + 5% Salt, + 5% MPA-5, + 0.7% Sodium Metasilicate, + 5# LCM/Sx, Yield 2.02, tail in with 900 Sx. of Class "C" cement + 2% CaCl, Yield 1.34,

See
COA

See
COA

10. PRESSURE CONTROL EQUIPMENT:

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

APPLICATION TO DRILL

OGX RESOURCES, LLC.
 COTTONMOUTH "24" FEDERAL COM. # 1H
 UNIT "M" SECTION 24
 T26S-R28E EDDY CO. NM

11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD WT.	VISC.	FLUID LOSS	TYPE MUD SYSTEM
See COA 450' 40-425 450'	8.6-8.8	36-38	NC	Fresh water Spud Mud, use paper to control seepage.
425-2525'	10.0-10.1	29-30	NC	Brine water use paper to control seepage and high viscosity sweeps to clean hole.
2525-6500'	8.4-9.1	28-29	NC	Fresh water use paper to control seepage and high viscosity sweeps to clean hole.
6500-12,473'	8.4-9.1	34-36	12-15 cc or less	Same as above use Dynazan HB-41 and starch to control fluid loss and hole stability.

A closed mud system will be employed during the drilling of this well all cuttings and fluids will be disposed in a State approved disposal facility.

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. In order to run DST's, open hole logs, cut cores and casing, the viscosity, water loss and other properties may have to be altered to meet these requirements.

APPLICATION TO DRILL

OGX RESOURCES, LLC.

COTTONMOUTH "24" FEDERAL COM. # 1H

UNIT "M"

SECTION 24

T26S-R28E

EDDY CO. NM

12. LOGGING, CORING, AND TESTING PROGRAM:

See COA

A. No logs at surface

B. Mud loggers on below 13 3/8" casing shoe-No electric logs at Intermediate depth;

C. The vertical at KO point (Production) hole will be logged, Gyro (Thru Drill pipe) Gamma Ray, Dual laterolog, Neutron, Density, Caliper.

D. No DST's or cores planned. The horizontal lateral will be logged via MWD.

13. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are expected. There is no known presence of H²S in this area. If H²S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 3500 PSI, and Estimated BHT 130°.

14. ANTICIPATED STARTING DATE AND DURATION OF OPERATION:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operation and drilling is expected to take 25 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flowlines in order to place well on production.

15. OTHER FACETS OF OPERATIONS:

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

**Cottonmouth 24 Fed Com No.1H
Delaware River South (Bone Spring)Field
Eddy County, New Mexico
Drilling Procedure
Nov 2010**

General Information

Lease:	Cottonmouth 24 Fed Com	AFE BCP:	\$
Well No.:	1H	AFE ACP:	
Field:	Delaware River Bone Spring Sth	AFE Total:	
County:	Eddy	AFE NO:	
State:	New Mexico	API No.:	30-015-XXXXX
Section:	24	Permit Date:	
Township:	26S	Permit TVD:	7,500'
Range:	28E	Proposed MD:	11,295'
Surface Section Ties:	105' FSL & 745' FWL	Drilling Days:	23
BHL (target)	990' FSL & 330' FWL Sec.23		
Ground Level:	2961'	KB:	2978'
Latitude:	32°01'16.28" N	Longitude	104°02'50.14" W

Well Objectives

The primary objective of this well is to evaluate potential within the Delaware intervals and taken horizontal in the Upper Bone Spring Shale. The well will be drilled to ~ 6,500'; logged and taken horizontal.

Directions To Well

From the junction of US Hwy 285 & Co.Rd. 725 (mile marker 4) / Est on 725 for 4 mi cross Pecos River.

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.

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

Permian

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

<u>Formation</u>	<u>Depth</u>	<u>Frm Pres</u>	<u>Remarks</u>
Basal Anhydrite	2420'	10 ppge	Drig fluid must be saturated salt water
Lamar	2600'	8.4 ppge	Base of Salt
Bell Canyon	2630'	8.4 ppge	Oil / Gas / Formation water / Poss. H ₂ S
Cherry Canyon	3500'	8.4 ppge	Oil / Gas / Formation water
Brushy Canyon	4700'	8.4 ppge	Oil / Gas / Formation water
Bone Spring	6350'	8.4 ppge	Oil / Gas / Formation water

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 425' and circulating cement back to surface. Potash/ fresh water sands will be protected by setting 8 5/8" casing at 2525' 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 300' above the base of the 8 5/8" casing.

CASING PROGRAM:

HOLE SIZE	DEPTH	OD Csg	WEIGHT	COLLAR	GRADE	NEW/USED
17 1/2"	0-425' ^{450'}	13 3/8"	48	STC	H40	New
11"	0-2525'	8 5/8"	32	STC	J55	New
7 7/8"	0-6400'	5 1/2"	17	LTC	P110	New
7 7/8"	6400-12470'	5 1/2"	17	BTC	P110	New

See
CA**Casing weight and grades are minimum – higher weights & better grades may be substituted**

(8 5/8" 32# will be special drift to 7.921)
(5 1/2" BTC will be run thru the curve & Lateral)

DEPTH	OD Csg	WEIGHT	factors: Burst / Collapse / Tension		
0-450'	13 3/8"	48	1.65	1.52	12+
0-2625'	8 5/8"	32	1.27	1.56	3.64
0-12470'	5 1/2"	17	1.87	1.76	2.27

** The Intermediate hole will never be evacuated**

(5 1/2 Burst & Collapse Calculated @ 7200' TVD)

CEMENT PROGRAM:**13 3/8" Surface**

Spacer 50 bbls of fresh water
 Slurry Lead: 35:65:6 – Poz: Prem Plus C + 6% Bentonite + 5% salt + 5% MPA-5 + .7% Sodium Metasilicate + 5 lbs LCM + 97.9 fresh water
 Tail: Premium Plus C + 2% CaCl₂ + 56.4% Fresh Water

Cement Properties	Lead	Tail
Est Volume (sacks)	225	200
Density (ppg)	12.80	14.80
Yield (ft ³ /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*See COA*

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% CaCl₂ + 56.4% fresh water

Cement Properties	Lead	Tail
Est Volume (sacks)	300	200
Density (ppg)	12.7	14.8
Yield (ft ³ /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	

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

5 1/2" Production *See COA*

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% CaCl₂ + 56.4% fresh water

Cement Properties

	<u>Lead</u>	<u>Tail</u>
Est Volume (sacks)	400	900
Density (ppg)	12.7	14.8
Yield (ft ³ /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	

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

Kick-Off plug in Pilot Hole for Horizontal

No Plug Required

MUD PROPERTIES SUMMARY:

Depth (feet)	Weight (ppg)	Viscosity (sec/1000cc)	Fluid Loss (cc/30min)	PV (cps)	YP (lb/100ft ²)	Mud Type
0' - 425' ^{450'} Set 13-3/8" Casing	8.6 - 8.8	36 - 38	N/C	6 - 10	6 - 20	Spud Mud
^{450'} 425' - 2,525' Set 8-5/8" Casing	10.0 - 10.1	29 - 30	N/C	0 - 1	0 - 1	Brine
2,525' - 6,500'	8.4 - 9.1	28 - 29	N/C	0 - 1	0 - 1	Fresh Water
6,500' - 12,470' MD Set 5-1/2"	8.4 - 9.10	34 - 36	12 - 15	4 - 8	4 - 8	Dynazan / Starch HB 411

Auxiliary Well Control & Monitoring Equipment:

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

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

H₂S detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" csg is cemented.

LOGGING, CORING, AND TESTING *See COA*

No logs at surface.

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

The Vertical @ KO pt. (Production) hole will be logged: Gyro (Thru DP) & 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 H₂S in this area. If H₂S 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 3500 psi. & BHT is 130° F.

Anticipated Starting Date & Duration:

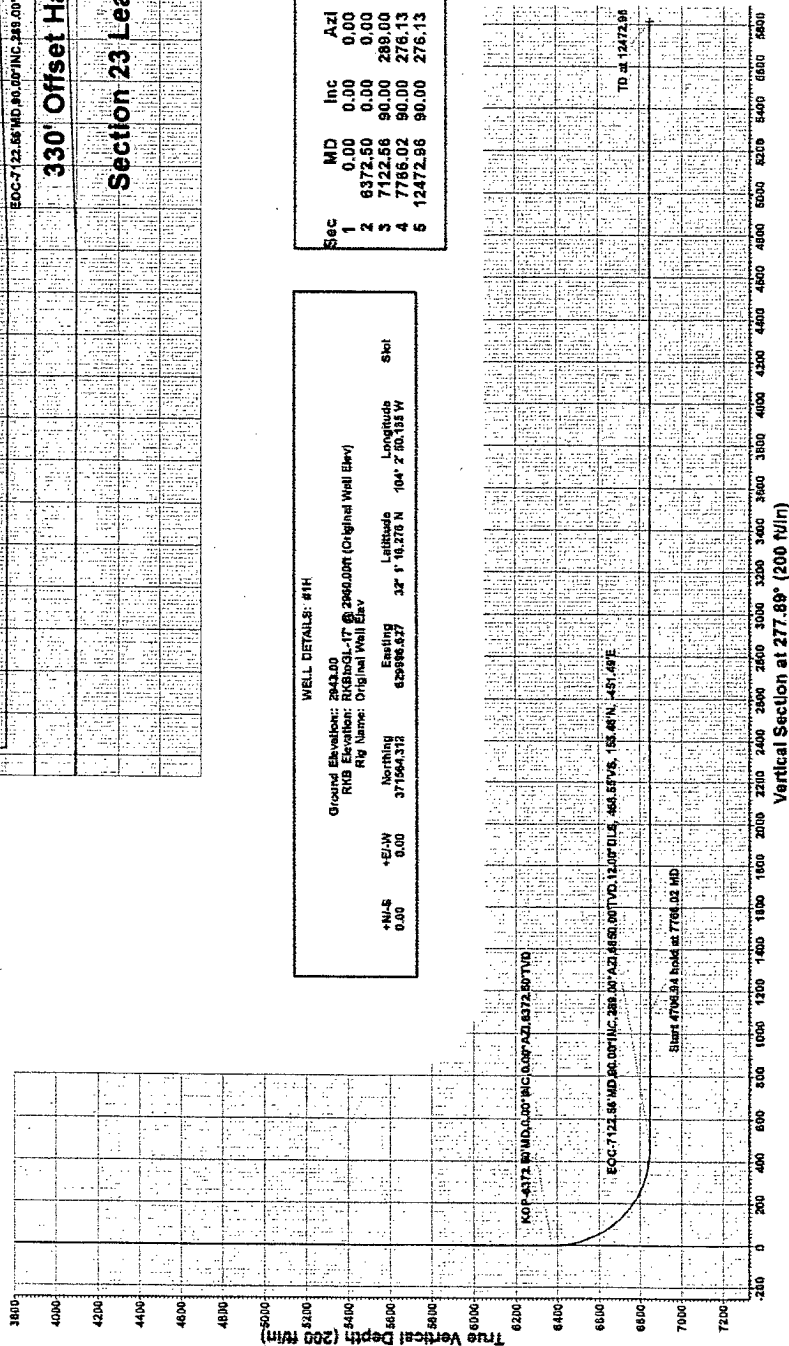
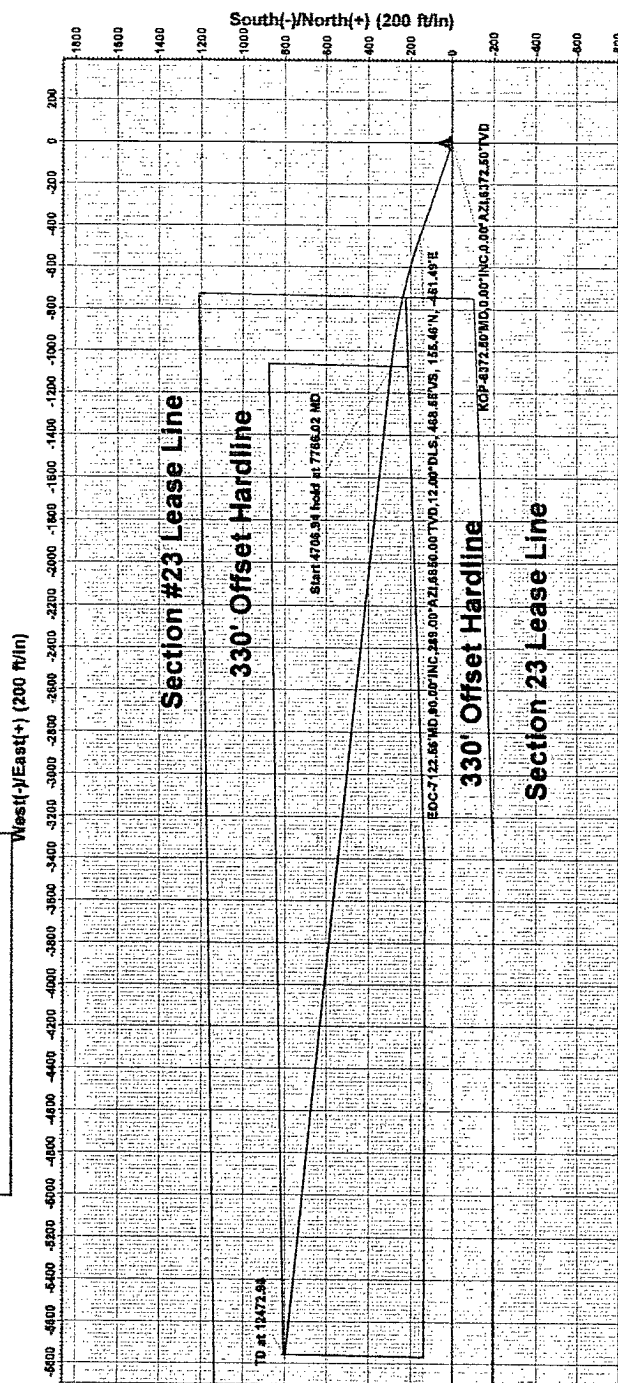
Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be ASAP subsequent to APD approval. Move in and drilling operations will take 23 days with an additional 20 days to complete the well and construct production facilities.

Project: Eddy County (NAD 83)
Site: Cottonmouth "24" Federal Com
Well: #1H
Wellbore: OH
Plan: Plan #1 (#1H/OH)

Azimuths to Grid North
True North: -0.15°
Magnetic North: 7.71°

Magnetic Field
Strength: 48554.2nT
Dip Angle: 59.95°
Date: 09/10/2010
Model: IGRF200510

PATHFINDER®
A Schlumberger Company



WELL DETAILS: #1H			
Ground Elevation: 7943.00			
R/W Elevation: R/W55.5L-17 @ 2940.00ft (Original Well Elev)			
Rig Name: Original Well Elev			
	Northings	Eastings	Longitude
	371564.312	625996.637	104° 2' 00.151 W
*E/W	0.00		
*N/S	0.00		

		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	0.00	0.00	
2	9372.50	30.00	0.00	8372.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	7122.56	30.00	299.00	8650.00	195.46	-151.48	12.00	289.00	4886.55	Cottonmouth#1H_BHL		
4	7122.56	30.00	298.33	8650.00	207.65	-157.82	0.00	-30.00	1103.25	Cottonmouth#1H_BHL		
5	12472.56	90.00	276.13	8650.00	737.84	-5758.24	0.00	0.00	5513.25	Cottonmouth#1H_BHL		

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)					
Name	TVD	N/S	+E/W	Northings	Easting
	8976.00	797.44	-5758.24	372302.155	824238.392
					Slope 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 (RIN/CH)

Created By: Nate Bingham Date: 9:35, November 18 2019

Checked: Date:

OGX

RECEIVED

FEB 23 2011

HOBBSOCD

OGX Resources

Eddy County (NAD 83)

Cottonmouth "24" Federal Com

#1H

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

15 November, 2010

PATHFINDER®

A Schlumberger Company



Pathfinder

Pathfinder X & Y Planning Report



A Schlumberger Company

Company: OGX Resources
Project: Eddy County (NAD 83)
Site: Cottonmouth "24" Federal Com
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: RKBtoGL-17' @ 2960.00ft (Original Well Elev)
MD Reference: RKBtoGL-17' @ 2960.00ft (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: Cottonmouth "24" Federal Com

Site Position: Northing: 371,564.312 ft Latitude: 32° 1' 16.276 N
From: Easting: 629,996.627 ft Longitude: 104° 2' 50.135 W
Position Uncertainty: Map 0.00 ft Slot Radius: " Grid Convergence: 0.15 °

Well: #1H

Well Position: +N/-S 0.00 ft Northing: 371,564.312 ft Latitude: 32° 1' 16.276 N
+E/-W 0.00 ft Easting: 629,996.627 ft Longitude: 104° 2' 50.135 W
Position Uncertainty: 0.00 ft Wellhead Elevation: ft Ground Level: 2,943.00 ft

Wellbore: OH

Magnetics: Model Name Sample Date Declination (°) Dip Angle (°) Field Strength (nT)
IGRF200510 09/10/10 7.87 59.95 48,554

Design: Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section: Depth From (TVD) (ft) +N/-S (ft) +E/-W (ft) Direction (°)
0.00 0.00 0.00 277.89

Survey Tool Program: Date 11/15/10

From (ft) **To (ft)** **Survey (Wellbore)** **Tool Name** **Description**
0.00 12,472.96 Plan #1 (OH) MWD MWD - Standard



Pathfinder

Pathfinder X & Y Planning Report



A Schlumberger Company

Company: OGX Resources
Project: Eddy County (NAD 83)
Site: Cottonmouth "24" Federal Com
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: RKBtoGL-17 @ 2960.00ft (Original Well Elev)
MD Reference: RKBtoGL-17 @ 2960.00ft (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	-2,960.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
100.00	0.00	0.00	100.00	-2,860.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
200.00	0.00	0.00	200.00	-2,760.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
300.00	0.00	0.00	300.00	-2,660.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
400.00	0.00	0.00	400.00	-2,560.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
500.00	0.00	0.00	500.00	-2,460.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
600.00	0.00	0.00	600.00	-2,360.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
700.00	0.00	0.00	700.00	-2,260.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
800.00	0.00	0.00	800.00	-2,160.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
900.00	0.00	0.00	900.00	-2,060.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,000.00	0.00	0.00	1,000.00	-1,960.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,100.00	0.00	0.00	1,100.00	-1,860.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,200.00	0.00	0.00	1,200.00	-1,760.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,300.00	0.00	0.00	1,300.00	-1,660.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,400.00	0.00	0.00	1,400.00	-1,560.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,500.00	0.00	0.00	1,500.00	-1,460.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,600.00	0.00	0.00	1,600.00	-1,360.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,700.00	0.00	0.00	1,700.00	-1,260.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,800.00	0.00	0.00	1,800.00	-1,160.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
1,900.00	0.00	0.00	1,900.00	-1,060.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
2,000.00	0.00	0.00	2,000.00	-960.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
2,100.00	0.00	0.00	2,100.00	-860.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
2,200.00	0.00	0.00	2,200.00	-760.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
2,300.00	0.00	0.00	2,300.00	-660.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
2,400.00	0.00	0.00	2,400.00	-560.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
2,500.00	0.00	0.00	2,500.00	-460.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
2,600.00	0.00	0.00	2,600.00	-360.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63



Pathfinder

Pathfinder X & Y Planning Report



A Schlumberger Company

Company: OGX Resources
Project: Eddy County (NAD 83)
Site: Cottonmouth "24" Federal Com
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:

Well #1H

TVD Reference: RKBtoGL-17' @ 2960.00ft (Original Well Elev)

MD Reference:

RKBtoGL-17' @ 2960.00ft (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)	D Leg (°/100ft)	Northing (ft)	Easting (ft)
2,700.00	0.00	0.00	2,700.00	-260.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
2,800.00	0.00	0.00	2,800.00	-160.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
2,900.00	0.00	0.00	2,900.00	-60.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,000.00	0.00	0.00	3,000.00	40.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,100.00	0.00	0.00	3,100.00	140.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,200.00	0.00	0.00	3,200.00	240.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,300.00	0.00	0.00	3,300.00	340.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,400.00	0.00	0.00	3,400.00	440.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,500.00	0.00	0.00	3,500.00	540.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,600.00	0.00	0.00	3,600.00	640.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,700.00	0.00	0.00	3,700.00	740.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,800.00	0.00	0.00	3,800.00	840.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
3,900.00	0.00	0.00	3,900.00	940.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,000.00	0.00	0.00	4,000.00	1,040.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,100.00	0.00	0.00	4,100.00	1,140.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,200.00	0.00	0.00	4,200.00	1,240.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,300.00	0.00	0.00	4,300.00	1,340.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,400.00	0.00	0.00	4,400.00	1,440.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,500.00	0.00	0.00	4,500.00	1,540.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,600.00	0.00	0.00	4,600.00	1,640.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,700.00	0.00	0.00	4,700.00	1,740.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,800.00	0.00	0.00	4,800.00	1,840.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
4,900.00	0.00	0.00	4,900.00	1,940.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
5,000.00	0.00	0.00	5,000.00	2,040.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
5,100.00	0.00	0.00	5,100.00	2,140.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
5,200.00	0.00	0.00	5,200.00	2,240.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63
5,300.00	0.00	0.00	5,300.00	2,340.00	0.00	0.00	0.00	0.00	371,584.31	629,996.63



Pathfinder

Pathfinder X & Y Planning Report



Company: OGX Resources
Project: Eddy County (NAD 83)
Site: Cottonmouth "24" Federal Com
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: RKBoGL-17 @ 2960.00ft (Original Well Elev)
MD Reference: RKBoGL-17 @ 2960.00ft (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)	D Leg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	2,440.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
5,500.00	0.00	0.00	5,500.00	2,540.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
5,600.00	0.00	0.00	5,600.00	2,640.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
5,700.00	0.00	0.00	5,700.00	2,740.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
5,800.00	0.00	0.00	5,800.00	2,840.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
5,900.00	0.00	0.00	5,900.00	2,940.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
6,000.00	0.00	0.00	6,000.00	3,040.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
6,100.00	0.00	0.00	6,100.00	3,140.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
6,200.00	0.00	0.00	6,200.00	3,240.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
6,300.00	0.00	0.00	6,300.00	3,340.00	0.00	0.00	0.00	0.00	371,564.31	629,996.63
6,372.50	0.00	0.00	6,372.50	3,412.50	0.00	0.00	0.00	0.00	371,564.31	629,996.63
KOP-9372.50' MD, 0.00° INC, 0.00° AZI, 6372.50' TVD										
6,375.00	0.30	289.00	6,375.00	3,415.00	0.00	-0.01	0.01	12.00	371,564.31	629,996.62
6,400.00	3.30	289.00	6,399.98	3,439.98	0.26	-0.75	0.78	12.00	371,564.57	629,995.88
6,425.00	6.30	289.00	6,424.89	3,464.89	0.94	-2.73	2.83	12.00	371,565.25	629,993.90
6,450.00	9.30	289.00	6,449.86	3,489.86	2.04	-5.93	6.16	12.00	371,566.36	629,990.69
6,475.00	12.30	289.00	6,474.21	3,514.21	3.57	-10.36	10.75	12.00	371,567.88	629,986.26
6,500.00	15.30	289.00	6,498.49	3,538.49	5.51	-16.00	16.60	12.00	371,569.82	629,980.63
6,525.00	18.30	289.00	6,522.42	3,562.42	7.86	-22.83	23.69	12.00	371,572.17	629,973.80
6,550.00	21.30	289.00	6,545.94	3,585.94	10.62	-30.84	32.00	12.00	371,574.93	629,965.79
6,575.00	24.30	289.00	6,568.98	3,608.98	13.77	-39.99	41.51	12.00	371,578.08	629,956.63
6,600.00	27.30	289.00	6,591.49	3,631.49	17.31	-50.28	52.18	12.00	371,581.62	629,946.35
6,625.00	30.30	289.00	6,613.40	3,653.40	21.23	-61.67	64.00	12.00	371,585.55	629,934.96
6,650.00	33.30	289.00	6,634.64	3,674.64	25.52	-74.12	76.92	12.00	371,589.83	629,922.51
6,675.00	36.30	289.00	6,655.17	3,695.17	30.17	-87.61	90.92	12.00	371,594.48	629,909.02
6,700.00	39.30	289.00	6,674.92	3,714.92	35.15	-102.09	105.95	12.00	371,599.47	629,894.53
6,725.00	42.30	289.00	6,693.84	3,733.84	40.47	-117.54	121.98	12.00	371,604.78	629,879.09



Pathfinder

Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company: OGX Resources
Project: Eddy County (NAD 83)
Site: Cottonmouth "24" Federal Com
Well: #1H
Wellbore: OH
Design: Plan #1

Well #1H

Local Co-ordinate Reference:
RKBtoGL-17' @ 2960.00ft (Original Well Elev)
RKBtoGL-17' @ 2960.00ft (Original Well Elev)

MD Reference:
Grid
North Reference:
Minimum Curvature
Survey Calculation Method:
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)
6,750.00	45.30	289.00	6,711.89	3,751.89	46.10	-133.89	138.95	12.00	371,610.42	629,862.73
6,775.00	48.30	289.00	6,729.00	3,769.00	52.04	-151.12	156.83	12.00	371,616.35	629,845.50
6,800.00	51.30	289.00	6,745.14	3,785.14	58.25	-169.17	175.57	12.00	371,622.56	629,827.45
6,825.00	54.30	289.00	6,760.25	3,800.25	64.73	-188.00	195.10	12.00	371,629.05	629,808.63
6,850.00	57.30	289.00	6,774.30	3,814.30	71.46	-207.55	215.39	12.00	371,635.78	629,789.08
6,875.00	60.30	289.00	6,787.25	3,827.25	78.42	-227.76	236.37	12.00	371,642.74	629,768.86
6,900.00	63.30	289.00	6,799.07	3,839.07	85.60	-248.59	257.99	12.00	371,649.91	629,748.04
6,925.00	66.30	289.00	6,809.71	3,849.71	92.96	-269.98	280.18	12.00	371,657.27	629,726.65
6,950.00	69.29	289.00	6,819.16	3,859.16	100.50	-291.86	302.89	12.00	371,664.81	629,704.77
6,975.00	72.29	289.00	6,827.38	3,867.38	108.18	-314.18	326.05	12.00	371,672.49	629,682.45
7,000.00	75.29	289.00	6,834.36	3,874.36	116.00	-336.87	349.61	12.00	371,680.31	629,659.75
7,025.00	78.29	289.00	6,840.07	3,880.07	123.92	-359.89	373.49	12.00	371,688.23	629,636.74
7,050.00	81.29	289.00	6,844.50	3,884.50	131.93	-383.15	397.63	12.00	371,696.24	629,613.48
7,075.00	84.29	289.00	6,847.63	3,887.63	140.00	-406.60	421.96	12.00	371,704.31	629,590.03
7,100.00	87.29	289.00	6,849.47	3,889.47	148.12	-430.17	446.42	12.00	371,712.43	629,566.46
7,122.56	90.00	289.00	6,850.00	3,890.00	155.46	-451.49	468.55	12.00	371,719.77	629,545.14
EOC-7122.56 MD, 90.00° INC, 289.00° AZI, 6850.00' TVD, 12.00° DLS, 488.55° VS, 155.46° N, -451.49° E										
7,200.00	90.00	287.45	6,850.00	3,890.00	179.68	-525.04	544.73	2.00	371,743.99	629,471.58
7,300.00	90.00	285.45	6,850.00	3,890.00	208.00	-620.84	643.61	2.00	371,772.31	629,375.68
7,400.00	90.00	283.45	6,850.00	3,890.00	232.95	-717.77	742.95	2.00	371,797.26	629,278.85
7,500.00	90.00	281.45	6,850.00	3,890.00	254.51	-815.42	842.63	2.00	371,818.82	629,181.21
7,600.00	90.00	279.45	6,850.00	3,890.00	272.65	-913.75	942.53	2.00	371,836.96	629,082.87
7,700.00	90.00	277.45	6,850.00	3,890.00	287.35	-1,012.66	1,042.52	2.00	371,851.66	628,983.96
7,766.02	90.00	276.13	6,850.00	3,890.00	295.15	-1,078.22	1,108.52	2.00	371,859.46	628,918.41
Start 4706.94 hold at 7766.02 MD										
7,800.00	90.00	276.13	6,850.00	3,890.00	298.78	-1,112.00	1,142.49	0.00	371,863.09	628,884.62
7,900.00	90.00	276.13	6,850.00	3,890.00	309.46	-1,211.43	1,242.44	0.00	371,873.77	628,785.19



Pathfinder

Pathfinder X & Y Planning Report



A Schlumberger Company

Company: OGX Resources
Project: Eddy County (NAD 83)
Site: Cottonmouth "24" Federal Com
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: RKBtoGL-17' @ 2960.00ft (Original Well Elev)
MD Reference: RKBtoGL-17' @ 2960.00ft (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)	D Leg (°/100ft)	Northing (ft)	Easting (ft)
10,700.00	90.00	276.13	6,850.00	3,890.00	608.50	-3,995.42	4,041.12	0.00	372,172.81	626,001.21
10,800.00	90.00	276.13	6,850.00	3,890.00	618.17	-4,094.85	4,141.08	0.00	372,183.49	625,901.78
10,900.00	90.00	276.13	6,850.00	3,890.00	629.85	-4,194.27	4,241.03	0.00	372,194.17	625,802.35
11,000.00	90.00	276.13	6,850.00	3,890.00	640.53	-4,293.70	4,340.98	0.00	372,204.85	625,702.92
11,100.00	90.00	276.13	6,850.00	3,890.00	651.21	-4,393.13	4,440.94	0.00	372,215.53	625,603.50
11,200.00	90.00	276.13	6,850.00	3,890.00	661.89	-4,492.56	4,540.89	0.00	372,226.21	625,504.07
11,300.00	90.00	276.13	6,850.00	3,890.00	672.57	-4,591.99	4,640.84	0.00	372,236.89	625,404.64
11,400.00	90.00	276.13	6,850.00	3,890.00	683.25	-4,691.41	4,740.79	0.00	372,247.57	625,305.21
11,500.00	90.00	276.13	6,850.00	3,890.00	693.93	-4,790.84	4,840.75	0.00	372,258.25	625,205.78
11,600.00	90.00	276.13	6,850.00	3,890.00	704.61	-4,890.27	4,940.70	0.00	372,268.93	625,106.36
11,700.00	90.00	276.13	6,850.00	3,890.00	715.29	-4,989.70	5,040.65	0.00	372,279.60	625,006.93
11,800.00	90.00	276.13	6,850.00	3,890.00	725.97	-5,089.13	5,140.61	0.00	372,290.28	624,907.50
11,900.00	90.00	276.13	6,850.00	3,890.00	736.65	-5,188.56	5,240.56	0.00	372,300.96	624,808.07
12,000.00	90.00	276.13	6,850.00	3,890.00	747.33	-5,287.98	5,340.51	0.00	372,311.64	624,708.64
12,100.00	90.00	276.13	6,850.00	3,890.00	758.01	-5,387.41	5,440.46	0.00	372,322.32	624,609.22
12,200.00	90.00	276.13	6,850.00	3,890.00	768.69	-5,486.84	5,540.42	0.00	372,333.00	624,509.79
12,300.00	90.00	276.13	6,850.00	3,890.00	779.37	-5,586.27	5,640.37	0.00	372,343.68	624,410.36
12,400.00	90.00	276.13	6,850.00	3,890.00	790.05	-5,685.70	5,740.32	0.00	372,354.36	624,310.93
12,472.96	90.00	276.13	6,850.00	3,890.00	797.84	-5,758.24	5,813.25	0.00	372,362.16	624,238.39

TD at 12472.96 - Cottonmouth#1H_BHL



Pathfinder

Pathfinder X & Y Planning Report



A Schlumberger Company

Company:

OGX Resources

Project:

Eddy County (NAD 83)

Site:

Cottonmouth "24" Federal Com

Well:

#1H

Wellbore:

OH

Design:

Plan #1

Local Co-ordinate Reference:

Well #1H

TVD Reference:

RKBtoGL-17' @ 2960.00ft (Original Well Elev)

MD Reference:

RKBtoGL-17' @ 2960.00ft (Original Well Elev)

North Reference:

Grid

Survey Calculation Method:

Minimum Curvature

Database:

Midland Database

Targets

Target Name

- hit/miss target

- Shape

Cottonmouth#1H_BHI

- plan hits target center

- Point

Dip Angle

(°)

0.00

Dip Dir.

(°)

0.00

TVD

(ft)

6,850.00

+N/-S

(ft)

797.84

+E/-W

(ft)

-5,758.24

Northing

(ft)

372,362.155

Eastng

(ft)

624,238.392

Latitude

32° 1' 24.317 N

Longitude

104° 3' 57.000 W

Plan Annotations

Measured

Depth

(ft)

6,372.50

7,122.56

7,766.02

12,472.96

Vertical

Depth

(ft)

6,372.50

6,850.00

6,850.00

6,850.00

Local Coordinates

+N/-S

(ft)

0.00

155.46

295.15

797.84

+E/-W

(ft)

0.00

-451.49

-1,078.22

-5,758.24

Comment

KOP-6372.50'MD,0.00°INC,0.00°AZI,6372.50'TVD

EOC-7122.56'MD,90.00°INC,289.00°AZI,6850.00'TVD,12.00°DLS,468

Start 4706.94 hold at 7766.02 MD

TD at 12472.96

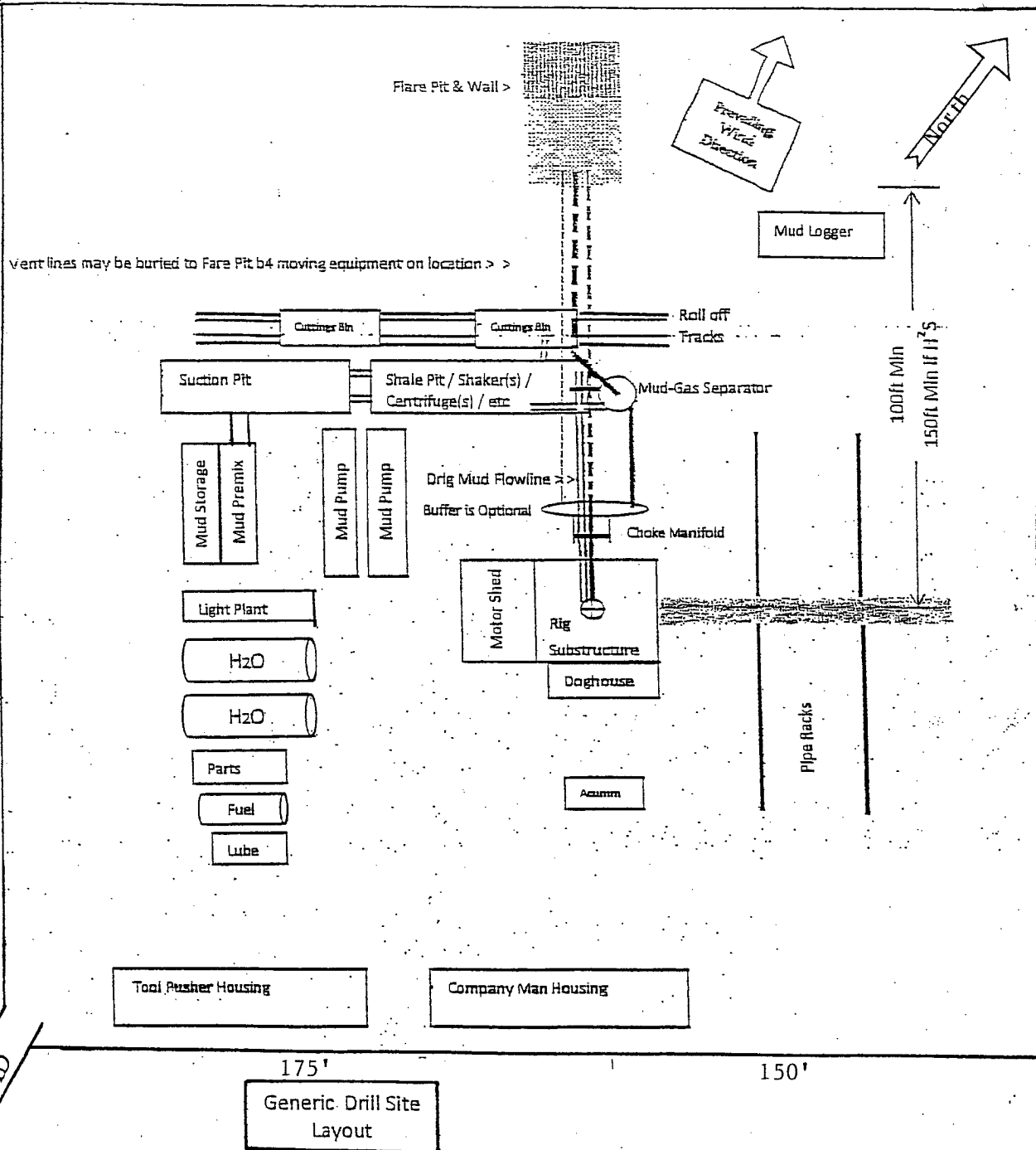
Checked By: _____

Approved By: _____

Date: _____

300'

ACCESS ROAD

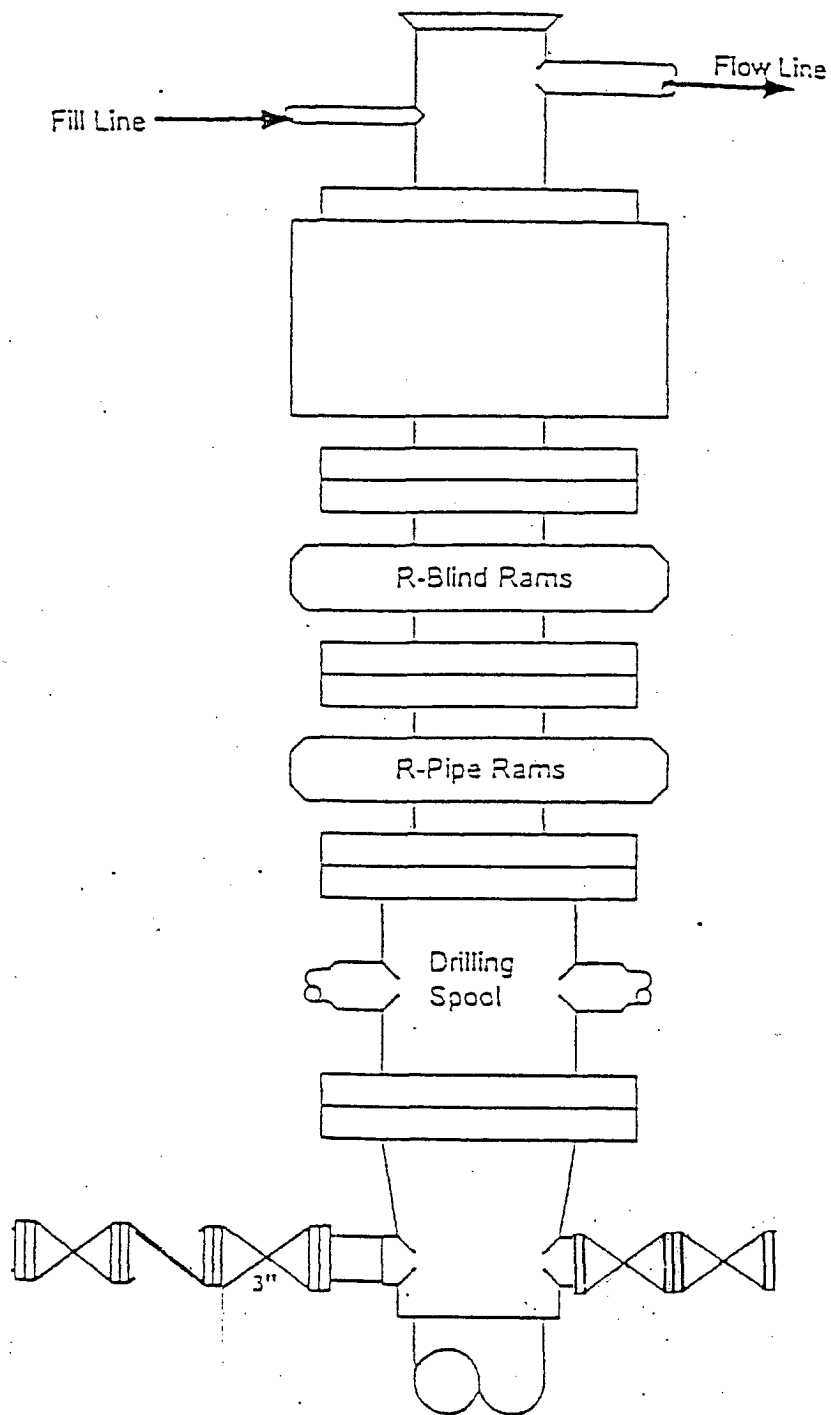


Preplanning reasonable spacing accommodations for a useable "Closed Loop" drillsite layout is challenging. Particular site specific conflicts need to be resolved. This generic APD plat was prepared to demonstrate several necessary elements. The plat should include: a north arrow, prevailing wind direction, spacing access for truck removal of cutting bins, flare pit location, and piping provision to vent all combustible gas to the flare pit. Include the choke manifold and mud-gas separator location and their connection routing.

EXHIBIT "D"

RIG LAYOUT PLAT

OGX RESOURCES, LLC.
 COTTONMOUTH "24" FEDERAL COM. # 1H
 UNIT "M" SECTION 24
 T26S-R28E EDDY CO. NM



Type 900 Series
3000 psi WP

EXHIBIT "E"

SKETCH OF B.O.P. TO BE USED ON

OGX RESOURCES, LLC.
COTTONMOUTH "24" FEDERAL COM. # 1H
UNIT "M" SECTION 24
T26S-R28E EDDY CO. NM

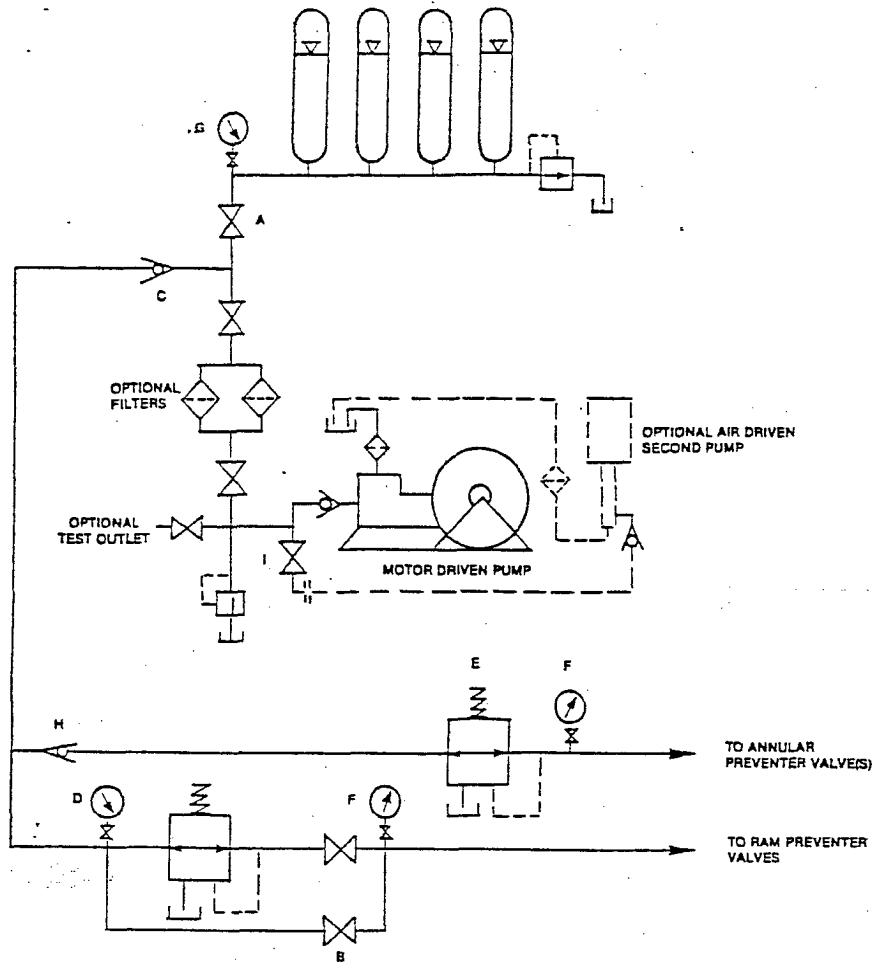


FIGURE K6-1. The schematic sketch of an accumulator system shows required and optional components.

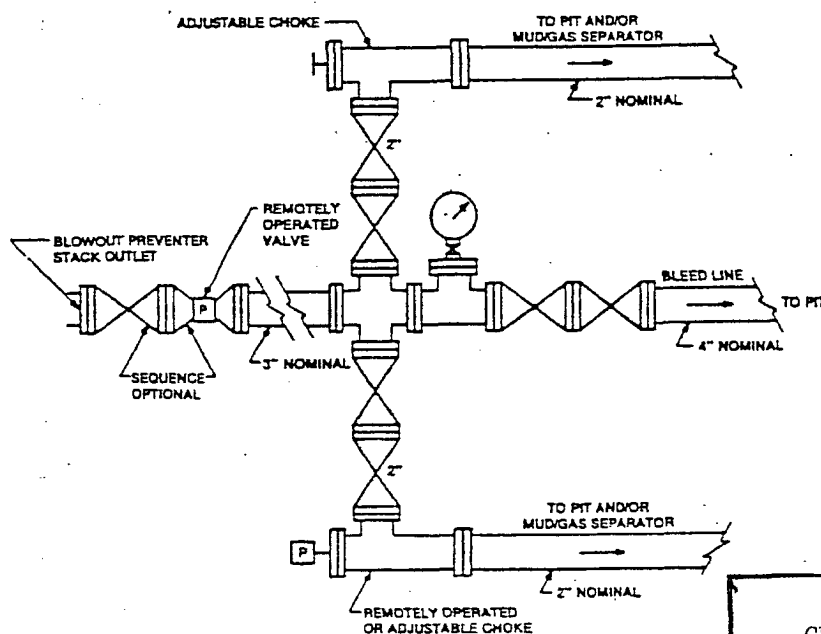
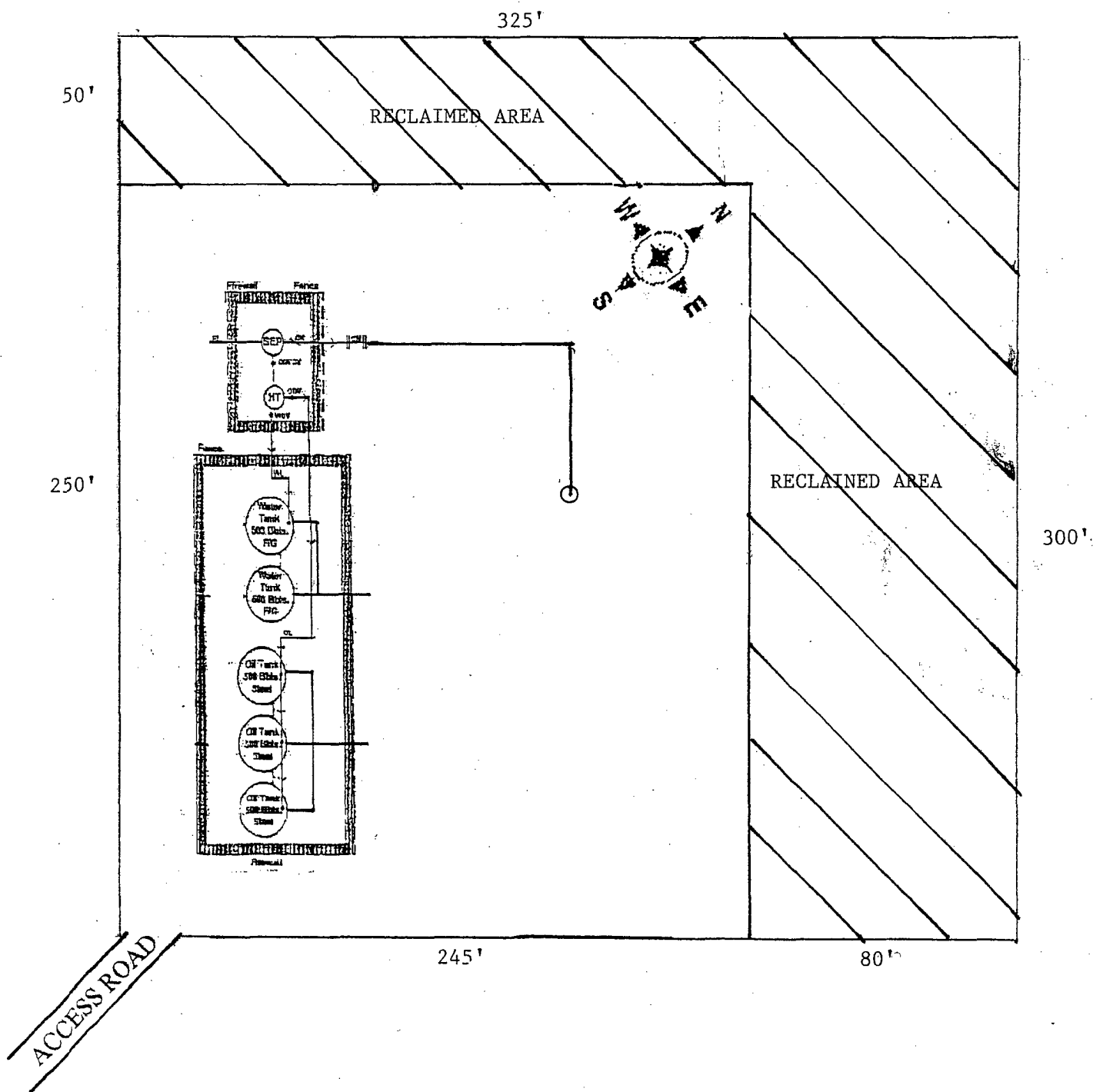


FIGURE K4-2. Typical choke manifold assembly for SM rated working pressure service — surface installation.

EXHIBIT "E-1"
CHOKE MANIFOLD & CLOSING UNIT

OGX RESOURCES, LLC.
COTTONMOUTH "24" FEDERAL COM. # 1H
UNIT "M" SECTION 24
T26S-R28E EDDY CO. NM



GENERIC PLAT OF
PRODUCTION FACILITIES FOR

OGX RESOURCES, LLC.
COTTONMOUTH "24" FEDERAL COM. # 1H
UNIT "M" SECTION 24
T26S-R28E EDDY CO. NM