

11-903

OCD Artesia

Form 3160-3
(April 2004)

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007 **EA1386**

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 NOT RCVD 8/3/11		7 If Unit or CA Agreement, Name and No. -----
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		8. Lease Name and Well No. # 2H COPPERHEAD "31" FEDERAL COM.
2. Name of Operator OGX RESOURCES, LLC. (JEFF BIRKELBACH 432-685-1287) 217955		9. API Well No. 385293 30-15-39791
3a. Address P. O. BOX 2064 MIDLAND, TEXAS 79702	3b. Phone No. (include area code) 432-685-1287	10. Field and Pool, or Exploratory 978767 WIDATG-435262932E
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 480' FSL & 2140' FEL SECTION 31 T26S-R29E EDDY CO. NM At proposed prod. zone 1650' FNL & 2140' FEL SEC. 30 T26S-R29E		11. Sec., T. R. M. or Blk. and Survey or Area B.8 SECTION 31 T26S-R29E
14. Distance in miles and direction from nearest town or post office* Approximately 15 miles South of Malaga New Mexico		12. County or Parish EDDY CO.
15. Distance from proposed* location to nearest property or lease line, ft. 480' (Also to nearest drig. unit line, if any)		13. State NM
16. No. of acres in lease 160		17. Spacing Unit dedicated to this well 160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1660'		20. BLM/BIA Bond No. on file NMB-000244
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2901' 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 Joe T. Janica	Name (Printed/Typed) Joe T. Janica	Date 09/07/11
Title Permit Eng.		
Approved by (Signature) /s/ James Stovall	Name (Printed/Typed)	Date DEC 14 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)

Approval Subject to General Requirements
& Special Stipulations Attached

Carlsbad Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

COH

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
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

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

Form C-102
Revised July 16, 2010
Submit to Appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-15-39791	Pool Code 97876	Pool Name WIDCAT G-03 3262932E; B.S.
Property Code 38529	Property Name COPPERHEAD 31 FEDERAL COM	Well Number 2H
OGRID No. 217955	Operator Name OGX RESOURCES	Elevation 2901

Surface Location

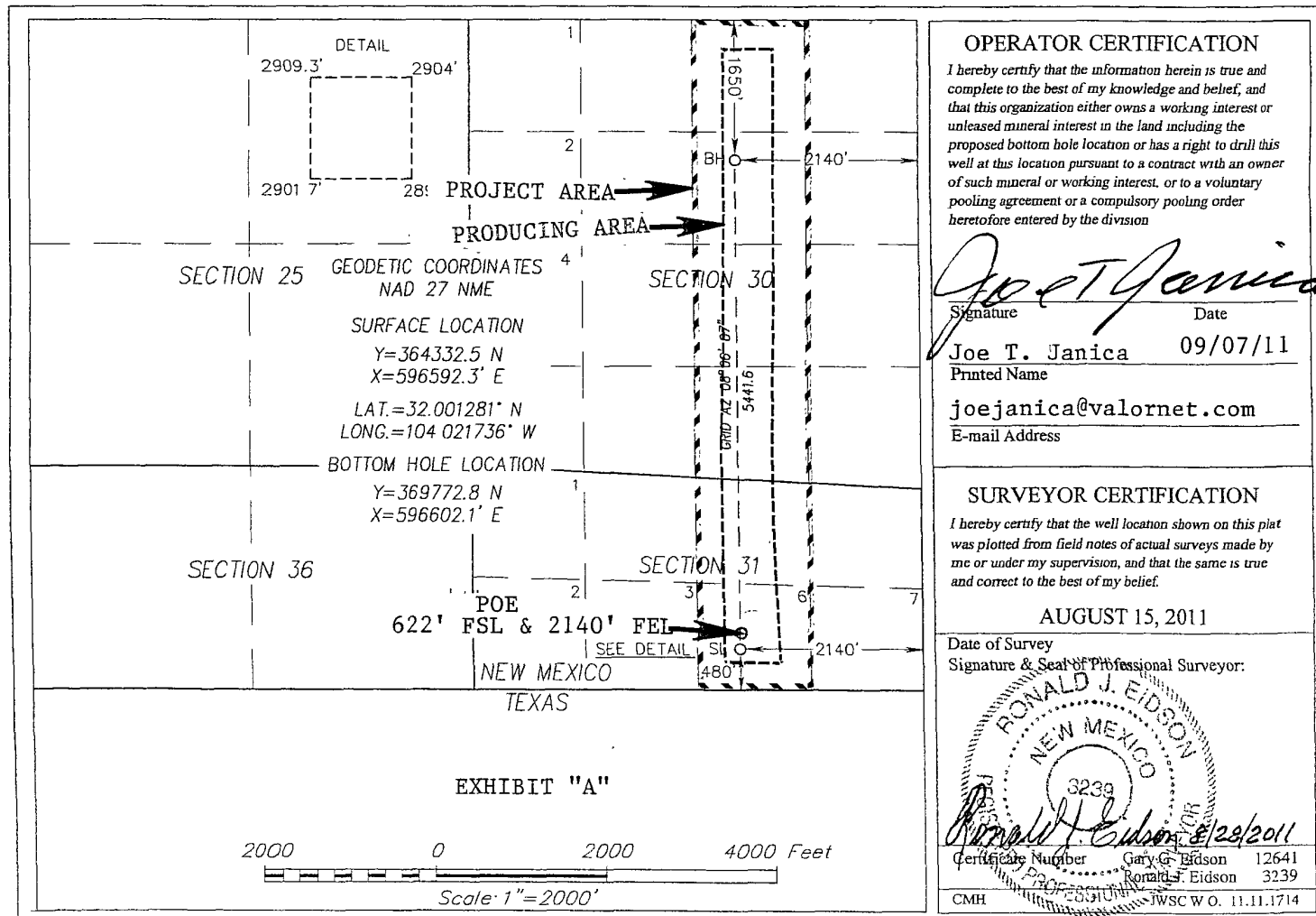
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
6	31	26-S	29-E		480	SOUTH	2140	EAST	EDDY

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
G	30	26-S	29-E		1650	NORTH	2140	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
765 186.27			

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



APPLICATION TO DRILL

OGX RESOURCES, LLC.
 COPPERHEAD "31" FEDERAL COM. #2H
 LOT #6 SECTION 31
 T26S-R29E EDDY CO. NM

In response to questions asked under Section 11 of Bulletin NPL-0, the following information on the above well will be provided.

1. LOCATION: SHL: 480' FSL & 2140' FEL SECTION 31 T26S-R29E EDDY CO. NM
 BHL: 100% FNL & 2140' FEL SECTION 30 T26S-R29E EDDY CO. NM
2. ELEVATION ABOVE SEA LEVEL: 2901' 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-6700'
 MD-11,935'

6. ESTIMATED TOPS OF GEOLOGICAL FORMATIONS:

Rustler Anhydrite	420'	Cherry Canyon	3600'
Basal Anhydrite	2520'	Brushy Canyon	4800'
Lamar Lime	2700'	Bone Spring	6450'
Bell Canyon	2730'	TD (MD)	6700'

7. POSSIBLE MINERAL BEARING FORMATIONS: Top of Salt 890' Base of Salt 2470'

Bell Canyon	Oil/Gas/ Form. Water	Bone Spring	Oil/Gas/Form. Water
Cherry Canyon	Oil/Gas/Form. Water	TD (Bone Spring)	Oil/Gas/Form. Water
Brushy Canyon	Oil/Gas/Form. Water	Possible fresh water	150±'

8. CASING PROGRAM:

HOLE SIZE	INTERVAL	CASING OD	WEIGHT	THREAD	COLLAR	GRADE	CONDITION
26"	0-40'	20"	NA	NA	NA	Conductor	New
17½"	0-450	13 3/8"	48#	8-R	ST&C	H-40	New
11"	0-2685'	8 5/8"	32#	8-R	ST&C	J-55	New
7 7/8"	0-6600'	5½"	17#	8-R	LT&C	P-110	New
7 7/8"	6600'-11,935'	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.
 COPPERHEAD "31" FEDERAL COM. #2H
 LOT #6 SECTION 31
 T26S-R29E EDDY CO. NM

9. CASING CEMENTING & 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' of 13 3/8" -48# ST&C H-40 casing. Cement with 225Sx. of Class "C" Premium Plus 35/65/6 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 Premium Plus Class "C" cement + 2% CaCl, yield 1.34, circulate cement. 100 % Excess
8 5/8"	Intermediate	Run and set 2685' of 8 5/8" 32# ST&C J-55 casing. Cement with 300 Sc. 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 Class "C" cement + 2% CaCl, Yield 1.34, circulate cement to surface. 30% Excess
5 1/2"	Production	Run and set 11,935' of 5 1/2" casing as follows: 5335' of 5 1/2" 17# BT&C P-110 casing, 6600' 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. circulate cement to surface. 27% Excess

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.

B.O.P. 13 5/8" X 11"

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OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #2H
LOT #6 SECTION 31
T26S-R29E EDDY CO. NM

11. PROPOSED MUD CIRCULATING SYSTRM:

DEPTH	MUD WT.	VISC.	FLUID LOSS	TYPE MUD SYSTEM
40-450'	8.6-8.8	36-38	NC--	Fresh water Spud Mud, use paper to control seepage.
450-2685'	10.0-10.1	29-30	NC	Brine water use paper to control seepage and high viscosity sweeps to clean hole.
2685-6650'	8.4-9.1	28-29	NC	Fresh water use paper to control seepage and high viscosiity sweeps to clesn hole.
6650-11,936'	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.
COPPERHEAD "31" FEDERAL COM. #2H
LOT #6 SECTION 31
T26S-R29E EDDY CO. NM

12. LOGGING , CORING , AND TESTING PROGRAM: *See COA*

- A. Open hole logs: Dual Laterolog, Neutron/Density, Gamma Ray, Caliper from KOP back to 8 5/8" casing shoe. Gamma Ray, Neutron from 8 5/8" casing shoe back to surface.
- B. Mud logger will be rigged up on hole below the 13 3/8" casing and remain on the hole to TD.
- C. No cores or DST's are planned at this time.

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 bottom hole pressure 2944 PSI and estimated bottom hole temperature 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 The 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 20 days will be required to complete the well and construct surface production facilities.

15. OTHER FACETS OF OPERATION:

After running casing, cased hole Gamma Ray, Neutron, Collar logs will be run over the productive interval. The BONE SPRING formation will be perforated and stimulated in order to establish production, and potential as an oil well.

**Copperhead 31 Fed Com No.2H
Delaware River South (Bone Spring)Field
Eddy County, New Mexico
Drilling Procedure
Sept 2011**

General Information

Lease:	Copperhead 31	AFE BCP:	\$
Well No.:	2H	AFE ACP:	
Field:	Delaware River Bone Spring Sth	AFE Total:	
County:	Eddy	AFE NO:	
State:	New Mexico	API No.:	30-015-XXXXX
Section:	31	Permit Date:	
Township:	26S	Permit TVD:	7,500'
Range:	29E	Proposed MD:	11,936'
Surface Section Ties:	480' FSL & 2140' FEL	Drilling Days:	25
BHL (target)	1650' FNL & 2140' FEL Sec. 30		
Ground Level:	2901'	KB:	2912'
Latitude:	32.001281° N	Longitude	104.021736° 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 ~ 6,650'; logged and taken horizontal.

Directions To Well

Frm 285 & State Line – East on Catfish Rd 1 ¼ mi to location on Lft

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	2520'	10 ppge	Drig fluid must be saturated salt water
Lamar	2700'	8.4 ppge	Base of Salt
Bell Canyon	2730'	8.4 ppge	Oil / Gas / Formation water /Poss.H ₂ S
Cherry Canyon	3600'	8.4 ppge	Oil / Gas / Formation water
Brushy Canyon	4800'	8.4 ppge	Oil / Gas / Formation water
Bone Spring	6450'	8.4 ppge	Oil / Gas / Formation water
	7950'	8.4 ppge	Oil / Gas / Formation water

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 450' and circulating cement back to surface. Potash/ fresh water sands will be protected by setting 8 5/8" casing at 2685' 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.

*surface
- per Joe J.
10/14/11
UWT*

CASING PROGRAM:

<u>HOLE SIZE</u>	<u>DEPTH</u>	<u>OD Csg</u>	<u>WEIGHT</u>	<u>COLLAR</u>	<u>GRADE</u>	<u>NEW/USED</u>
17 1/2"	0-450'	13 3/8"	48	STC	H40	New
11"	0-2685'	8 5/8"	32	STC	J55	New
7 7/8"	0-6600'	5 1/2"	17	LTC	P110	New
7 7/8"	6600-11936'	5 1/2"	17	BTC	P110	New

****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)

<u>DEPTH</u>	<u>OD Csg</u>	<u>WEIGHT</u>	<u>factors: Burst / Collapse / Tension</u>		
0-450'	13 3/8"	48	1.65	1.52	12+
0-2685'	8 5/8"	32	1.23	1.50	3.58
0-11936'	5 1/2"	17	1.82	1.73	2.24

**** The Intermediate hole will never be-evacuated****

(51/2 Burst & Collapse Calculated @ 7500' 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

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

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' – 450' Set 13-3/8" Casing	8.6 – 8.8	36 – 38	N/C	6 – 10	6 – 20	Spud Mud
450' – 2,685' Set 8-5/8" Casing	10.0 – 10.1	29 – 30	N/C	0 – 1	0 – 1	Brine
2,685' – 6,650'	8.4 – 9.1	28 – 29	N/C	0 – 1	0 – 1	Fresh Water
6,650' – 11,936' 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

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 2944 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 25 days with an additional 20 days to complete the well and construct production facilities.

OGX Resources

Project: Eddy County, New Mexico (Nad27)

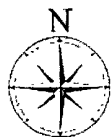
Site: Copperhead 31 Federal

Well: Copperhead 31 Fed 2H

Wellbore: Wellbore #1



Plan: Plan #1 083011 (Copperhead 31 Fed 2H/Wellbore #1)



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6222.53	0.00	0.00	6222.53	0.00	0.00	0.00	0.00	0.00	
6972.54	90.00	0.10	6700.00	477.47	0.86	12.00	0.10	477.47	
11935.39	90.00	0.10	6700.00	5440.31	9.80	0.00	0.00	5440.32	BHL Copperhead 31 Fed 2H

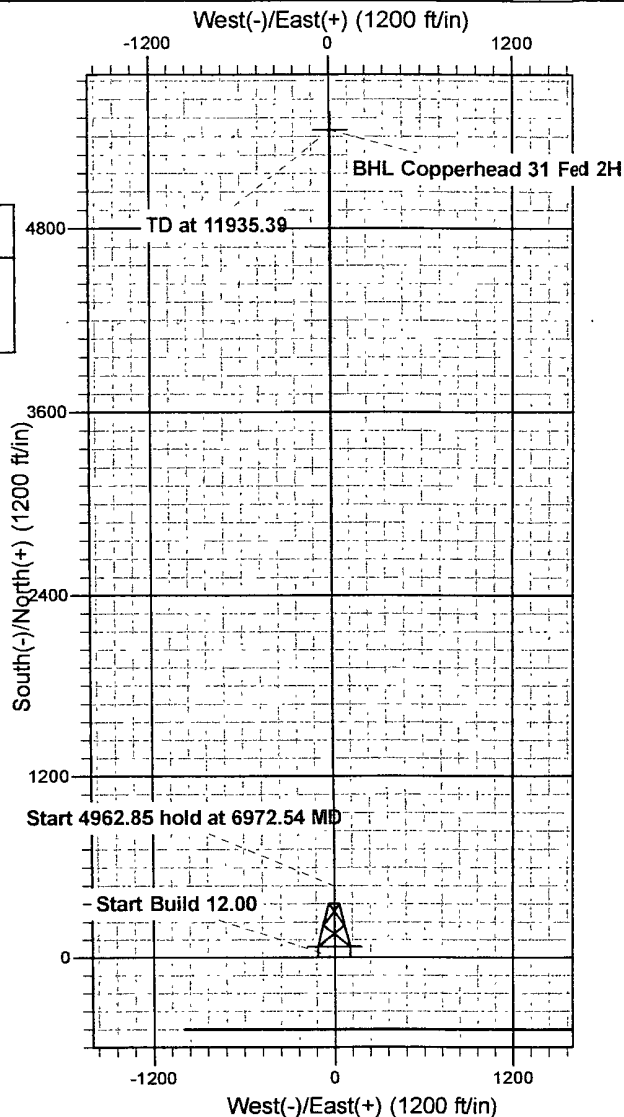
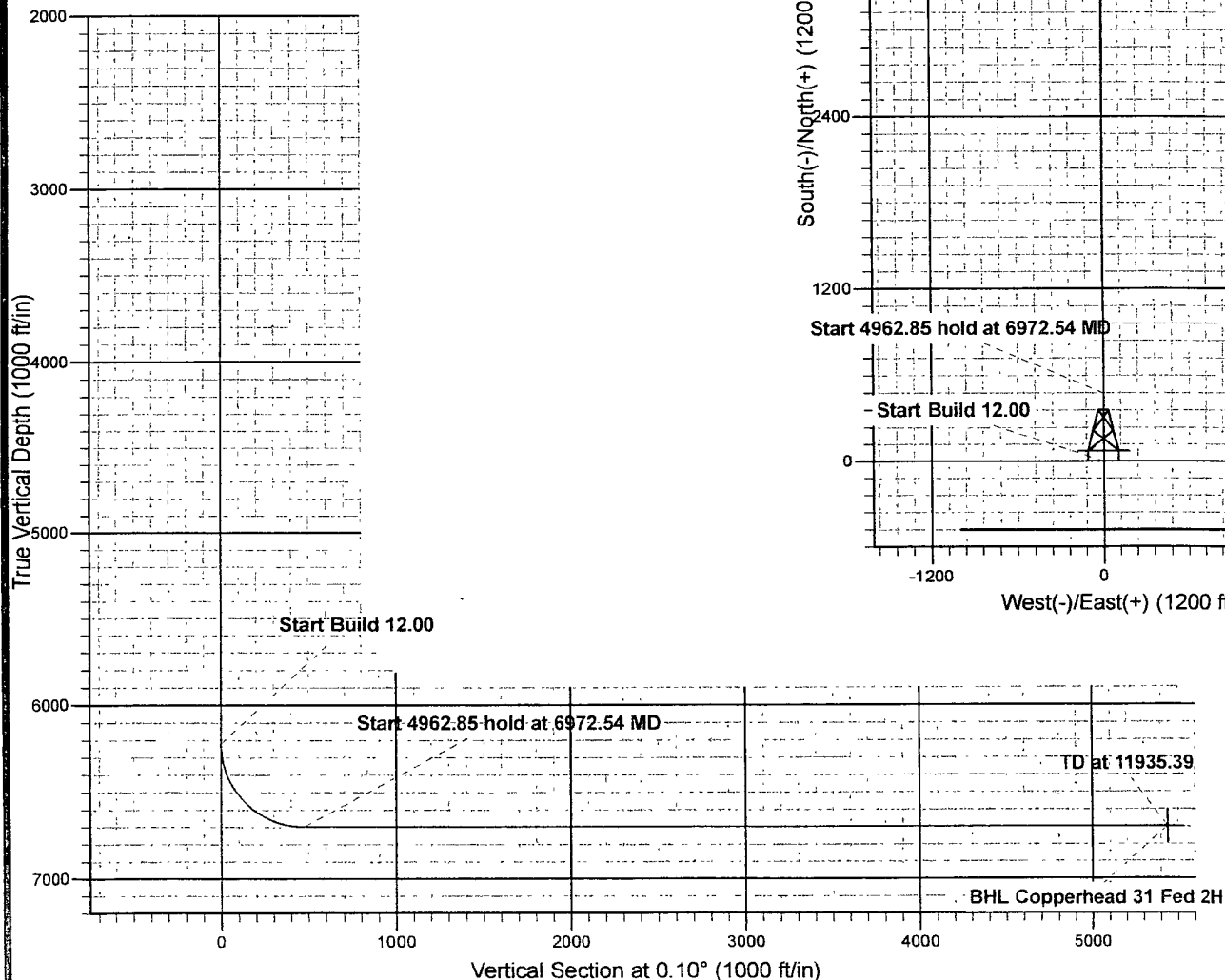
WELL DETAILS: Copperhead 31 Fed 2H

Ground Level: 2901.00

Northing: 64332.50
 Easting: 596592.30
 Latitude: 32° 0' 4.61 N
 Longitude: 104° 1' 18.25 W

WELLBORE TARGET DETAILS

Name: BHL Copperhead 31 Fed 2H
 TVD: 6700.00
 +N/-S: 5440.31
 +E/-W: 9.80
 Shape: Point



OGX Resources

Eddy County, New Mexico (Nad27)

Copperhead 31 Federal Com

Copperhead 31 Fed Com 2H

Wellbore #1

Plan: Plan #1 083011

OGX Resources

30 August, 2011



Phoenix Technology Services

OGX Resources



Company: OGX Resources
Project: Eddy County, New Mexico (Nad27)
Site: Copperhead 31 Federal Com
Well: Copperhead 31 Fed Com 2H
Wellbore: Wellbore #1
Design: Plan #1 083011

Local Co-ordinate Reference: Well Copperhead 31 Fed Com 2H
TVD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
MD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR3

Project: Eddy County, New Mexico (Nad27)

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: Copperhead 31 Federal Com

Site Position:		Northing:	364,332.50 ft	Latitude:	32° 0' 4.61 N
From:	Map	Easting:	596,592.30 ft	Longitude:	104° 1' 18.25 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.17 °

Well: Copperhead 31 Fed Com 2H

Well Position	+N/-S	0.00 ft	Northing:	364,332.50 ft	Latitude:	32° 0' 4.61 N
	+E/-W	0.00 ft	Easting:	596,592.30 ft	Longitude:	104° 1' 18.25 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	2,901.00 ft

Wellbore: Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	8/30/2011	7.75	59.89	48,413

Design: Plan #1 083011

Audit Notes:

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

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	0.10

Survey Tool Program: **Date:** 8/30/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	11,935.39	Plan #1 083011 (Wellbore #1)	MWD	MWD - Standard

Phoenix Technology Services

OGX Resources



Company: OGX Resources
Project: Eddy County, New Mexico (Nad27)
Site: Copperhead 31 Federal Com
Well: Copperhead 31 Fed Com 2H
Wellbore: Wellbore #1
Design: Plan #1 083011

Local Co-ordinate Reference: Well Copperhead 31 Fed Com 2H
TVD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
MD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR3

Planned Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVDSS (ft)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	-2,919.00	0.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
100.00	0.00	0.00	-2,819.00	100.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
200.00	0.00	0.00	-2,719.00	200.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
300.00	0.00	0.00	-2,619.00	300.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
400.00	0.00	0.00	-2,519.00	400.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
500.00	0.00	0.00	-2,419.00	500.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
600.00	0.00	0.00	-2,319.00	600.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
700.00	0.00	0.00	-2,219.00	700.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
800.00	0.00	0.00	-2,119.00	800.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
900.00	0.00	0.00	-2,019.00	900.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,000.00	0.00	0.00	-1,919.00	1,000.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,100.00	0.00	0.00	-1,819.00	1,100.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,200.00	0.00	0.00	-1,719.00	1,200.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,300.00	0.00	0.00	-1,619.00	1,300.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,400.00	0.00	0.00	-1,519.00	1,400.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,500.00	0.00	0.00	-1,419.00	1,500.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,600.00	0.00	0.00	-1,319.00	1,600.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,700.00	0.00	0.00	-1,219.00	1,700.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,800.00	0.00	0.00	-1,119.00	1,800.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
1,900.00	0.00	0.00	-1,019.00	1,900.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,000.00	0.00	0.00	-919.00	2,000.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,100.00	0.00	0.00	-819.00	2,100.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,200.00	0.00	0.00	-719.00	2,200.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,300.00	0.00	0.00	-619.00	2,300.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,400.00	0.00	0.00	-519.00	2,400.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,500.00	0.00	0.00	-419.00	2,500.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,600.00	0.00	0.00	-319.00	2,600.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30

Phoenix Technology Services

OGX Resources



Company: OGX Resources
Project: Eddy County, New Mexico (Nad27)
Site: Copperhead 31 Federal Com
Well: Copperhead 31 Fed Com 2H
Wellbore: Wellbore #1
Design: Plan #1 083011

Local Co-ordinate Reference: Well Copperhead 31 Fed Com 2H
TVD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
MD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR3

Planned Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVDSS (ft)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
2,700.00	0.00	0.00	-219.00	2,700.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,800.00	0.00	0.00	-119.00	2,800.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
2,900.00	0.00	0.00	-19.00	2,900.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,000.00	0.00	0.00	81.00	3,000.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,100.00	0.00	0.00	181.00	3,100.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,200.00	0.00	0.00	281.00	3,200.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,300.00	0.00	0.00	381.00	3,300.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,400.00	0.00	0.00	481.00	3,400.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,500.00	0.00	0.00	581.00	3,500.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,600.00	0.00	0.00	681.00	3,600.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,700.00	0.00	0.00	781.00	3,700.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,800.00	0.00	0.00	881.00	3,800.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
3,900.00	0.00	0.00	981.00	3,900.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,000.00	0.00	0.00	1,081.00	4,000.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,100.00	0.00	0.00	1,181.00	4,100.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,200.00	0.00	0.00	1,281.00	4,200.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,300.00	0.00	0.00	1,381.00	4,300.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,400.00	0.00	0.00	1,481.00	4,400.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,500.00	0.00	0.00	1,581.00	4,500.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,600.00	0.00	0.00	1,681.00	4,600.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,700.00	0.00	0.00	1,781.00	4,700.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,800.00	0.00	0.00	1,881.00	4,800.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
4,900.00	0.00	0.00	1,981.00	4,900.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,000.00	0.00	0.00	2,081.00	5,000.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,100.00	0.00	0.00	2,181.00	5,100.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,200.00	0.00	0.00	2,281.00	5,200.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,300.00	0.00	0.00	2,381.00	5,300.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30

Phoenix Technology Services

OGX Resources



Company: OGX Resources
Project: Eddy County, New Mexico (Nad27)
Site: Copperhead 31 Federal Com
Well: Copperhead 31 Fed Com 2H
Wellbore: Wellbore #1
Design: Plan #1 083011

Local Co-ordinate Reference: Well Copperhead 31 Fed Com 2H
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Survey Calculation Method: Minimum Curvature
Database: GCR3

Planned Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVDSS (ft)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	2,481.00	5,400.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,500.00	0.00	0.00	2,581.00	5,500.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,600.00	0.00	0.00	2,681.00	5,600.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,700.00	0.00	0.00	2,781.00	5,700.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,800.00	0.00	0.00	2,881.00	5,800.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
5,900.00	0.00	0.00	2,981.00	5,900.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
6,000.00	0.00	0.00	3,081.00	6,000.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
6,100.00	0.00	0.00	3,181.00	6,100.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
6,200.00	0.00	0.00	3,281.00	6,200.00	0.00	0.00	0.00	0.00	364,332.50	596,592.30
6,222.53	0.00	0.00	3,303.53	6,222.53	0.00	0.00	0.00	0.00	364,332.50	596,592.30
Start Build 12.00										
6,300.00	9.30	0.10	3,380.66	6,299.66	6.27	0.01	6.27	12.00	364,338.77	596,592.31
6,400.00	21.30	0.10	3,476.94	6,395.94	32.60	0.08	32.60	12.00	364,365.10	596,592.36
6,500.00	33.30	0.10	3,565.64	6,484.64	78.38	0.14	78.38	12.00	364,410.88	596,592.44
6,600.00	45.30	0.10	3,642.89	6,561.89	141.59	0.26	141.59	12.00	364,474.09	596,592.56
6,700.00	57.30	0.10	3,705.31	6,624.31	219.49	0.40	219.49	12.00	364,551.99	596,592.70
6,800.00	69.30	0.10	3,750.16	6,669.16	308.66	0.56	308.66	12.00	364,641.16	596,592.86
6,900.00	81.30	0.10	3,775.50	6,694.50	405.21	0.73	405.21	12.00	364,737.71	596,593.03
6,972.54	90.00	0.10	3,781.00	6,700.00	477.47	0.86	477.47	12.00	364,809.96	596,593.16
Start 4962.85 hold at 6972.54 MD										
7,000.00	90.00	0.10	3,781.00	6,700.00	504.93	0.91	504.93	0.00	364,837.43	596,593.21
7,100.00	90.00	0.10	3,781.00	6,700.00	604.93	1.09	604.93	0.00	364,937.43	596,593.39
7,200.00	90.00	0.10	3,781.00	6,700.00	704.93	1.27	704.93	0.00	365,037.43	596,593.57
7,300.00	90.00	0.10	3,781.00	6,700.00	804.93	1.45	804.93	0.00	365,137.43	596,593.75
7,400.00	90.00	0.10	3,781.00	6,700.00	904.93	1.63	904.93	0.00	365,237.43	596,593.93
7,500.00	90.00	0.10	3,781.00	6,700.00	1,004.93	1.81	1,004.93	0.00	365,337.43	596,594.11
7,600.00	90.00	0.10	3,781.00	6,700.00	1,104.93	1.99	1,104.93	0.00	365,437.43	596,594.29

Phoenix Technology Services
OGX Resources



Company: OGX Resources
Project: Eddy County, New Mexico (Nad27)
Site: Copperhead 31 Federal Com
Well: Copperhead 31 Fed Com 2H
Wellbore: Wellbore #1
Design: Plan #1 083011

Local Co-ordinate Reference: Well Copperhead 31 Fed Com 2H
TVD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
MD Reference: WELL @ 2919.00ft (Original Well Elev + 18' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR3

Planned Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVDSS (ft)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,700.00	90.00	0.10	3,781.00	6,700.00	1,204.93	2.17	1,204.93	0.00	365,537.43	596,594.47
7,800.00	90.00	0.10	3,781.00	6,700.00	1,304.93	2.35	1,304.93	0.00	365,637.43	596,594.65
7,900.00	90.00	0.10	3,781.00	6,700.00	1,404.93	2.53	1,404.93	0.00	365,737.42	596,594.83
8,000.00	90.00	0.10	3,781.00	6,700.00	1,504.93	2.71	1,504.93	0.00	365,837.42	596,595.01
8,100.00	90.00	0.10	3,781.00	6,700.00	1,604.93	2.89	1,604.93	0.00	365,937.42	596,595.19
8,200.00	90.00	0.10	3,781.00	6,700.00	1,704.93	3.07	1,704.93	0.00	366,037.42	596,595.37
8,300.00	90.00	0.10	3,781.00	6,700.00	1,804.93	3.25	1,804.93	0.00	366,137.42	596,595.55
8,400.00	90.00	0.10	3,781.00	6,700.00	1,904.93	3.43	1,904.93	0.00	366,237.42	596,595.73
8,500.00	90.00	0.10	3,781.00	6,700.00	2,004.93	3.61	2,004.93	0.00	366,337.42	596,595.91
8,600.00	90.00	0.10	3,781.00	6,700.00	2,104.93	3.79	2,104.93	0.00	366,437.42	596,596.09
8,700.00	90.00	0.10	3,781.00	6,700.00	2,204.93	3.97	2,204.93	0.00	366,537.42	596,596.27
8,800.00	90.00	0.10	3,781.00	6,700.00	2,304.93	4.15	2,304.93	0.00	366,637.42	596,596.45
8,900.00	90.00	0.10	3,781.00	6,700.00	2,404.93	4.33	2,404.93	0.00	366,737.42	596,596.63
9,000.00	90.00	0.10	3,781.00	6,700.00	2,504.93	4.51	2,504.93	0.00	366,837.42	596,596.81
9,100.00	90.00	0.10	3,781.00	6,700.00	2,604.93	4.69	2,604.93	0.00	366,937.42	596,596.99
9,200.00	90.00	0.10	3,781.00	6,700.00	2,704.93	4.87	2,704.93	0.00	367,037.42	596,597.17
9,300.00	90.00	0.10	3,781.00	6,700.00	2,804.93	5.05	2,804.93	0.00	367,137.42	596,597.35
9,400.00	90.00	0.10	3,781.00	6,700.00	2,904.93	5.23	2,904.93	0.00	367,237.42	596,597.53
9,500.00	90.00	0.10	3,781.00	6,700.00	3,004.93	5.41	3,004.93	0.00	367,337.42	596,597.71
9,600.00	90.00	0.10	3,781.00	6,700.00	3,104.93	5.59	3,104.93	0.00	367,437.42	596,597.89
9,700.00	90.00	0.10	3,781.00	6,700.00	3,204.92	5.77	3,204.93	0.00	367,537.42	596,598.07
9,800.00	90.00	0.10	3,781.00	6,700.00	3,304.92	5.95	3,304.93	0.00	367,637.42	596,598.25
9,900.00	90.00	0.10	3,781.00	6,700.00	3,404.92	6.13	3,404.93	0.00	367,737.42	596,598.43
10,000.00	90.00	0.10	3,781.00	6,700.00	3,504.92	6.31	3,504.93	0.00	367,837.42	596,598.61
10,100.00	90.00	0.10	3,781.00	6,700.00	3,604.92	6.49	3,604.93	0.00	367,937.42	596,598.79
10,200.00	90.00	0.10	3,781.00	6,700.00	3,704.92	6.67	3,704.93	0.00	368,037.42	596,598.97
10,300.00	90.00	0.10	3,781.00	6,700.00	3,804.92	6.85	3,804.93	0.00	368,137.42	596,599.15

Phoenix Technology Services

OGX Resources



Company:	OGX Resources	Local Co-ordinate Reference:	Well Copperhead 31 Fed Com 2H
Project:	Eddy County, New Mexico (Nad27)	TVD Reference:	WELL @ 2919.00ft (Original Well Elev + 18' KB)
Site:	Copperhead 31 Federal Com	MD Reference:	WELL @ 2919.00ft (Original Well Elev + 18' KB)
Well:	Copperhead 31 Fed Com 2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 083011	Database:	GCR3

Planned Survey										
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVDSS (ft)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,400.00	90.00	0.10	3,781.00	6,700.00	3,904.92	7.03	3,904.93	0.00	368,237.42	596,599.33
10,500.00	90.00	0.10	3,781.00	6,700.00	4,004.92	7.21	4,004.93	0.00	368,337.42	596,599.51
10,600.00	90.00	0.10	3,781.00	6,700.00	4,104.92	7.39	4,104.93	0.00	368,437.42	596,599.69
10,700.00	90.00	0.10	3,781.00	6,700.00	4,204.92	7.57	4,204.93	0.00	368,537.41	596,599.87
10,800.00	90.00	0.10	3,781.00	6,700.00	4,304.92	7.75	4,304.93	0.00	368,637.41	596,600.05
10,900.00	90.00	0.10	3,781.00	6,700.00	4,404.92	7.93	4,404.93	0.00	368,737.41	596,600.23
11,000.00	90.00	0.10	3,781.00	6,700.00	4,504.92	8.12	4,504.93	0.00	368,837.41	596,600.42
11,100.00	90.00	0.10	3,781.00	6,700.00	4,604.92	8.30	4,604.93	0.00	368,937.41	596,600.60
11,200.00	90.00	0.10	3,781.00	6,700.00	4,704.92	8.48	4,704.93	0.00	369,037.41	596,600.78
11,300.00	90.00	0.10	3,781.00	6,700.00	4,804.92	8.66	4,804.93	0.00	369,137.41	596,600.96
11,400.00	90.00	0.10	3,781.00	6,700.00	4,904.92	8.84	4,904.93	0.00	369,237.41	596,601.14
11,500.00	90.00	0.10	3,781.00	6,700.00	5,004.92	9.02	5,004.93	0.00	369,337.41	596,601.33
11,600.00	90.00	0.10	3,781.00	6,700.00	5,104.92	9.20	5,104.93	0.00	369,437.41	596,601.51
11,700.00	90.00	0.10	3,781.00	6,700.00	5,204.92	9.38	5,204.93	0.00	369,537.41	596,601.69
11,800.00	90.00	0.10	3,781.00	6,700.00	5,304.92	9.56	5,304.93	0.00	369,637.41	596,601.88
11,900.00	90.00	0.10	3,781.00	6,700.00	5,404.92	9.74	5,404.93	0.00	369,737.41	596,602.06
11,935.39	90.00	0.10	3,781.00	6,700.00	5,440.31	9.80	5,440.32	0.00	369,772.80	596,602.10
TD at 11935.39										

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,222.53	6,222.53	0.00	0.00	Start Build 12.00
6,972.54	6,700.00	477.47	0.86	Start 4962.85 hold at 6972.54 MD
11,935.39	6,700.00	5,440.31	9.80	TD at 11935.39

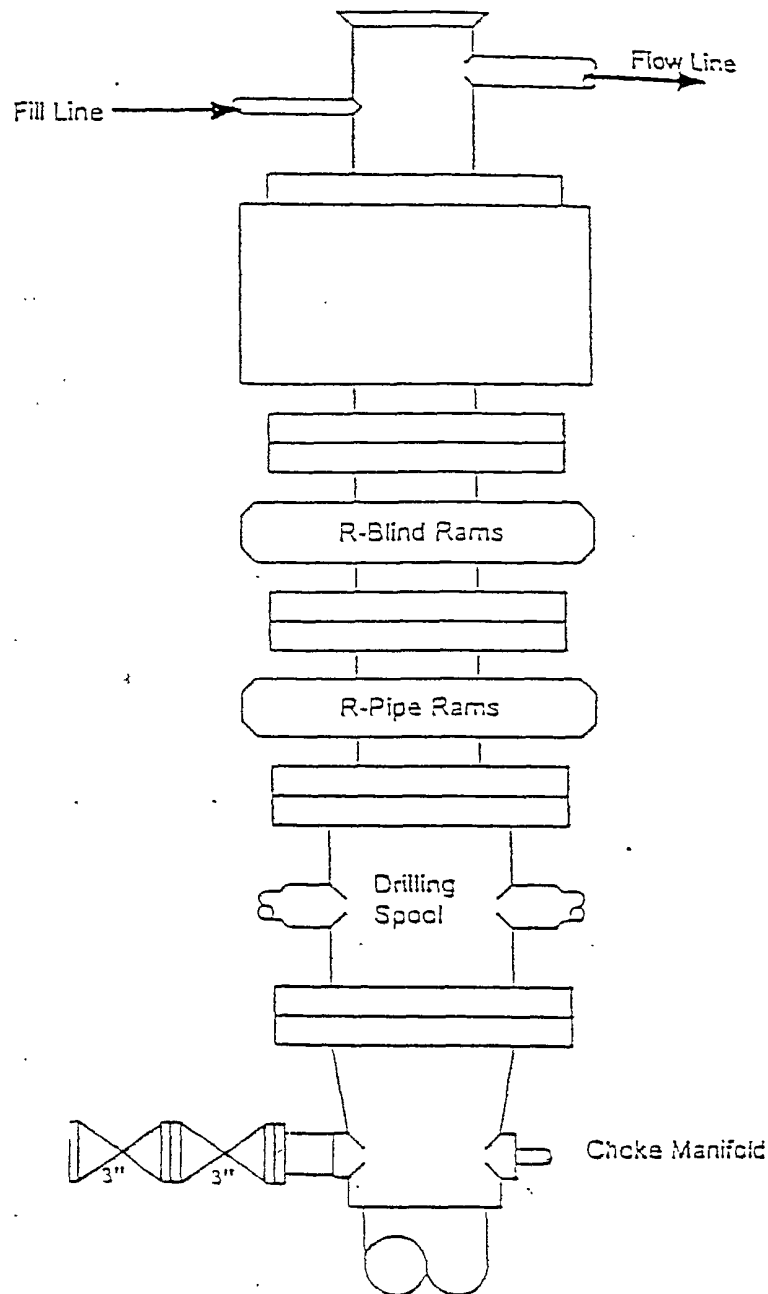
Phoenix Technology Services

OGX Resources



Company:	OGX Resources	Local Co-ordinate Reference:	Well Copperhead 31 Fed Com 2H
Project:	Eddy County, New Mexico (Nad27)	TVD Reference:	WELL @ 2919.00ft (Original Well Elev + 18' KB)
Site:	Copperhead 31 Federal Com	MD Reference:	WELL @ 2919.00ft (Original Well Elev + 18' KB)
Well:	Copperhead 31 Fed Com 2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 083011	Database:	GCR3

Checked By: _____ Approved By: _____ Date: _____



Type 900 Series
3000 psi WP

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

OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #2H
LOT #6 SECTION 31
T26S-R29E EDDY CO. NM

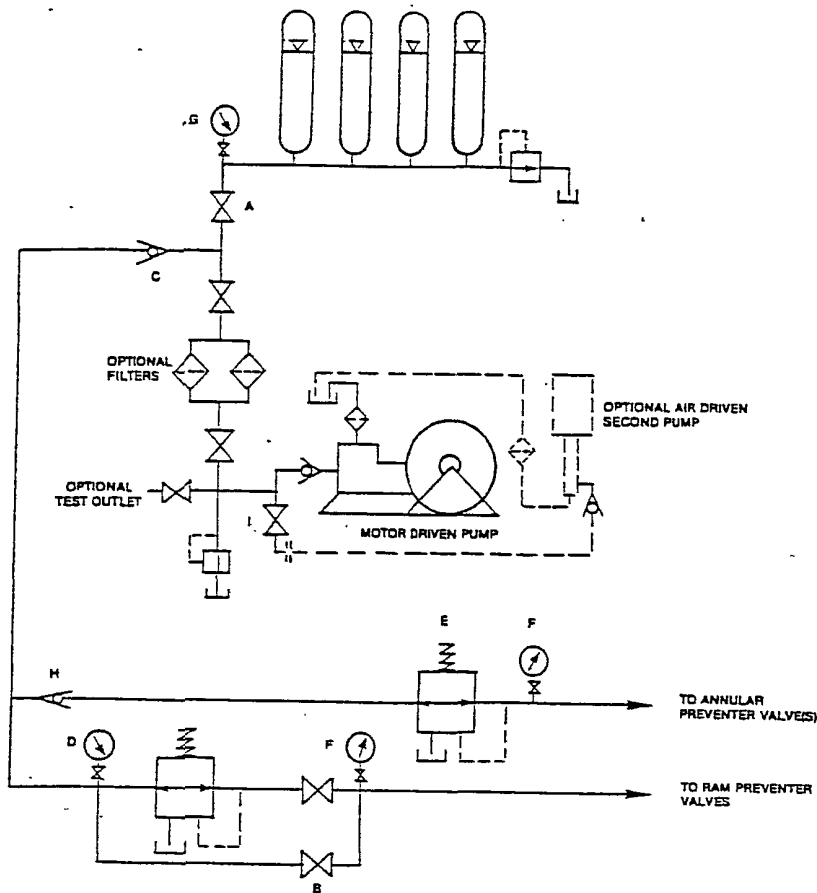


FIGURE K6-1. The schematic sketch of an accumulator system shows required and optional components.

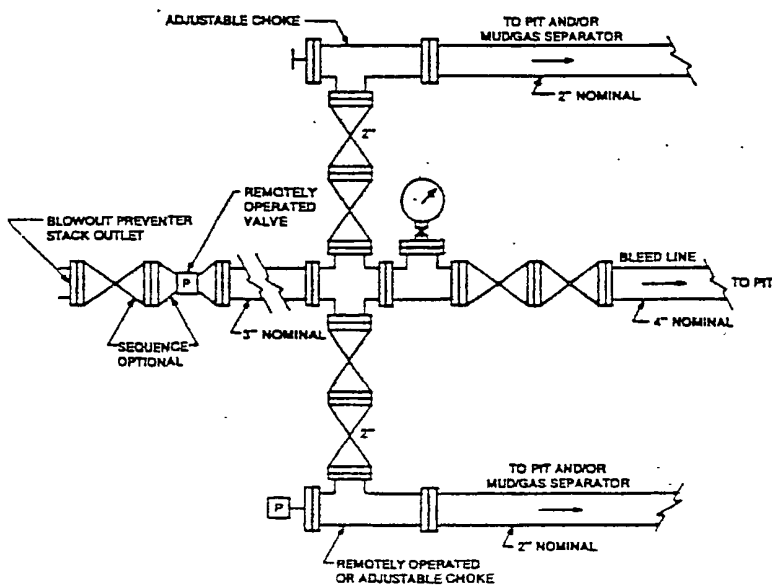


FIGURE K4-2. Typical choke manifold assembly for 5M rated working pressure service — surface installation.

EXHIBIT "E-1"
 CHOKE MANIFOLD & CLOSING UNIT

OGX RESOURCES, LLC.
 COPPERHEAD "31" FEDERAL COM. #2H
 LOT #6 SECTION 31
 T26S-R29E EDDY CO. NM

OGX RESOURCES, LLC.

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

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

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GENERAL H2S EMERGENCY ACTIONS:

In the event of an H2S emergency, the following plan will be initiated.

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

At this point the company representative will evaluate the situation and co-ordinate 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 H2S

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

If at this time the supervising person determines the release of H2S cannot be contained to the site location and the general public is in harms way he will take necessary steps to contact the following:

EMERGENCY CALL LIST: (Start and continue until ONE of these people have been reached)

	<u>OFFICE</u>	<u>MOBILE</u>	<u>HOME</u>
Jeff Birkelbach	432-685-1287	432-694-7880	432-553-0391
Donny Leak		432-634-4862	432-399-4489
Silver Oak Drilling Co.	575-748-1288	575-748-8622 Mark Eldridge	Cell 575-748-8605
Rig Phone	575-513-1745		

EMERGENCY RESPONSE NUMBERS: Lea County, New Mexico

State Police	575-392-5588
Lea County Sheriff	575-396-3611
Emergency Medical Service (Ambulance)	911 or 575-393-2677
State Emergency Response Center (SERC)	575-476-9620
Hobbs Police Department	575-397-9265
Hobbs Fire Department	575-393-2677
Lovington Police Department	575-396-3144
Lovington Fire Department	575-396-2359
Loco Hills Fire Department	575-677-2349
Maljamar Fire Department	575-676-4100
(NMOCD) New Mexico Oil Conservation Division, District I (Lea, Roosevelt, Chaves, Curry)	575-393-6161
District II (Eddy, Chaves)	575-748-1283
American Safety	575-746-1096
Indian Fire & Safety	575-746-4660 or 800-530-8693
Callaway Safety	575-746-2847
BJ Services	575-746-3569

PROTECTION OF THE GENERAL PUBLIC/ROE:

In the event greater than 100 ppm H₂S is present, the ROE (Radius Of Exposure) calculations will be done to determine if the following is warranted:

- 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 H₂S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE:

$$X = [(1.589) (\text{concentration}) (Q)]^{(0.6258)}$$

Calculation for the 500 ppm ROE:

$$X = [(0.4546) (\text{concentration}) (Q)]^{(.06258)}$$

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

$$\begin{aligned} 100 \text{ PPM} \quad X &= [(1.589)(150/1,000,000)(100,000)]^{0.6258} \\ X &= 7' \end{aligned}$$

$$\begin{aligned} 500 \text{ PPM} \quad X &= [(0.4546)(150/1,000,000)(100,000)]^{0.06258} \\ X &= 3' \end{aligned}$$

(These calculations will be forwarded to the appropriate District NMOCD 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 H₂S safety, shall monitor with detection equipment the H₂S concentration, wind and area of exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. **(All monitoring equipment shall be UL approved, for use in class I groups A,B,C, & D, Division I, hazardous locations. All monitors will have a minimum capability of measuring H₂S 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 supervising personnel shall stay in communications with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION:

The decision to ignite a well should be a last resort and one if not both of the following pertain.

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

INSTRUCTIONS FOR IGNITION:

- 1) Two people are required. They must be equipped with positive pressure; self contained breathing apparatus and a "D" –ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
- 2) One of the people will be a qualified safety person who will test the atmosphere for H₂S, Oxygen, & LFL. The other person will be the company supervisor; he is responsible for igniting the well.
- 3) Ignite up-wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun shall be used, with a $\pm 500'$ range to ignite the gas.
- 4) Prior to ignition, make a final check for combustible gases.
- 5) Following ignition, continue with the emergency actions & 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/Escapes Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
 - Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.
- 2) Signage & Flagging:
 - One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - A Colored Condition flag will be on display, reflecting the condition at the site at that time.
- 3) Briefing Area: Two, perpendicular areas will be designated by signs and readily accessible.

- 4) Wind Socks: Two windsocks will be placed in strategic locations, visible from all angles.
- 5) H2S Detectors and Alarm: The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The 3 sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer)
 - Rig Floor
 - Bell Nipple
 - End of Flow line or where well bore fluid are being discharged.
- 6) Auxiliary Rescue Equipment:
 - Stretcher
 - Two OSHA full body harness
 - 100' of 5/8" OSHA approved rope
 - 1 – 20# Class ABC fire extinguisher
 - Communication via cell phones on location and vehicles on location.

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA):

SCBA should be worn when any of the following are performed:

- Working near the top or on top of a tank.
- Disconnecting any line where H2S can reasonably be expected.
- Sampling air in the area to determine if toxic concentrations of H2S exist.
- Working in areas where over 10 ppm on H2S has been detected.
- At any time there is a doubt as the level of H2S in the area.

All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.

Facial hair and standard eyeglasses are not allowed with SCBA.

Contact lenses are never allowed with SCBA.

Air quality shall continuously be checked during the entire operation.

After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.

All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF HYDROGEN SULFIDE (H₂S) POISONING

Do not panic.

Remain calm & think.

Get on the breathing apparatus.

Remove the victim to the safe breathing area as quickly as possible. Upwind an uphill from source of cross wind to achieve upwind.

Notify emergency response personnel.

Provide artificial respiration and/or CPR, as necessary.

Remove all contaminated clothing to avoid further exposure.

A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

H2S TOXIC EFFECTS:

H2S is extremely toxic. The acceptable ceiling for eight hours of exposure is 10 ppm, which is .001% by volume. H2S is approximately 20% heavier than air (Sp.Gr=1.19 / Air=1) and colorless. It forms an explosive mixture with air between 4.3% and 46.0%. By volume hydrogen sulfide (H2S) is almost as toxic as hydrogen cyanide and is 5-6 times more toxic than carbon monoxide.

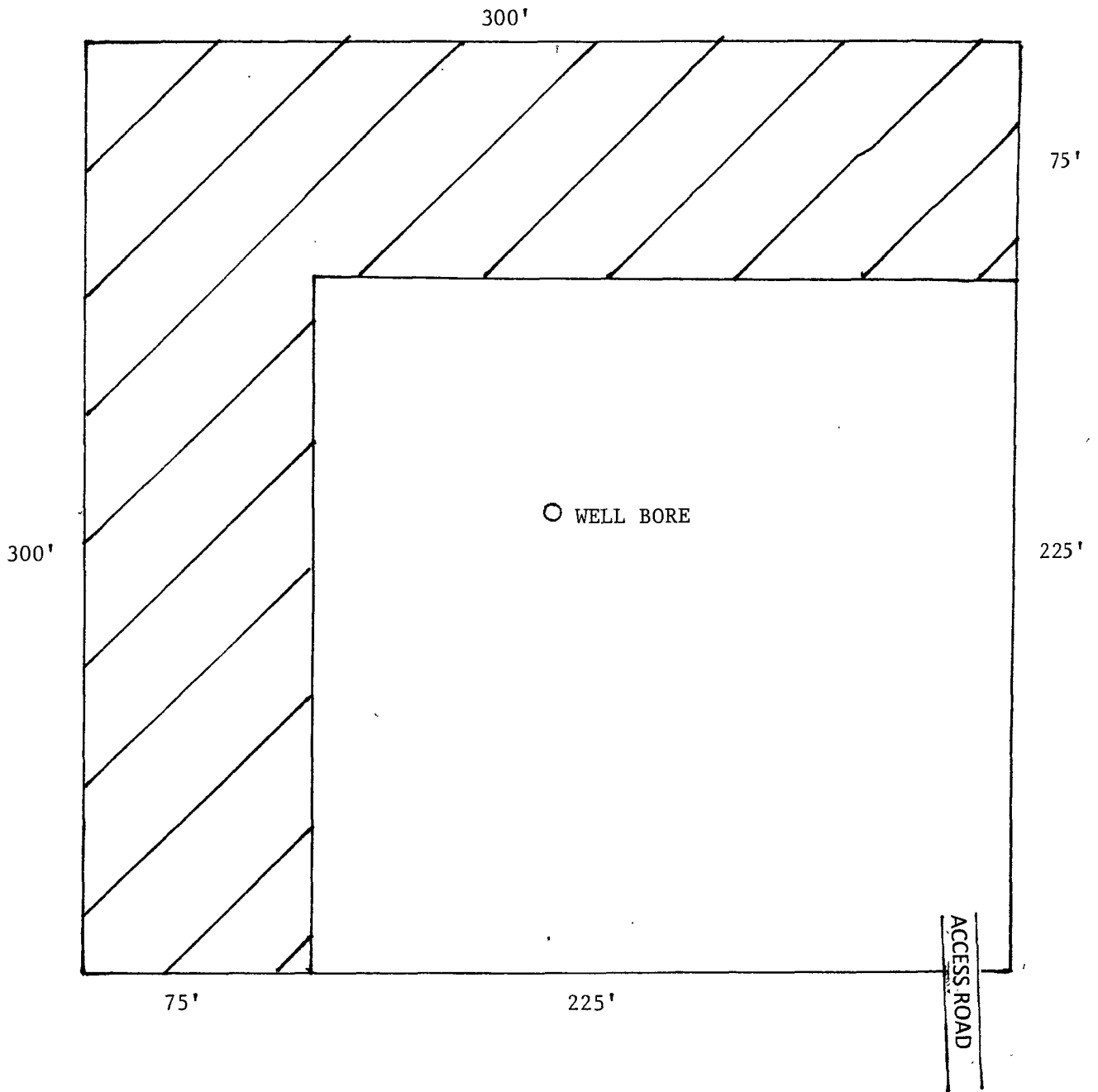
Various Gases

Common Name	Chemical Abbrev.	Sp. Gr.	Threshold Limits	Hazardous Limits	Lethal Concentration
Hydrogen Sulfide	H2S	1.19	10 ppm 15 ppm	100 ppm/hr	600 ppm
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Sulfur Dioxide	SO2	2.21	2 ppm	N/A	1000 ppm
Chlorine	CL2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO2	1.52	5000 ppm	5%	10%
Methane	CH4	0.55	90,000	Combustible @ 5%	N/A

1. Threshold limit – Concentrations at which it is believed that all workers may be repeatedly exposed, day after day without adverse effects.
2. Hazardous limit – Concentration that may cause death.
3. Lethal concentration – Concentration that will cause death with short-term exposure.
4. Threshold limit – 10 ppm – NIOSH guide to chemical hazards.
5. Short-term threshold limit.

PHYSICAL EFFECTS OF HYDROGEN SULFIDE:

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



PROPOSED RECLAIM AREA

OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #2H
LOT #6 SECTION 31
T26S-R29E EDDY CO. NM

SURFACE USE PLAN

OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #2H
LOT #6 SECTION 31
T26S-R29E EDDY CO. NM

1. EXISTING AND PROPOSED ROADS:

- A. Exhibit "B" is a reproduction of a County General Hi-way map showing existing roads. Exhibit "C" is a reproduction of a USGS topographic map showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. All new roads will be constructed to BLM specifications.
- B. Exhibit "A" shows the proposed well site as staked.
- C. Directions to location: From Malaga New Mexico take U. S. Hi-way 285 South go 16.4 miles to Co. Road 726 (Catfish road and New Mexico state line.) Turn Left go .4 miles and location is on the North side of road 400'± .

2. PLANNED ACCESS ROADS:

- A. The access roads will be crowned and ditched to a 14' wide travel surface, within a 20' R-O-W.
- B. Gradient of all roads will be less than 5%.
- C. Turn-outs will be constructed where necessary.
- D. If require new access roads will be surface with a minimum of 4-6" of caliche. this material will be obtained from a local source.
- E. Center line for new roads will be flagged, road construction will be done as field conditions require.
- F. Culverts will be placed in the access road as drainage conditions require. Roads will be constructed to use low water crossings for drainage as required by the topographic conditions.

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

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

SURFACE USE PLAN

OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #2H
LOT #6 SECTION 31
T26S-R29E EDDY CO. NM

4. If on completion this well is successful the operator will complete it as a producer. The operator will lay flow lines to an existing tank battery located on lease as indicated on Exhibit "C". If a power line is required to operate facilities they will be constructed along existing R-O-W's, or obtained R-O-W's. These are shown on Exhibit "C".

5. LOCATION AND TYPE OF WATER SUPPLY:

Water will be purchased locally from a commercial source and transported by transport or piped to location by flexible flowlines laid on top of the ground.

6. SOURCE OF CONSTRUCTION MATERIAL:

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

7. METHODS OF HANDLING WASTE MATERIAL:

- A. In case this well is drilled using a closed mud system the cuttings will be collected in containers and disposed of in a state approved disposal site. Drilling fluids likewise will be contained in tanks and disposed of in state approved disposal sites.
- B. All trash, junk and other waste material will be contained in trash cages or trash bins to prevent scattering. When job is complete all contents will be taken from location and disposed of in a state approved disposal site.
- C. Salts and other mud material remaining after completion of the well will be collected by the supplier and be removed from the location.
- D. Waste water from living quarters will be directed into an onsite sewage treatment unit and when well is completed residue will be removed and disposed of in a state approved disposal site. Porto-johns will be on location for rig crews, completion crews and other contract personnel, this equipment will be properly maintained during drilling and completion. When all operations are complete the residue will be removed and disposed of in a state approved disposal site and the equipment removed by supplier.
- E. Any fluids produced during the completion phase will be separated and the oil sold and water will be disposed of in an approved disposal site.

8. ANCILLARY FACILITIES:

- A. No camps, airstrips, or staging areas will be constructed on location.

SURFACE USE PLAN

OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #2H
LOT #6 SECTION 31
T26S-R29E EDDY CO. NM

9. WELL SITE LAYOUT:

A. Exhibit 'd' shows a generic well site layout for a well drilled using a closed mud system.

10. PLANS FOR RESTORATION OF THE SURFACE:

Rehabilitation of the surface will commence after the well has been completed. In the case of this well tank battery will not be necessary as the product will be transported via a flowline to an existing tank battery on the lease. The area that is not required to maintain production will be reclaimed as shown on the attached plat. The surface will be reseeded and returned as near as possible to the original grade.

In case this well is non productive the drilling pad and access road will be reclaimed according to specifications provided by The Bureau of Land Management. Caliche or other road and pad material will be removed for use on another location or deposited in an approved reclamation site.

Drill cuttings and mud used to drill this well will be removed and disposed of at an approved disposal site. All trash and any other debris will be collected and disposed of at an official disposal site.

11. ADDITIONAL INFORMATION:

The project area is situated on desert scrub environment characterized by low relief ridge lines and broad, slightly sloping land forms, South and West of the Delaware and Pecos rivers. Soils are combination of silty clay loams in low areas and a matrix of exposed limestone pebbles. The vegetation consists of mesquite, cat claw, creosote, crucifixion thorn, sage, broom weed and native grasses. The surface is used for the grazing of livestock and the production of oil and gas. An archaeological survey will be performed and a copy will be filed with The Bureau of Land Management Carlsbad Field Office.

Operator Certification

I hereby certify that I or someone under my direct supervision have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and federal laws applicable to this operation; that the statements made in the APD package are, to the best of my knowledge, true and correct, and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I or, the company that I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

OPERATOR'S REPRESENTATIVES:

BEFORE CONSTRUCTION

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

DURING & AFTER CONSTRUCTION

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

NAME Joe T. Janica

TITLE Permit Eng.

DATE 09/07/11

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OGX Resources, Inc.
LEASE NO.:	NMNM121474
WELL NAME & NO.:	Copperhead 31 Federal Com 2H
SURFACE HOLE FOOTAGE:	480' FSL & 2140' FEL
BOTTOM HOLE FOOTAGE:	1650' FNL & 2140' FEL
LOCATION:	SH: Section 31, T. 26 S., R. 29 E., NMPM BH: Section 30, T. 26 S., R. 29 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**
 - Cattle Guard
 - Communitization Agreement
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - Medium Cave/Karst
 - Logging Requirements
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Additional cement may be necessary – Excess calculates to -3%.**

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

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

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

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass (<i>Setaria magrostachya</i>)	1.0
Green Spangletop (<i>Leptochloa dubia</i>)	2.0
Side oats 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