

ATS-08-239

APR 11 2008

OCD-ARTESIA

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Form 3160-3  
(April 2004)

OCD-ARTESIA

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

413

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM 100555
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator OGX Resources, LLC		7. If Unit or CA Agreement, Name and No. N/A
3a. Address POB 2064 Midland, TX 79702		8. Lease Name and Well No. Cooper Federal #1 37127
3b. Phone No. (include area code) 432-685-1287		9. API Well No. 30-015-36282
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 660' FNL & 660' FEL At proposed prod. zone A		10. Field and Pool, or Exploratory Rock Spur Bone Spring
11. Sec., T. R. M. or Blk. and Survey or Area Sec. 31, T-25S, R-29E		12. County or Parish Eddy Co
13. State NM		14. Distance in miles and direction from nearest town or post office* 16 miles southeast of Malaga, NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 660'	16. No. of acres in lease 40	17. Spacing Unit dedicated to this well Northeast/ 1/4 1/4 of Section 31
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. N/A	19. Proposed Depth 7,000' 9500' per Sunday Well #1518	20. BLM/BIA Bond No. on file NMB 000244
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2976' GL	22. Approximate date work will start* 02/15/2008	23. Estimated duration 30 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.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature Angela Lightner	Name (Printed/Typed) Angela Lightner angela@rkford.com	Date 01/11/2008
Title Consultant 432-682-0440 office		

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) Don Peterson	Date APR 09 2008
Title FOR 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)

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

CARLSBAD CONTROLLED WATER BASIN

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

United States Department of the Interior  
Bureau of Land Management  
Roswell Field Office  
2909 Second Street  
Roswell, New Mexico 88201-1287

Statement Accepting Responsibility for Operations

Operator Name: OGX Resources LLC  
Street or Box: P.O. Box 2064  
City, State: Midland, Texas  
Zip Code: 79702

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

Lease No:

Legal Description of Land:

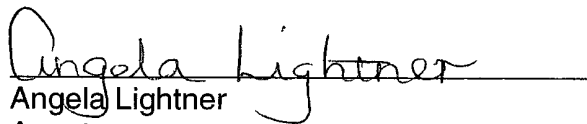
Township 25 South, Range 29 East, Eddy, New Mexico

NE/ ¼ ¼ of Section 31

Bond Coverage:

Statewide Oil and Gas Surety Bond, OGX Resources, LLC

**BLM Bond File No.:** NMB-000244

  
Angela Lightner

Agent

January 11, 2008

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II  
1301 W. Grand Avenue, Artesia, NM 88210

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

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

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised October 12, 2005

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code <b>52775</b>	Pool Name <b>Rock Spur; Bone Spring</b>
Property Code	Property Name <b>COOPER "31" FEDERAL</b>	Well Number <b>1</b>
OGRID No. <b>317955</b>	Operator Name <b>OGX RESOURCES, L.L.C.</b>	Elevation <b>2976'</b>

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>A</b>	<b>31</b>	<b>25 S</b>	<b>29 E</b>		<b>660</b>	<b>NORTH</b>	<b>660</b>	<b>EAST</b>	<b>EDDY</b>

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres <b>40</b>	Joint or Infill	Consolidation Code	Order No.						

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

<p>LAT- N.: 32°05'30.61" LONG- W.: 104°01'01.51" SPC- N.: 397289.97 E.: 639273.12 (NAD-83)</p>		<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><u>Angela Lightner 1-11-08</u> Signature Date</p> <p><u>Angela Lightner</u> Printed Name</p>	
		<p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p><b>DECEMBER 28, 2007</b></p> <p>Date Surveyed</p> <p>Signature of <u>GARY L. JONES</u> Professional Surveyor</p> <p><u>W. S. JONES</u> Certificate No. Gary L. Jones 7977</p> <p><b>BASIN SURVEYS</b></p>	



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

APR 11 2008

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

## SUNDRY NOTICES AND REPORTS ON WELLS

**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

**SUBMIT IN TRIPLICATE- Other instructions on reverse side.**

1. Type of Well  
☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator **OGX Resources, LLC**

3a. Address  
**POB 2064 Midland, TX 79702**

3b. Phone No. (include area code)  
**432-685-1287**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

**660' FNL & 660' FEL  
 Sec. 31, T- 25S, R- 29E**

Serial No.  
**NM 100555**

6. If Indian, Allottee or Tribe Name  
**N/A**

7. If Unit or CA/Agreement, Name and/or No.  
**N/A**

8. Well Name and No.  
**Cooper 31 Federal #1**

9. API Well No.

10. Field and Pool, or Exploratory Area  
**Rock Spur Bone Spring**

11. County or Parish, State  
**Eddy County, NM**

**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input checked="" type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompletable horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletable in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

**OGX Resources requests to deepen said well from 7,000' to 9,500'. The pool of interest is the V Rock Spur Bone Spring. Casing Program will be: 13 3/8", 48#, H40, set depth 525'; 9 5/8", 36#, H40, set depth 2700'; 7", 26#, P110, set depth 9500'. BHP - 4100 & BHT - 170.**

14. I hereby certify that the foregoing is true and correct  
 Name (Printed/Typed)

**Angela Lightner angela@rkford.com**

Title **Consultant 432-682-0440 office**

Signature

*Angela Lightner*

Date

**02/08/2008**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

**/s/ Don Peterson**

FOR

**FIELD MANAGER**

Date

**APR 09 2008**

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

**CARLSBAD FIELD OFFICE**

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)

DRILLING PROGRAM

**OGX Resources, LLC**  
**Cooper 31 Federal #1**  
**Section 31, T-25-S, R-29-E**  
**Eddy County, New Mexico**

The following items supplement Form 3160-3 in accordance with instructions contained in Onshore Oil and Gas Orders #1 and #2, and all other applicable federal and state regulations.

1. ESTIMATED TOPS OF GEOLOGIC MARKERS (TVD):

Delaware	3,120'
Cherry Canyon	4,000'
Brushy Canyon	5,300'
Bone Spring	9,500'
Total Depth	9,500'

2. ESTIMATED DEPTHS TO WATER, OIL, OR GAS FORMATIONS:

Delaware Group:

Bell Canyon	Oil/ Gas/Water
Cherry Canyon	Oil/Gas/Water
Brushy Canyon	Oil/Gas/Water

3. Pressure control equipment: The blow out preventer equipment (BOP) shown in Exhibit #1 will consist of a 3000 psi double ram type preventer rated to 3000 psi working pressure for drilling the 12-1/4" hole. 3M BOP will be tested to full working pressure. The blowout preventer stack for the 7" hole as shown on Exhibit #2 will consist of at least a double-ram blowout preventer and annular preventer rated to 5000 psi working pressure. A diagram of the BOPs and choke manifold is attached. All BOPs and accessory equipment will be tested according to Onshore Order #2 before drilling out.

4. PROPOSED CASING PROGRAM:

<u>Hole Sz</u>	<u>Interval</u>	<u>Casing Sz</u>	<u>Wt</u>	<u>Grade, Jt</u>	<u>Coll</u>	<u>Burst</u>	<u>N-U</u>	<u>Tension</u>
20"	0 - 40'	20"	94#	K-55, STC			N	
17-1/2"	0 - 525'	13-3/8"	48#	H-40, STC	4.18	10.10	N	24.02
12-1/4"	0 - 2,700'	9 5/8"	36#	H-40, LTC	1.24	1.82	N	3.57
8 3/4"	0 - 9,500'	7"	26#	P-110, LTC	1.26	2.02	N	3.31

Equivalent or adequate grades and weights of casing may be substituted at time casing is run, depending on availability. Changes will be relayed to BLM prior to running.

*LTC not shown MAF 4/3/08*

## 5. PROPOSED CEMENTING PROGRAM

20" conductor cemented with ready mix to surface  
13-3/8" surface Lead: 165 sks EconoChem - HLC + 2% Calcium Chloride  
+ 0.125 lbm/sk Poly-E-Flake, Yield= 1.94 ft<sup>3</sup>/sk, Wt. 12.60  
lbm/gal  
Tail: 340 sks HalCem - C + 2% Calcium Chloride, Yield= 1.35 ft<sup>3</sup>/  
sk, Wt. 14.80 lbm/gal TOC- Surface  
9-5/8" intermediate Lead: 500 sks EconoCem - C + 5 lbm/sk Gilsonite + 0.125  
lbm/sk Poly-E-Flake, Yield= 2.55 ft<sup>3</sup>/sk, Wt. 11.80 lbm/gal  
Tail: 250 sks HalCem - C + 2% Calcium Chloride, Yield=  
1.35<sup>3</sup>/sk, Wt 14.80 lbm/gal TOC= Surface  
7" production Lead: 500 sks EconoCem - MHLH + 0.6% Halad-9 + 5 lbm/sk  
Salt + 1 lbm/sk Pheno Seal - Blend, Yield= 2.20 ft<sup>3</sup>/sk, Wt. 12.60  
lbm/gal  
Tail: 480 sks HalCem - H + 0.5% Lap-1 + 0.4% CFR-3 + 0.25%  
D-AIR 3000 + 0.2% HR-5, Yield= 1.20 ft<sup>3</sup>/sk, Wt. 15.60 lbm/gal  
TOC 7000 ~~7000~~ see COA

## 6. PROPOSED MUD SYSTEM:

<u>DEPTH</u>	<u>DESCRIPTION</u>	<u>MUD WEIGHT</u>	<u>VISCOSITY</u>	<u>WATER LOSS</u>
0 - 525'	fresh water	8.6 - 9.0 ppg	36 - 38	NC
525' - 2,700'	brine water	9.9 - 10.0 ppg	28 - 30	NC
2,700' - 5,500'	fresh /brine	8.4 - 10.0 ppg	28 - 29	NC
5,500' - 9,500'	starch	8.4 - 10.0 ppg	28 - 29	10-15 cc

## 7. TESTING, LOGGING AND CORING PROGRAM:

Samples 10' Samples from 2,700'  
DST's Possible Delaware, Cherry Canyon, Brushy Canyon, Bone Spring  
Logging Density, Lateral, Resistivity  
Coring Possible sidewall core

## 8. ABNORMAL PRESSURES AND TEMPERATURES:

None anticipated. Maximum bottom hole pressure should not exceed 4,100  
psi. Maximum bottom hole temperature should not exceed 170°.  
This area has a potential H<sub>2</sub>S hazard. An H<sub>2</sub>S drilling plan is attached. An H<sub>2</sub>S  
contingency plan has been done and on file with the BLM

## ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

It is planned that operations will commence on March 15, 2008. Drilling should be  
completed within 30 days followed by completion operations.

**OGX Resources  
Well Prognosis  
Cooper 31 Federal #1**

**API #**

Surface Location: 660' FNL & 660' FEL  
Sec. 31, T25S, R29E  
Eddy County, New Mexico

Proposed Bottom Hole Location: Same as Surface

Planned AFE Total Depth: 7,000 TVD / 7,000' MD

Contractor: Rig: Permian Drilling Rig 3

Prepared By: Randell Ford & R. K. Ford & Associates

**Proposed Drilling and Completion Summary**

The Cooper 31 Fed #1 well is planned as a 7,000' TVD / 7,000' MD. The Delaware is the primary objective.

This project is located approximately 16 miles Southeast of Malaga, Eddy County, New Mexico. Casing includes 20" structural/conductor, 13 3/8" surface, 9 5/8" intermediate, and 5 1/2" production liner. The well is planned to be drilled as a vertical well to TD. Formation evaluation will be performed using open-hole logging tools. A well completion procedure will be prepared by engineering after the well is evaluated. Production tubing will be 2 7/8" to handle anticipated production rates.

**DIRECTIONS**

From the junction of Hwy 285 and Co. Rd. 725, proceed east on Co. Rd. 725 approx. 4.0 miles to lease road, go northeast for 1.8 miles to lease road left, follow lease road 0.2 miles northwest to lease road. Go left on lease (northwest) 1.8 miles to lease road, on lease road turn left & go 0.7 miles to location road.

**ESTIMATED RIG ELEVATION: 2,999' K.B. 2,976' G.L.**

**ESTIMATED FORMATION TOPS: (These Tops Are Only ESTIMATED)**

<u>Formation</u>	<u>TVD</u>
Delaware	3,120'
Cherry Canyon	4,000'
Brushy Canyon	5,300'
Bone Spring	6,800'
	TD 7,000'

**CASING PROGRAM:**

<u>SIZE</u>	<u>WEIGHT</u>	<u>GRADE</u>	<u>COUPLING</u>	<u>(MD-RKB)</u>	<u>TORQUE</u>
20"	Structural Pipe	LP			0-40'
13 3/8"	61.0 ppf	K-55	ST&C		0-600'
9 5/8"	36.0 ppf	K55	LT&C		0-3,100'
5 1/2"	17.0 ppf	N-80	LT&C		0-7,000'

**LOGGING PROGRAM:**

8 3/4" Hole, 3,100' – TD, Gamma Ray, Dual Lateralog, Micro Lateralog, Photo Density, Comp/Neutron only back to surface.

**MUD PROGRAM:**

<u>DEPTH</u>	<u>MW</u>	<u>Viscosity</u>	<u>FL</u>	<u>Synopsis</u>
0'- 600'	8.6-9.0	36-38 vis	NC	Spud mud
600'- 3,100'	9.9-10.0	29-30 vis	NC	Brine
3,100'-5,500'	8.4-10.0	28-29 vis	NC	Fresh to Brine
5,500' – 7000'	8.4-10.0	28-29 vis	NC	Starch

**See attached mud program for additional specifications.**

**MUD LOGGING:**

Mud logging unit is rigged up and logging at 1900'. Collect 10' samples from 3,100' to TD. **Note: Mud logger to pick 9 5/8" & 5 1/2" casing points.**

**DRILLSTEM TESTS/ CORES:**

None planned



## **DRILLING PROCEDURE**

### **I. LOCATION PRE-SPUD**

1. Set 40' of 20" conductor prior to rig up.
2. Review Permit, offset well data, procedure, formation depths and BOP/casing testing requirements. Hold pre-spud meeting with vendors and operator. Rig up Permian Rig 3, prepare to spud well. Visually inspect rig's 13 5/8" 5M BOP's (replace and repair as required). Record and report fuel on location at spud.

### **II. SURFACE HOLE INTERVAL 40'- 600'**

1. Spud with a 17-1/2" rental mill tooth bit and BHA with sufficient 8" drill collars to supply necessary bit weights. Stabilizers as needed to ensure a straight hole. (Record time and date of spud on morning report.) Pump gel sweeps as needed and before and after any trips. Survey as required to monitor deviation.
2. Surface hole to be drilled with a fresh water gel/soda ash spud mud with following properties: MW 8.6-9.0 VISC 36-38, API-FL N/C. Pump a paper sweep to aid in seepage control. At total depth, sweep hole with 100 bbls of fresh water & New Gel super sweep. Circulate hole clean prior to running casing. Strap DP and DCs out of hole.
3. Rig up casing tools and run casing as follows:  

13-3/8" Texas Pattern Guide Shoe  
1 Joint 13-3/8", 61.0 ppf, K-55, STC Casing  
13-3/8" Float Collar  
+/- 600' 13-3/8", 61.0 ppf, K-55, STC Casing
4. Centralize with (6) centralizers placed as follows: middle of shoe jt., top of 2nd jt., top of 4th jt., then every third jt. Thread lock all float equipment (top & bottom).
5. Pump capacity of casing prior to commencing any cementing operations. Tag and land casing on bottom. Hold running weight tension while WOC. Precede cement with 20 bbls fresh water spacer. Cement: lead slurry- 215 sxs Light Premium Plus cmt. + 2% CaCl + 0.125 lbm/sk Poly-E-Flake. Tail slurry- 340 sx Premium Plus + 2% CaCl. WOC total of 2 - 4 hours or until tail slurry has attained 500 psi compressive strength (use location water sample to get lab results).

6. Cut off 13-3/8" to weld on 13-5/8" 3M SOW casinghead and test to 70% of collapse. Ensure wellhead height matches production requirements and BOPs heights.

### **III. INTERMEDIATE HOLE SECTION      INTERVAL 600' – 3,100'**

1. Nipple up 13-5/8" 3M BOP equipment. Test BOP and choke manifold to 3000 psi. Check gauge on choke panel for accurate pressures, replace it if required. RIH with 12 1/4" insert bit and BHA with sufficient 8" drill collars to supply necessary bit weights. Stabilizers as needed to ensure a straight hole. Test 13-3/8" casing to 500 psi.
2. Drill float collar & precede cement with 500 gallons Super Flush 101. Cement lead slurry with 455 sxs 50/50 Poz Premium Plus cmt. + 10% Bentonite + 5 lbm/sk Gilsonite + 5% Salt + 0.125 lbm/sx Poly-E-Flake. Tail slurry- 250 sxs Premium Plus cmt + 2 % CaCl. Float shoe. If first 20' of float shoe joint drills with wet cement, WOC prior to drilling remainder of joint and notify office.
3. Drill and survey a straight hole. Survey every 300' or more often as required to monitor deviation. Circulation rates as needed to ensure good hole cleaning.
4. This interval to be drilled with brine water having the following properties: MW 9.9-10.0, VISC 29-30, API-FL N/C, circulating through a controlled portion of reserve pit for maximum gravitational solids removal. Mix paper to control seepage losses. Maintain pH control w/ additions of Caustic Soda. Mix at flow line one gallon of New-55 every 250 feet drilled to promote solids removal. Pump a sweep every 500 feet. Deviation on this interval can become severe; proper planning of bottom hole assembly can reduce the deviation. At total depth sweep the hole using 100 bbls of system fluid- Saltwater Gel super sweep.
5. Rig up casing tools and run casing as follows:  
  
    9-5/8" Float Shoe  
    (1) Joint 9-5/8", 36.0 ppf, K-55, LT&C Casing  
    9-5/8" Float Collar  
    +/- 3,100', 9-5/8", 36.0 ppf, K-55, LT&C Casing
6. Centralize with (5) centralizers placed as follows: middle of shoe jt., top of 2nd jt., top of 4th jt., then every fourth jt. Thread lock all float equipment (top & bottom).

7. Cement per cement prognosis (volumes based on fluid caliper results). Pump capacity of casing prior to commencing any cementing operations. Tag and land casing on bottom, hold running weight tension while WOC. WOC total of 24 hours or until tail slurry has attained 500 psi compressive strength (use location water sample to get lab results).
8. Cut off 9-5/8" and set in 13-3/8" casinghead bowl. Nipple up 13-5/8" 3M x 11" 5M casing spool (Test casing to 70% of collapse) and BOP equipment. Test BOP and choke manifold to 5,000 psi or full working pressure. Check gauge on choke panel for accurate pressures, replace it if required. Ensure wellhead height matches production requirements and BOPs heights. Install dual super chokes, PVT and flow sensors, mud-gas separator and bar bins.

#### **IV. FINAL HOLE SECTION      INTERVAL 3,100' – 7,000' TD**

1. RIH with 8 3/4" insert button bit and BHA with sufficient 6 1/2" drill collars to supply necessary bit weights. Stabilizers as needed to ensure a straight hole. Test 9-5/8" casing to 1500 psi.
2. Drill float collar & precede cement with 1000 gallons Super Flush 101. Cement lead slurry with 500 sxs Modified Light Premium cmt. + 6% Halad-9 + 5 lbm/sk Salt + 1 lbm/sx Pheno Seal-Blend. Tail slurry- 600 sxs 50/50 POZ Premium cmt + 0.6% Halad-9 + 2.87 lbm/sk Potassium Chloride. Float shoe. If first 20' of float shoe joint drills with wet cement, WOC prior to drilling remainder of joint and notify office.
3. Drill and survey a straight hole to ± 7,000 T.D. Survey every 500' or more often as required to monitor deviation. Circulation rates as needed to ensure good hole cleaning.
4. Drill out casing with fresh water, mud wt. 8.4-10.0, vis. 28-29, API-FL N/C, fresh to brine, circulating through the reserve pit for gravitational solids removal. Use sweeps of paper to control seepage loss. Mix Caustic Soda for pH control. Mix one gallon of New-55 at flow line for every 250 feed drilled to promote solids settling. Sweep hole with 1 lbs of Super Sweep every 500 feet drilled. Maintain sufficient brine water on location to raise the mud weight in the event of abnormal pressure.

5. At 5,500' divert the flow line to the steel pits. Pre-treat the system with Newcide to prevent bacterial degradation of organic materials. Mix starch to lower the API filtrate to 15cc. Mix Caustic Soda for pH control. Use Fiber-Seal & Fiber-Plug to minimize losses in this interval. Sweep hole with 50 bbls of system fluid using Super Sweep every 500 feet. At total depth mix in the premix pit, 100 bbls of system fluid, use Saltwater Gel for a vis. of 65-75 sec/1000cc. Sweep the hole with 50 bbls and spot the remaining 50 bbls on bottom for logging and casing operations.
6. Trip out of hole with drill pipe.
7. Refer to completion procedure.



## *DRILLING FLUIDS PROGRAM*

### *PREPARED FOR:*

*Cooper 31 Fed #1*

*Section 31, T-25-S, R-29-E  
Eddy County, New Mexico*

### *SUBMITTED TO:*

*Mr. Kip Agar.*

*OGX Resources, LLC  
P.O. Box 2064  
Midland, Texas 79702*

### *PREPARED BY:*

*Ken Anthony*



# Newpark Drilling Fluids\*LLC



## OGX Resources, LLC

Cooper 31 Fed #1  
Section 31, T-25-S, R-29-E  
Fddy County, New Mexico

### PROGRAM HIGHLIGHTS:

**TOTAL DEPTH** : 9,500'

**CASING REQUIREMENTS** : Interval 1: 17-1/2" hole to 575', set 13-3/8" casing.  
: Interval 2: 12-1/4" hole to 2,700', set 9-5/8" casing.  
: Interval 3: 8-3/4" hole to 9,500', set 5-1/2" casing.

**MUD WEIGHT REQUIREMENTS** : 8.6 – 9.0 ppg @ 575'  
: 9.9 – 10.0 ppg @ 2,700'  
: 8.4 – 10.0 ppg @ 9,500'

**DAYS TO REACH TD** : 12 – 14

**COST ESTIMATE** : ~~REDACTED~~

**WAREHOUSE** : Midland, Texas (800) 592-4627  
David Volz, Distribution Manager

**PERMIAN BASIN PERSONNEL** : Midland, Texas (800) 592-4627  
: Joe Henderson, Permian Basin Business Unit Manager  
: Al Boudreaux, Sales Manager  
: Doug Thomas, Sales  
: Ken Anthony, Engineering Manager  
: Mike Davis, Technical Manager

### MUD PROPERTIES SUMMARY:

Depth (feet)	Weight (ppg)	Viscosity (sec/1000cc)	Fluid Loss (cc/30min)	PV (cps)	YP (lb/100ft <sup>2</sup> )	Mud Type
0' – 575' Set 13-3/8" Casing	8.6 – 9.0	36 – 38	N/C	6 – 10	6 – 20	Spud Mud
575' – 2,700' Set 9-5/8" Casing	9.9 – 10.0	29 – 30	N/C	0 – 1	0 – 1	Brine
2,700' – 5,500'	8.4 – 10.0	28 – 29	N/C	0 – 1	0 – 1	Fresh Water to Brine
5,500' – 9,500' Set 4-1/2"	8.4 – 10.0	28 – 29	10 – 15 cc	0 – 1	0 – 1	Starch

**Note:** The mud weight schedule is intended as a guideline only. Actual mud weights used should be determined by hole conditions and drilling parameters.



Newpark Drilling Fluids, LLC



OGX Resources, LLC

Cooper 31 Fed #1  
Section 31, T-25-S, R-29-E  
Eddy County, New Mexico

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## ENGINEER / WAREHOUSE INFORMATION

WELL NAME: Cooper 31 Fed #1

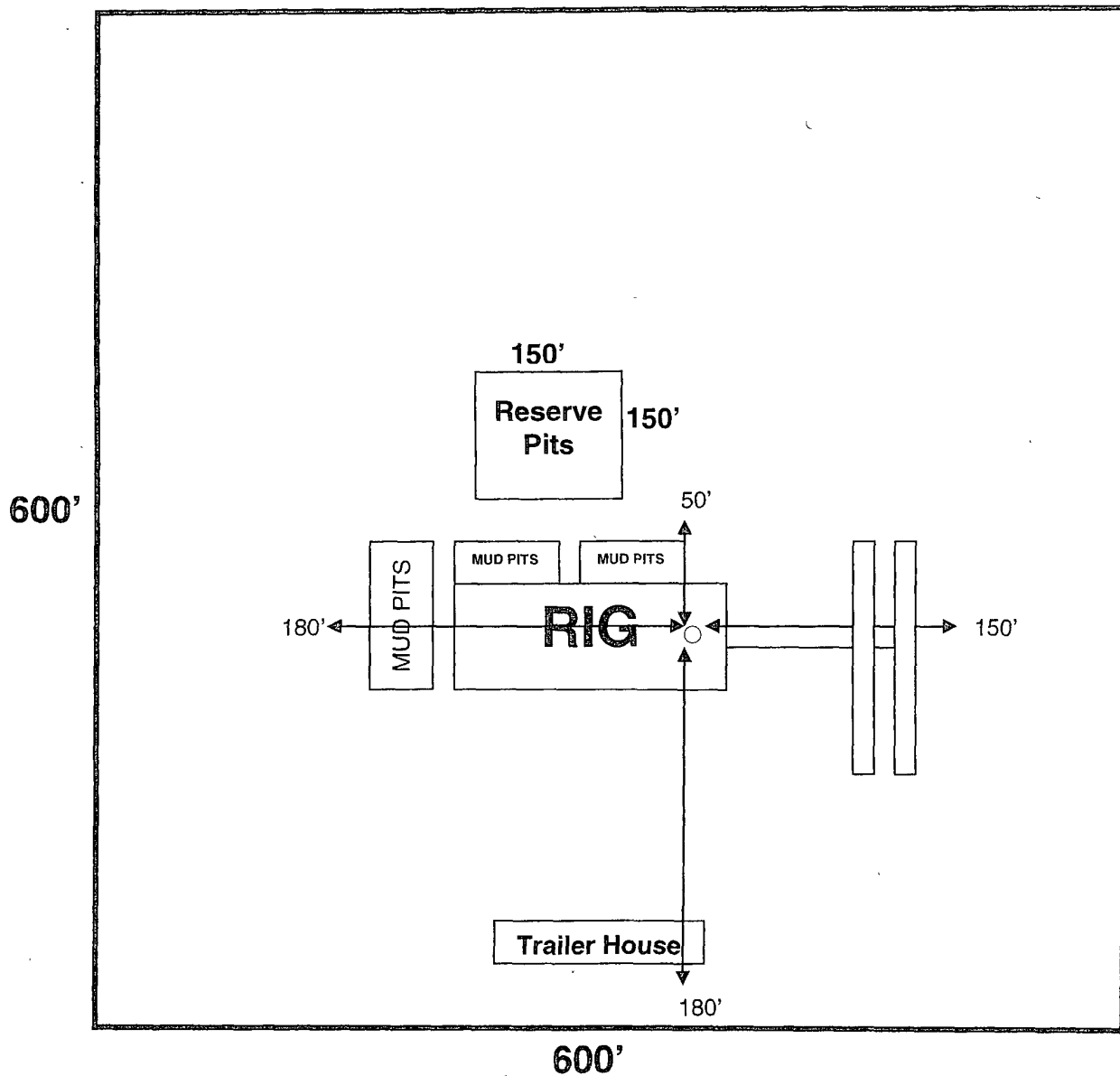
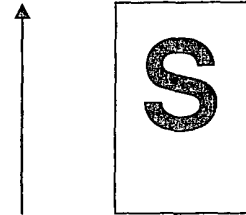
LOCATION: Section 31, T-25-S, R-29-E  
Eddy County, New Mexico

MUD ENGINEER: Lynn Pearson Carlsbad, New Mexico  
Wally Pearson Artesia, New Mexico

(800) 592-4627 or (432) 697-8661. Both 24 hours.

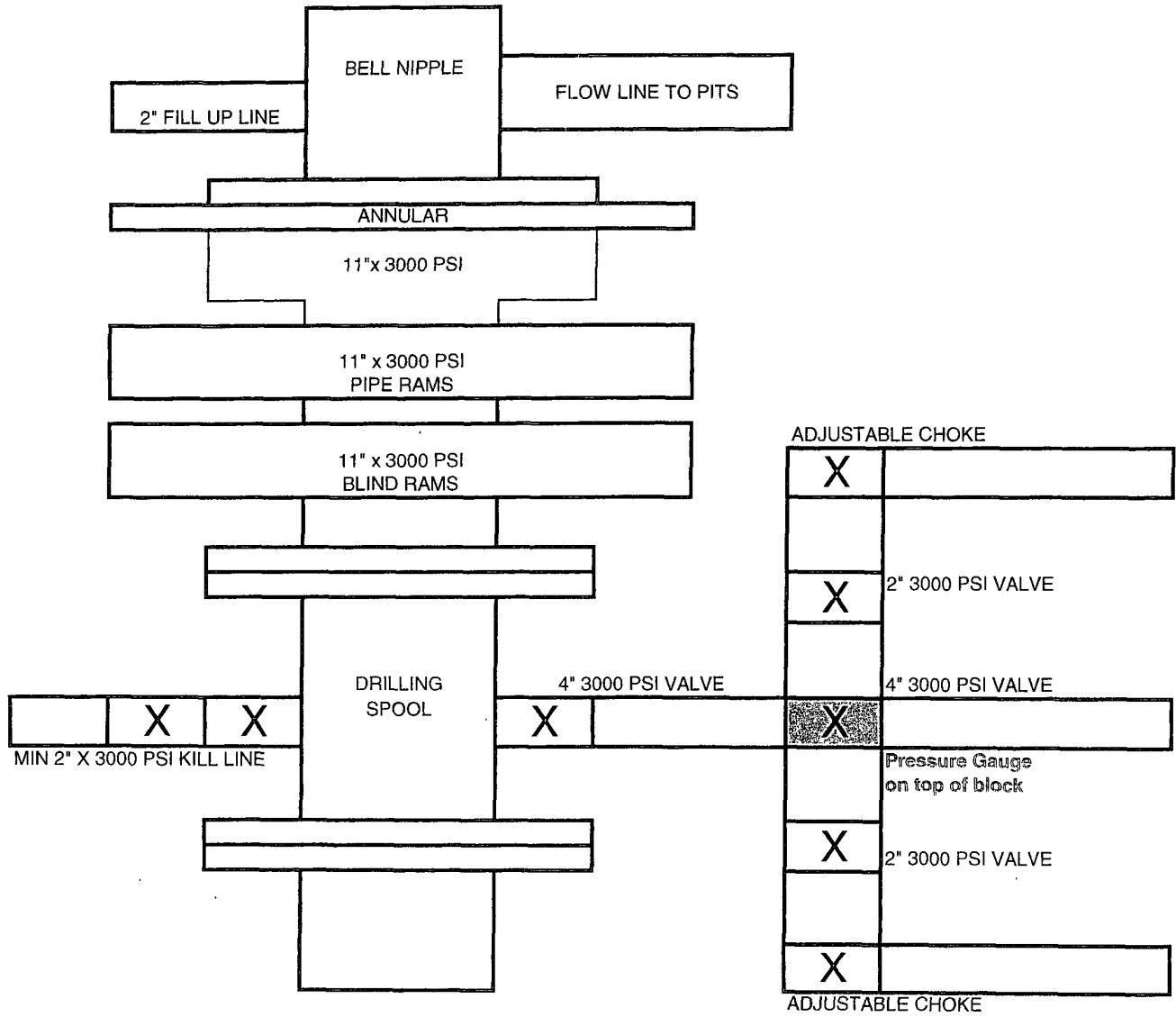
WAREHOUSE: Artesia & Lovington, New Mexico  
(800) 592-4627 or (432) 697-8661. Both 24 hours.

**DRILLING RIG LAYOUT**  
**OGX Resources, LLC.**  
**Cooper 31 Federal #1**



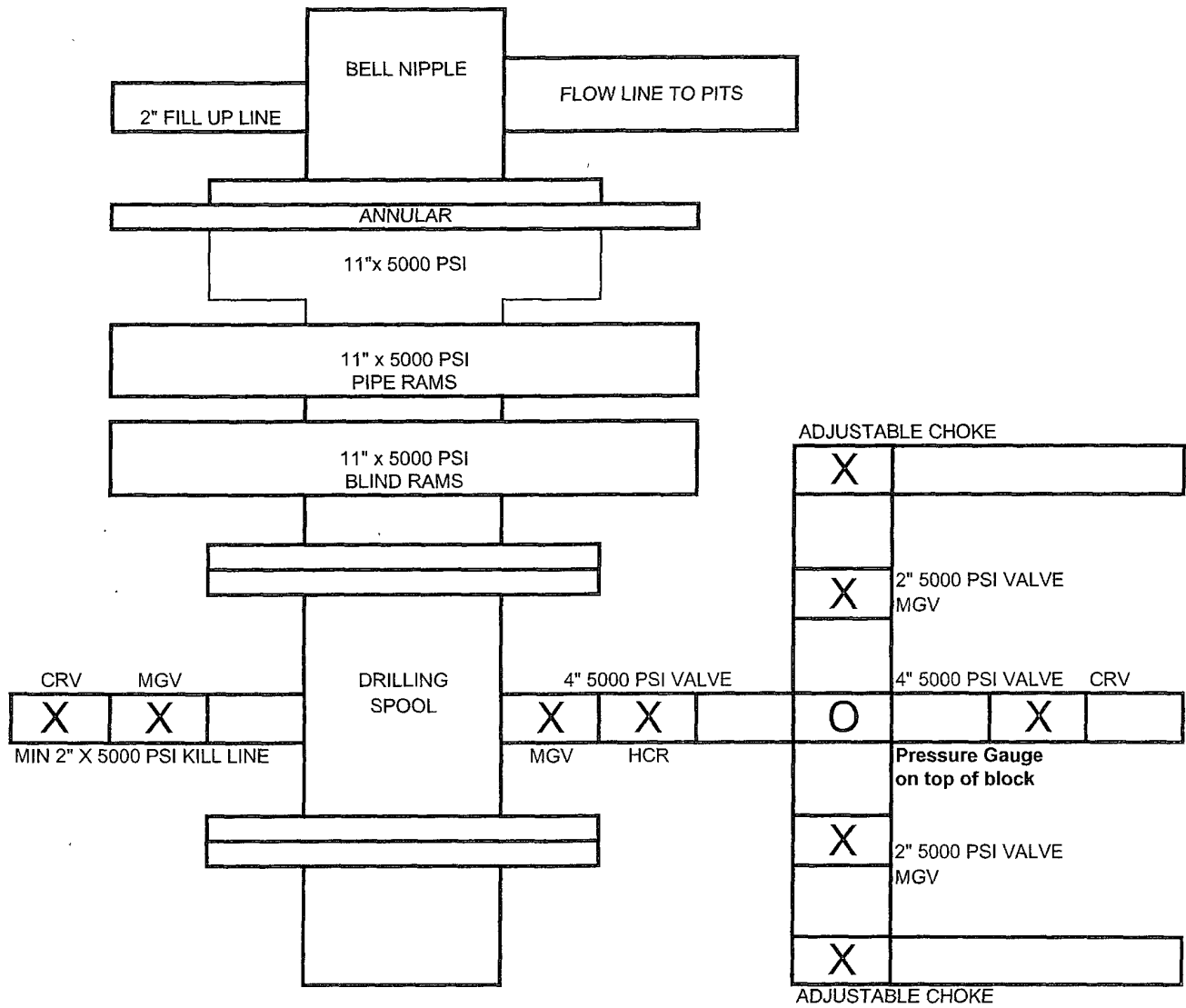


BOP SCHEMATIC FOR:  
12-1/4" HOLE



OGX Resources, LLC  
Cooper 31 Federal #1  
Eddy County, New Mexico

BOP SCHEMATIC FOR  
8-3/4" HOLE



OGX Resources, LLC  
Cooper 31 Federal #1  
Eddy County, New Mexico

Exhibit 2

**HALLIBURTON**

**OGX Resources LLC**  
**PO Box 11148**  
**Midland, Texas 79702**

Cooper 31 Fed #1

Eddy County, New Mexico  
United States of America  
S:31 T:25S R:29E

## **Cementing Recommendation**

Prepared for: Randy Ford  
February 29, 2008  
Version: 2

Submitted by:  
Dennis Page

Halliburton  
4000 N. Big Spring, Ste. 200  
Midland, Texas 79705  
432.683.0210

**HALLIBURTON**

# HALLIBURTON

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*Halliburton appreciates the opportunity to present  
this proposal and looks forward to being of service to you.*

## **Foreword**

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Halliburton Energy Services is pleased to have this opportunity to present this proposal for your consideration. We earnestly request the service work to be performed on this well.

These Service Coordinators can be reached in our District, at the following phone numbers:

### **MIDLAND SALES OFFICE**

**1-800-844-8451**

#### **ODESSA DISTRICT**

**1-800-417-5096**

##### CEMENTING:

B. J. Wheeler / Scott Kerby  
Joe Briseno

##### STIMULATION:

Larry Staples / Basil Hacker  
Ricky Russell

##### LOGGING & PERFORATING

Mike Wood / Joe Kirby

##### COILED TUBING & NITROGEN

Michael Ybaben

##### TOOLS & TESTING, PROD. SVCS., TCP, COMPL. PRODUCTS

Steve Engleman

##### BAROID

Fernando Arizpe

PREPARED BY: Bruce Day

#### **HOBBS DISTRICT**

**1-800-416-6081**

##### CEMENTING

Pete Garza / Ronald Arnold  
Jaime Gonzales

##### STIMULATION:

Willie Stoker / Jerry Thurman  
Travis Laman

##### LOGGING & PERFORATING

Josh Mount / Vernon Reeve

##### TOOLS & TESTING, PROD. SVCS., TCP, COMPL. PRODUCTS

John Breeden

##### BAROID

Freddy Redmon

REVISED BY: Larry Foster

We look forward to working with you to provide the very best quality services available in the Permian Basin.

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Dennis Page, Sr. Technical Advisor

### Cementing Best Practices

1. **Cement quality and weight:** You must choose cement slurry that is designed to solve the problems specific to each string of pipe.
2. **Waiting time:** You must hold the cement slurry in place and under pressure until it hardens. A cement slurry is a time-dependent liquid and must be allowed to undergo a hydration reaction to produce a competent cement sheath. A fresh cement slurry can be worked (thickening or pump time) as long as it is plastic, and the initial set of cement occurs during the rapid reaction stage. If the cement is not allowed to hydrate; it will be subject to changes in density, dilution, settling, water separation, and gas cutting that can lead to lack of zonal isolation with resultant bridging in the annulus.
3. **Pipe movement:** Pipe movement may be one of the single most influential factors in mud removal. Reciprocation and/or rotation mechanically breaks up gelled mud and constantly changes the flow patterns in the annulus for better cement bonding.
4. **Mud properties:** Plastic viscosity (PV) should be less than 15 centipoise (cp), and less than 10 cp, if possible, yield point (YP) should be less than 10 pound/100-square feet (lb/100ft<sup>2</sup>) decreasing down to about 5 lb/100 ft<sup>2</sup>.
5. **Mud gel strength:** A nonthixotropic mud is desirable for good mud removal. Mud left in the hole prior to running casing should have 10-second/10-minute/30-minute gel strength such that the 10-minute is less than double the 10-second and the 30-minute is less than 20 lb/100 ft<sup>2</sup>. Sufficient shear strength may not be achieved on a primary cement job to remove mud left in the hole should the mud develop more than 25 lb/100 ft<sup>2</sup>.
6. **Mud fluid loss:** Decreasing the filtrate loss into a permeable zone enhances the creation of a thin filter cake. This increases the fluid mud in the hole, which is more easily removed. Generally, an API fluid loss of 7 or 8 milliliter (ml) is sufficient with high-temperature/high-pressure fluid loss (HTHP) no more than double this amount.
7. **Circulation:** Circulate bottoms up twice, or until well conditioned mud is being returned to the surface. There should be no cutting in the mud returns. An annular velocity of 260 feet per minute is optimum (SPE/IADC 18617), if possible.
8. **Flow rate:** Turbulent flow is more desirable flow regime for mud removal. If turbulence cannot be achieved, better mud removal is found when maximum flow energy is used. The maximum pump rate should be determined to obtain the best flow regime.
9. **Hole size:** The optimum hole size recommended for good mud removal is 1.5 to 2 inches larger than the casing or liner size. Hole sizes larger than 2 inches annular space can be dealt with, but those that are smaller than 1.5 inches present difficult problems.
10. **Pipe Centralization:** This helps to create a uniform flow area perpendicular to flow direction. Cement will take the path of least resistance so that centralization is important in keeping the pipe off the walls of the hole. At least a 70 percent standoff should be achieved for centralization.
11. **Rat hole:** When applicable, a weighted viscous pill in the rat hole prevents cement from swapping with lighter weight mud when displacement stops.
12. **Shoe joint:** A shoe joint is recommended on all primary casings and liners. The length of the shoe joint will vary, although the absolute minimum length is one joint of pipe. If conditions exist, such as not running a bottom plug, two joints should be the minimum length.

# HALLIBURTON

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## Job Information

## Surface Casing

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Cooper 31 Fed

#1

17-1/2" Hole

0 - 525 ft (MD)

Inner Diameter

17.500 in

Job Excess

100 %

Surface Casing

0 - 525 ft (MD)

Outer Diameter

13.375 in

## Calculations

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Cement : (225.00 ft fill)

$225.00 \text{ ft} * 0.6946 \text{ ft}^3/\text{ft} * 100 \% = 312.59 \text{ ft}^3$

Total Lead Cement =  $312.59 \text{ ft}^3$

= 55.67 bbl

Sacks of Cement = 161 sks

Cement : (300.00 ft fill)

$300.00 \text{ ft} * 0.6946 \text{ ft}^3/\text{ft} * 100 \% = 416.78 \text{ ft}^3$

Tail Cement =  $416.78 \text{ ft}^3$

= 74.23 bbl

Shoe Joint Volume: (40.00 ft fill)

$40.00 \text{ ft} * 0.8818 \text{ ft}^3/\text{ft} = 35.27 \text{ ft}^3$

= 6.28 bbl

Tail plus shoe joint =  $452.05 \text{ ft}^3$

= 80.51 bbl

Total Tail = 336 sks

## ***Job Recommendation***

## ***Surface Casing***

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Install floating equipment, run casing to bottom, and circulate a minimum of 2-3 hole volumes prior to cementing as follows:

### Fluid Instructions

Fluid 1: Precede cement with 20 bbl  
Fresh Water

Fluid Volume: 20 bbl

Fluid 2: Lead with 165 sks

EconoCem - HLC

2 % Calcium Chloride (Accelerator)

0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)

Fluid Weight 12.60 lbm/gal

Slurry Yield: 1.94 ft<sup>3</sup>/sk

Total Mixing Fluid: 10.68 Gal/sk

Top of Fluid: 0 ft

Calculated Fill: 225 ft

Volume: 55.67 bbl

Calculated Sacks: 160.96 sks

Proposed Sacks: 165 sks

Fluid 3: Tail-in with 340 sks

HalCem - C

2 % Calcium Chloride (Accelerator)

Fluid Weight 14.80 lbm/gal

Slurry Yield: 1.35 ft<sup>3</sup>/sk

Total Mixing Fluid: 6.39 Gal/sk

Top of Fluid: 225 ft

Calculated Fill: 300 ft

Volume: 80.51 bbl

Calculated Sacks: 335.60 sks

Proposed Sacks: 340 sks

## Cost Estimate

## Surface Casing

Mtrl Nbr	Description	Qty	U/M	Unit Price	Gross Amt
1	MILEAGE FOR CEMENTING EQUIPMENT	150	MI	9.79	2,937.00
	NUMBER OF UNITS	2			
2	MILEAGE FOR CEMENTING CREW	150	MI	5.76	864.00
	NUMBER OF UNITS	1			
	<b>0% disc. on surcharges</b>				
7	ENVIRONMENTAL SURCHARGE	1	JOB	134.00	134.00
86955	FUEL SURCHG-HEAVY TRKS	150	MI	0.45	135.00
	NUMBER OF UNITS	2			
86954	FUEL SURCHG-CARS/PICKUPS	150	MI	0.15	22.50
	NUMBER OF UNITS	1			
87605	FUEL SURCHG-CMT & CMT ADDITIVES	75	MI	0.15	297.11
	NUMBER OF TONS	26.41			
372867	DOT VEHICLE CHARGE	2	EA	241.00	482.00
16091	PUMPING CHARGE	1	EA	4,028.00	4,028.00
	DEPTH	525			
	FEET/METERS (FT/M)	FT			
141	RCM w/ RA DENSOMETER	1	JOB	1,990.00	1,990.00
	NUMBER OF UNITS	1			
16115	FIELD STORAGE BIN ON SITE	1	EA	1,344.00	1,344.00
	DAYS OR PARTIAL DAY(WHOLE NO.)	1			
74038	PLUG CONTAINER RENTAL	1	EA	1,322.00	1,322.00
	DAYS OR FRACTION (MIN1)	1			
	<b>25% disc. on plug</b>				
101235693	PLUG, TOP, 13 3/8, HWE, 11.79 MIN/12.72	1	EA	998.00	998.00
452992	ECONOCHEM (TM) SYSTEM	165	SK		5,540.70
100005053	CALCIUM CHLORIDE HI TEST PLT	4	SK	223.20	892.80
101216940	POLY-E-FLAKE	21	LB	7.84	164.64
452986	HALCEM (TM) SYSTEM	340	SK		13,494.60
100005053	CALCIUM CHLORIDE HI TEST PLT	8	SK	223.20	1,785.60
76400	MILEAGE, CMT MTLs DEL/RET	75	MI	3.35	6,045.08
	NUMBER OF TONS	24.06			
3965	SVC CHRg, CMT & ADDITIVES	537	CF	5.49	2,948.13
	NUMBER OF EACH	1			
	<b>Total</b>	<b>USD</b>			<b>45,425.16</b>
	<b>68% Discount</b>	<b>USD</b>			<b>29,731.96</b>
	<b>Discounted Total</b>	<b>USD</b>			<b>15,693.20</b>

Price Book Ref: 09 Permian Basin  
Price Date: 2/29/2008



## Cost Estimate (Continued)

## Surface Casing

### \*\*\*Optional Services if Required or Requested\*\*\*

<u>Mtrl Nbr</u>	<u>Description</u>	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	<u>Gross Amt</u>
	<b>25% Discount on Following Item</b>				
3	ZI-DERRICK CHARGE	1	EA	987.00	987.00
	<b>35% Discount on Following Items</b>				
16092	ADDITIONAL HOURS - PUMP TRUCK HOURS	1	EA	927.00	927.00
464256	ADDITIONAL HOURS - BULK TRUCK HOURS	1	EA	196.00	196.00
13	CSG PUMPING,STANDBY UNIT,/6HRS,ZI HOUR IN RANGE OF 6 HOURS	1	UN	5,564.00	5,564.00
16094	PLUG BACK/SPOT CEMENT OR MUD,ZI DEPTH FEET/METERS (FT/M)	1	EA	4,635.00	4,635.00
16096	PLUGGING ADDITIONAL HOURS HOURS	1	EA	927.00	927.00
	<b>Primary Services Discount</b>				
4020	ADDITIONAL HOURS - TRANSPORT NUMBER OF UNITS	1	H	320.56	320.56
1	MILEAGE - STANDBY PUMP TRUCK NUMBER OF UNITS	150	MI	9.79	1,468.50
2	MILEAGE FOR STANDBY CREW NUMBER OF UNITS	150	MI	5.76	864.00
116	BOOSTER PUMP-SKID,/DAY,ZI NUMBER OF DAYS	1	EA	1,362.00	1,362.00
119534	SUCTION HOSE, 4"/FT W/HES,PER JOB ZI NUMBER OF JOBS	1	FT	4.31	4.31
16118	LAB TESTING PER HOUR HOURS OR FRACTION (MIN4)	1	EA	1,236.00	1,236.00
	<b>Non-Discounted Items</b>				
45	DRILL PIPE PIN	1	EA	150.00	150.00
45	CIRCULATING IRON	1	EA	1,500.00	1,500.00
86955	FUEL SURCHARGE-STANDBY PUMP NUMBER OF UNITS	150	MI	0.45	67.50
86954	FUEL SURCHARGE-STANDBY CREW NUMBER OF UNITS	150	MI	0.15	22.50

Price Book Ref: 09 Permian Basin  
Price Date: 2/29/2008

## Job Information

## Intermediate Casing

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Cooper 31 Fed

#1

Surface Casing

0 - 525 ft (MD)

Outer Diameter

13.375 in

12-1/4" Hole

525 - 2700 ft (MD)

Inner Diameter

12.250 in

Job Excess

100 %

Intermediate Casing

0 - 2700 ft (MD)

Outer Diameter

9.625 in

## Calculations

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Cement : (2200.00 ft fill)

$525.00 \text{ ft} \times 0.3765 \text{ ft}^3/\text{ft} \times 10 \%$

= 217.43 ft<sup>3</sup>

$1675.00 \text{ ft} \times 0.3132 \text{ ft}^3/\text{ft} \times 100 \%$

= 1049.18 ft<sup>3</sup>

Total Lead Cement

= 1266.61 ft<sup>3</sup>

= 225.59 bbl

Sacks of Cement

= 497 sks

Cement : (500.00 ft fill)

$500.00 \text{ ft} \times 0.3132 \text{ ft}^3/\text{ft} \times 100 \%$

= 313.19 ft<sup>3</sup>

Tail Cement

= 313.19 ft<sup>3</sup>

= 55.78 bbl

Shoe Joint Volume: (40.00 ft fill)

$40.00 \text{ ft} \times 0.4341 \text{ ft}^3/\text{ft}$

= 17.36 ft<sup>3</sup>

= 3.09 bbl

Tail plus shoe joint

= 330.55 ft<sup>3</sup>

= 58.87 bbl

Total Tail

= 245 sks

## Job Recommendation

## Intermediate Casing

Install floating equipment, run casing to bottom, and circulate a minimum of 2-3 hole volumes prior to cementing as follows:

### Fluid Instructions

Fluid 1: Pump  $\pm$  10 bbl Fresh Water spacer

Fluid Volume: 10 bbl

Fluid 2: Pump 500 gallons  
SUPER FLUSH 101

Fluid Volume: 11.90 bbl

Fluid 3: Pump  $\pm$  10 bbl Fresh Water spacer

Fluid Volume: 10 bbl

Fluid 4: Lead with 500 sks

EconoCem - C

5 lbm/sk Gilsonite (Lost Circulation Additive)

0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)

Fluid Weight 11.80 lbm/gal

Slurry Yield: 2.55 ft<sup>3</sup>/sk

Total Mixing Fluid: 14.34 Gal/sk

Top of Fluid: 0 ft

Calculated Fill: 2200 ft

Volume: 225.59 bbl

Calculated Sacks: 496.90 sks

Proposed Sacks: 500 sks

Fluid 5: Tail-in with 250 sks

HalCem - C

2 % Calcium Chloride (Accelerator)

Fluid Weight 14.80 lbm/gal

Slurry Yield: 1.35 ft<sup>3</sup>/sk

Total Mixing Fluid: 6.39 Gal/sk

Top of Fluid: 2200 ft

Calculated Fill: 500 ft

Volume: 58.87 bbl

Calculated Sacks: 245.40 sks

Proposed Sacks: 250 sks

# HALLIBURTON

## Cost Estimate

## Intermediate Casing

<u>Mtrl Nbr</u>	<u>Description</u>	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	<u>Gross Amt</u>
1	MILEAGE FOR CEMENTING EQUIPMENT NUMBER OF UNITS	150 3	MI	9.79	4,405.50
2	MILEAGE FOR CEMENTING CREW NUMBER OF UNITS	150 1	MI	5.76	864.00
	<b>0% disc. on surcharges</b>				
7	ENVIRONMENTAL SURCHARGE	1	JOB	134.00	134.00
86955	FUEL SURCHG-HEAVY TRKS NUMBER OF UNITS	150 3	MI	0.45	202.50
86954	FUEL SURCHG-CARS/PICKUPS NUMBER OF UNITS	150 1	MI	0.15	22.50
87605	FUEL SURCHG-CMT & CMT ADDITIVES NUMBER OF TONS	75 38.37	MI	0.15	431.66
372867	DOT VEHICLE CHARGE	4	EA	241.00	964.00
16091	PUMPING CHARGE DEPTH FEET/METERS (FT/M)	1 2700 FT	EA	4,446.00	4,446.00
141	RCM w/ RA DENSOMETER NUMBER OF UNITS	1 1	JOB	1,990.00	1,990.00
16115	FIELD STORAGE BIN ON SITE DAYS OR PARTIAL DAY(WHOLE NO.)	1 1	EA	1,344.00	1,344.00
4020	TRANSPORT, HOURLY Number of Units	4 1	H	320.56	1,282.24
74038	PLUG CONTAINER RENTAL DAYS OR FRACTION (MIN1)	1 1	EA	1,322.00	1,322.00
	<b>25% disc. on plug</b>				
101214575	PLUG, TOP, 9 5/8, HW, 8.16 MIN/9.06 MA	1	EA	454.00	454.00
12199	SUPERFLUSH 101	500	GAL	6.44	3,220.00
452992	ECONOCHEM (TM) SYSTEM	500	SK		18,965.00
100003700	GILSONITE	2500	LB	1.43	3,575.00
101216940	POLY-E-FLAKE	63	LB	7.84	493.92
452986	HALCEM (TM) SYSTEM	250	SK		9,922.50
100005053	CALCIUM CHLORIDE HI TEST PLT	6	SK	223.20	1,339.20
76400	MILEAGE, CMT MTLs DEL/RET NUMBER OF TONS	75 38.37	MI	3.35	9,640.46
3965	SVC CHRG, CMT & ADDITIVES NUMBER OF EACH	944 1	CF	5.49	5,182.56
	<b>Total</b>	<b>USD</b>			<b>70,201.04</b>
	<b>68% Discount</b>	<b>USD</b>			<b>46,348.32</b>
	<b>Discounted Total</b>	<b>USD</b>			<b>23,852.72</b>

Price Book Ref: 09 Permian Basin  
Price Date: 2/29/2008

## Cost Estimate (Continued)

## Intermediate Casing

### \*\*\*Optional Services if Required or Requested\*\*\*

<u>Mtrl Nbr</u>	<u>Description</u>	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	<u>Gross Amt</u>
	<b>25% Discount on Following Item</b>				
3	ZI-DERRICK CHARGE	1	EA	987.00	987.00
	<b>35% Discount on Following Items</b>				
16092	ADDITIONAL HOURS - PUMP TRUCK HOURS	1	EA	927.00	927.00
464256	ADDITIONAL HOURS - BULK TRUCK HOURS	1	EA	196.00	196.00
13	CSG PUMPING,STANDBY UNIT,/6HRS,ZI HOUR IN RANGE OF 6 HOURS	1 6	UN	5,564.00	5,564.00
16094	PLUG BACK/SPOT CEMENT OR MUD,ZI DEPTH FEET/METERS (FT/M)	1 2700 FT	EA	4,766.00	4,766.00
16096	PLUGGING ADDITIONAL HOURS HOURS	1 1	EA	927.00	927.00
	<b>Primary Services Discount</b>				
4020	ADDITIONAL HOURS - TRANSPORT NUMBER OF UNITS	1 1	H	320.56	320.56
1	MILEAGE - STANDBY PUMP TRUCK NUMBER OF UNITS	150 1	MI	9.79	1,468.50
2	MILEAGE FOR STANDBY CREW NUMBER OF UNITS	150 1	MI	5.76	864.00
116	BOOSTER PUMP-SKID,/DAY,ZI NUMBER OF DAYS	1 1	EA	1,362.00	1,362.00
119534	SUCTION HOSE, 4"/FT W/HES,PER JOB ZI NUMBER OF JOBS	1 1	FT	4.31	4.31
16118	LAB TESTING PER HOUR HOURS OR FRACTION (MIN4)	1 4	EA	1,236.00	1,236.00
	<b>Non-Discounted Items</b>				
45	DRILL PIPE PIN	1	EA	150.00	150.00
45	CIRCULATING IRON	1	EA	1,500.00	1,500.00
86955	FUEL SURCHARGE-STANDBY PUMP NUMBER OF UNITS	150 1	MI	0.45	67.50
86954	FUEL SURCHARGE-STANDBY CREW NUMBER OF UNITS	150 1	MI	0.15	22.50

Price Book Ref: 09 Permian Basin  
Price Date: 2/29/2008

**Job Information****Production Casing**

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Cooper 31 Fed

#1

Intermediate Casing  
Outer Diameter0 - 2700 ft (MD)  
9.625 in8-3/4" Hole  
Inner Diameter  
Job Excess2700 - 9500 ft (MD)  
8.750 in  
50 %Production Casing  
Outer Diameter0 - 9500 ft (MD)  
7.000 in**Calculations**

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Cement : (5000.00 ft fill)

 $700.00 \text{ ft} * 0.1668 \text{ ft}^3/\text{ft} * 10 \% = 128.44 \text{ ft}^3$   
 $4300.00 \text{ ft} * 0.1503 \text{ ft}^3/\text{ft} * 50 \% = 969.63 \text{ ft}^3$   
Total Lead Cement = 1098.07 ft<sup>3</sup>  
= 195.57 bbl  
Sacks of Cement = 499 sks

Cement : (2500.00 ft fill)

 $2500.00 \text{ ft} * 0.1503 \text{ ft}^3/\text{ft} * 50 \% = 563.74 \text{ ft}^3$   
Tail Cement = 563.74 ft<sup>3</sup>  
= 100.41 bbl

Shoe Joint Volume: (40.00 ft fill)

 $40.00 \text{ ft} * 0.2148 \text{ ft}^3/\text{ft} = 8.59 \text{ ft}^3$   
= 1.53 bbl  
Tail plus shoe joint = 572.33 ft<sup>3</sup>  
= 101.94 bbl  
Total Tail = 478 sks

**Job Recommendation****Production Casing**

Install floating equipment, run casing to bottom, and circulate a minimum of 2-3 hole volumes prior to cementing as follows:

**Fluid Instructions**

Fluid 1: Pump  $\pm$  10 bbl Fresh Water spacer

Fluid Volume: 10 bbl

Fluid 2: Pump 1,000 gallons  
SUPER FLUSH 101

Fluid Volume: 23.80 bbl

Fluid 3: Pump  $\pm$  10 bbl Fresh Water spacer

Fluid Volume: 10 bbl

Fluid 4: Lead with 500 sks

EconoCem - MHLH

0.6 % Halad(R)-9 (Low Fluid Loss Control)

5 lbm/sk Salt (Salt)

1 lbm/sk Pheno Seal - Blend (Lost Circulation Additive)

Fluid Weight 12.60 lbm/gal

Slurry Yield: 2.20 ft<sup>3</sup>/sk

Total Mixing Fluid: 12.30 Gal/sk

Top of Fluid: 2000 ft

Calculated Fill: 5000 ft

Volume: 195.57 bbl

Calculated Sacks: 499.35 sks

Proposed Sacks: 500 sks

Fluid 5: Tail-in with 480 sks

HalCem - H

0.5 % LAP-1 (Low Fluid Loss Control)

0.4 % CFR-3 (Dispersant)

0.25 % D-AIR 3000 (Defoamer)

0.2 % HR-5 (Retarder)

Fluid Weight 15.60 lbm/gal

Slurry Yield: 1.20 ft<sup>3</sup>/sk

Total Mixing Fluid: 5.33 Gal/sk

Top of Fluid: 7000 ft

Calculated Fill: 2500 ft

Volume: 101.94 bbl

Calculated Sacks: 478.14 sks

Proposed Sacks: 480 sks

# HALLIBURTON

## Cost Estimate

## Production Casing

<u>Mtrl Nbr</u>	<u>Description</u>	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	<u>Gross Amt</u>
1	MILEAGE FOR CEMENTING EQUIPMENT NUMBER OF UNITS	150 3	MI	9.79	4,405.50
2	MILEAGE FOR CEMENTING CREW NUMBER OF UNITS	150 1	MI	5.76	864.00
7	<b>0% disc. on surcharges</b> ENVIRONMENTAL SURCHARGE	1	JOB	134.00	134.00
86955	FUEL SURCHG-HEAVY TRKS NUMBER OF UNITS	150 3	MI	0.45	202.50
86954	FUEL SURCHG-CARS/PICKUPS NUMBER OF UNITS	150 1	MI	0.15	22.50
87605	FUEL SURCHG-CMT & CMT ADDITIVES NUMBER OF TONS	75 49.07	MI	0.15	552.04
372867	DOT VEHICLE CHARGE	4	EA	241.00	964.00
16091	PUMPING CHARGE DEPTH FEET/METERS (FT/M)	1 9500 FT	EA	10,071.00	10,071.00
141	RCM w/ RA DENSOMETER NUMBER OF UNITS	1 1	JOB	1,990.00	1,990.00
16115	FIELD STORAGE BIN ON SITE DAYS OR PARTIAL DAY(WHOLE NO.)	1 1	EA	1,344.00	1,344.00
4020	TRANSPORT, HOURLY NUMBER OF UNITS	8 1	H	320.56	2,564.48
74038	PLUG CONTAINER RENTAL DAYS OR FRACTION (MIN1)	1 1	EA	1,322.00	1,322.00
101229888	<b>25% disc. on plug</b> PLUG, TOP, 7, HWE, 5.66 MIN/6.54 MAX CS	1	EA	289.00	289.00
12199	SUPERFLUSH 101	1000	GAL	6.44	6,440.00
452992	ECONOCEM (TM) SYSTEM	500	SK		17,690.00
100001617	HALAD-9	273	LB	25.65	7,002.45
100003695	SALT, CEM GR	2500	LB	0.48	1,200.00
101342230	PHENO SEAL - BLEND	500	LB	3.49	1,745.00
452986	HALCEM (TM) SYSTEM	480	SK		18,288.00
100012766	LAP-1	226	LB	22.31	5,042.06
100003653	CFR-3	181	LB	14.44	2,613.64
101007446	D-AIR 3000	113	LB	10.07	1,137.91
100005050	HR-5	91	LB	10.73	976.43
76400	MILEAGE, CMT MTLs DEL/RET NUMBER OF TONS	75 49.07	MI	3.35	12,328.84
3965	SVC CHRg, CMT & ADDITIVES NUMBER OF EACH	1116 1	CF	5.49	6,126.84
	<b>Total</b>	<b>USD</b>			<b>105,316.19</b>
	<b>68% Discount</b>	<b>USD</b>			<b>70,215.72</b>
	<b>Discounted Total</b>	<b>USD</b>			<b>35,100.47</b>

Price Book Ref: 09 Permian Basin  
Price Date: 2/29/2008



## Cost Estimate (Continued)

## Production Casing

### \*\*\*Optional Services if Required or Requested\*\*\*

<u>Mtrl Nbr</u>	<u>Description</u>	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	<u>Gross Amt</u>
	<b>25% Discount on Following Item</b>				
3	ZI-DERRICK CHARGE	1	EA	987.00	987.00
	<b>35% Discount on Following Items</b>				
16092	ADDITIONAL HOURS - PUMP TRUCK HOURS	1	EA	927.00	927.00
464256	ADDITIONAL HOURS - BULK TRUCK HOURS	1	EA	196.00	196.00
13	CSG PUMPING,STANDBY UNIT,/6HRS,ZI HOUR IN RANGE OF 6 HOURS	1	UN	5,564.00	5,564.00
16094	PLUG BACK/SPOT CEMENT OR MUD,ZI DEPTH FEET/METERS (FT/M)	1 9500 FT	EA	12,202.00	12,202.00
16096	PLUGGING ADDITIONAL HOURS HOURS	1 1	EA	927.00	927.00
4020	<b>Primary Services Discount</b> ADDITIONAL HOURS - TRANSPORT NUMBER OF UNITS	1 1	H	320.56	320.56
1	MILEAGE - STANDBY PUMP TRUCK NUMBER OF UNITS	150 1	MI	9.79	1,468.50
2	MILEAGE FOR STANDBY CREW NUMBER OF UNITS	150 1	MI	5.76	864.00
116	BOOSTER PUMP-SKID,/DAY,ZI NUMBER OF DAYS	1 1	EA	1,362.00	1,362.00
119534	SUCTION HOSE, 4"/FT W/HES,PER JOB ZI NUMBER OF JOBS	1 1	FT	4.31	4.31
16118	LAB TESTING PER HOUR HOURS OR FRACTION (MIN4)	1 4	EA	1,236.00	1,236.00
	<b>Non-Discounted Items</b>				
45	DRILL PIPE PIN	1	EA	150.00	150.00
45	CIRCULATING IRON	1	EA	1,500.00	1,500.00
86955	FUEL SURCHARGE-STANDBY PUMP NUMBER OF UNITS	150 1	MI	0.45	67.50
86954	FUEL SURCHARGE-STANDBY CREW NUMBER OF UNITS	150 1	MI	0.15	22.50

Price Book Ref: 09 Permian Basin  
Price Date: 2/29/2008

## Conditions

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### NOTE

The cost in this analysis is good for the materials and/or services outlined within and shall be valid for 30 days from the date of this proposal. In order to meet your needs under this proposal with a high quality of service and responsive timing, Halliburton will be allocating limited resources and committing valuable equipment and materials to your area of operations. Accordingly, the discounts reflected in this proposal are available only for materials and services awarded on a first-call basis. Alternate pricing may apply in the event that Halliburton is awarded work on any basis other than as a first-call provider.

The unit prices stated in the proposal are based on our current published prices. The projected equipment, personnel, and material needs are only estimates based on information about the work presently available to us. At the time the work is actually performed, conditions then existing may require an increase or decrease in the equipment, personnel, and/or material needs. Charges will be based upon unit prices in effect at the time the work is performed and the amount of equipment, personnel, and/or material actually utilized in the work. Taxes, if any, are not included. Applicable taxes, if any, will be added to the actual invoice.

It is understood and agreed between the parties that with the exception of the subject discounts, all services performed and equipment and materials sold are provided subject to Halliburton's General Terms and Conditions contained in our current price list, (which include LIMITATION OF LIABILITY and WARRANTY provisions), and pursuant to the applicable Halliburton Work Order Contract (whether or not executed by you), unless a Master Service and/or Sales Contract applicable to the services, equipment, or materials supplied exists between your company and Halliburton, in which case the negotiated Master Contract shall govern the relationship between the parties. A copy of the latest version of our General Terms and Conditions is available from your Halliburton representative or at:

[http://www.halliburton.com/hes/general\\_terms\\_conditions.pdf](http://www.halliburton.com/hes/general_terms_conditions.pdf) for your convenient review, and we would appreciate receiving any questions you may have about them. Should your company be interested in negotiating a Master Contract with Halliburton, our Law Department would be pleased to work with you to finalize a mutually agreeable contract. In this connection, it is also understood and agreed that Customer will continue to execute Halliburton usual field work orders and/or tickets customarily required by Halliburton in connection with the furnishing of said services, equipment, and materials.

Any terms and conditions contained in purchase orders or other documents issued by the customer shall be of no effect except to confirm the type and quantity of services, equipment, and materials to be supplied to the customer.

If customer does not have an approved open account with Halliburton or a mutually executed written contract with Halliburton, which dictates payment terms different than those set forth in this clause, all sums due are payable in cash at the time of performance of services or delivery of equipment, products, or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice.

Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.

## **HYDROGEN SULFIDE DRILLING OPERATIONS PLAN**

### **OGX Resources, LLC** **Cooper 31 Federal #1**

#### **I. HYDROGEN SULFIDE TRAINING**

- A.** All regularly assigned personnel, contracted or employed by OGX Resources, will receive training from a qualified instructor in the following areas prior to commencing drilling potential hydrogen sulfide bearing formations in this well:
  - 1.** The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S).
  - 2.** The proper use and maintenance of personal protective equipment and life support systems.
  - 3.** The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures and prevailing winds.
  - 4.** The proper techniques for first aid and rescue procedures.
- B.** In addition, supervisory personnel will be trained in the following areas:
  - 1.** The effects of H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
  - 2.** Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
  - 3.** The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan.
- C.** There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan. This plan shall be available at the well site. All personnel will be

required to carry documentation that they have received the proper training.

## **II. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H<sub>2</sub>S safety equipment and systems will be installed, tested and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H<sub>2</sub>S.

### **A. Well Control Equipment.**

1. Flare line with continuous pilot.
2. Choke manifold with a minimum of one remote choke.
3. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
4. Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head and flare.

### **B. Protective Equipment for Essential Personnel:**

Mark II Surviveair 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

### **C. H<sub>2</sub>S Detection and Monitoring Equipment:**

1. Two portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S levels of 20 ppm are reached.
2. One portable SO<sub>2</sub> monitor positioned near flare line.

### **D. Visual Warning Systems**

1. Wind direction indicators are shown on well site diagram.
2. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate. See example attached.

E. Mud Program

1. The Mud Program has been designed to minimize the volume of H<sub>2</sub>S circulated to the surface. Proper mud weights, safe drilling practices and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S bearing zones.
2. A mud-gas separator will be utilized as needed.

F. Metallurgy:

All drill strings, casing, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and line and valves shall be suitable for H<sub>2</sub>S service.

G. Communication:

Cellular telephone communications in company vehicles, rig floor and mud logging trailer.

H. Well Testing:

Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing and an H<sub>2</sub>S environment will be conducted during the daylight hours.

# ***CONTINGENCY PLAN***

**OGX Resources**

**Cooper 31 Federal #1**

660' FEL & 660' FNL  
Section 31: T-25-S R-29-E  
Eddy County, New Mexico

**Prepared For:**  
**Date Prepared:**

**OGX Resources**  
**January 10, 2008**

**Prepared By:**

**INDIAN**  
**Fire & Safety, Inc.**

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## HYDROGEN SULFIDE CONTINGENCY PLAN

### SCOPE

THIS CONTINGENCY PLAN ESTABLISHES GUIDELINES FOR THE PUBLIC, ALL COMPANY EMPLOYEES WHO'S WORK ACTIVITIES MAY INVOLVE EXPOSURE TO HYDROGEN SULFIDE (H<sub>2</sub>S) GAS.

### OBJECTIVE

1. PREVENT ANY AND ALL ACCIDENTS. AND PREVENT THE UNCONTROLLED RELEASE OF HYDROGEN SULFIDE INTO THE ATMOSPHERE.
2. PROVIDE PROPER EVACUATION PROCEDURES TO COPE WITH EMERGENCIES.
3. PROVIDE IMMEDIATE AND ADEQUATE MEDICAL ATTENTION SHOULD AN INJURY OCCUR.



## H2S CONTINGENCY PLAN

### DISCUSSION

#### GEOLOGICAL PROGNOSIS

##### IMPLEMENTATION:

THIS PLAN WITH ALL DETAILS IS TO BE FULLY IMPLEMENTED BEFORE DRILLING TO PRODUCTION CASING POINT.

##### EMERGENCY RESPONSE PROCEDURE:

THIS SECTION OUTLINES THE CONDITIONS AND DENOTES STEPS TO BE TAKEN IN THE EVENT OF AN EMERGENCY.

##### EMERGENCY EQUIPMENT PROCEDURE:

THIS SECTION OUTLINES THE SAFETY AND EMERGENCY EQUIPMENT THAT WILL BE REQUIRED FOR THE DRILLING OF THIS WELL.

##### TRAINING PROVISIONS:

THIS SECTION OUTLINES THE TRAINING PROVISIONS THAT MUST BE ADHERED TO PRIOR TO DRILLING TO PRODUCTION CASING POINT.

##### DRILLING EMERGENCY CALL LISTS:

INCLUDED ARE THE TELEPHONE NUMBERS OF ALL PERSONS TO BE CONTACTED SHOULD AN EMERGENCY EXIST.

##### BRIEFING:

THIS SECTION DEALS WITH THE BRIEFING OF ALL PEOPLE INVOLVED IN THE DRILLING OPERATION.

##### PUBLIC SAFETY:

PUBLIC SAFETY PERSONNEL WILL BE MADE AWARE OF THE DRILLING OF THIS WELL.

##### CHECK LISTS:

STATUS CHECK LISTS AND PROCEDURAL CHECK LISTS HAVE BEEN INCLUDED TO INSURE ADHERENCE TO THE PLAN.

##### GENERAL INFORMATION:

A GENERAL INFORMATION SECTION HAS BEEN INCLUDED TO SUPPLY SUPPORT INFORMATION.

## H2S CONTINGENCY PLAN

### EMERGENCY PROCEDURES

- A. IN THE EVENT OF ANY EVIDENCE OF H2S LEVEL ABOVE 10 PPM, TAKE THE FOLLOWING STEPS:
  1. SECURE BREATHING EQUIPMENT
  2. ORDER NON-ESSENTIAL PERSONNEL OUT OF DANGER ZONE.
  3. TAKE STEPS TO DETERMINE IF THE H2S LEVEL CAN BE CORRECTED OR SUPPRESSED AND, IF SO, PROCEED IN NORMAL OPERATION.
- B. IF UNCONTROLLABLE CONDITIONS OCCUR:
  1. TAKE STEPS TO PROTECT AND/OR REMOVE ANY PUBLIC IN THE DOWN-WIND AREA FROM THE RIG – PARTIAL EVACUATION AND ISOLATION. NOTIFY NECESSARY PUBLIC SAFETY PERSONNEL AND THE BUREAU OF LAND MANAGEMENT OF THE SITUATION.
  2. REMOVE ALL PERSONNEL TO SAFE BREATHING AREA.
  3. NOTIFY PUBLIC SAFETY PERSONNEL TO SAFE BREATHING AREA.
  4. PROCEED WITH BEST PLAN (AT THE TIME) TO REGAIN CONTROL OF THE WELL. MAINTAIN TIGHT SECURITY AND SAFETY PROCEDURES.
- C. RESPONSIBILITY:
  1. DESIGNATED PERSONNEL.
    - a. SHALL BE RESPONSIBLE FOR THE TOTAL IMPLEMENTATION OF THIS PLAN.
    - b. SHALL BE IN COMPLETE COMMAND DURING ANY EMERGENCY.
    - c. SHALL DESIGNATE A BACK-UP.

## EMERGENCY PROCEDURES

\*(Procedures are the same for both Drilling and Tripping)

- |                   |   |
|-------------------|---|
| ALL PERSONNEL:    | <ol style="list-style-type: none"><li>1. ON ALARM, DON ESCAPE UNIT AND REPORT IN UP WIND BRIEFING AREA.</li><li>2. CHECK STATUS OF PERSONNEL (BUDDY SYSTEM).</li><li>3. SECURE BREATHING EQUIPMENT.</li><li>4. AWAIT ORDERS FROM SUPERVISOR.</li></ol>  |
| DRILLING FOREMAN: | <ol style="list-style-type: none"><li>1. REPORT TO UP WIND BRIEFING AREA.</li><li>2. DON BREATHING EQUIPMENT AND RETURN TO POINT OF RELEASE WITH TOOL PUSHER OR DRILLER (BUDDY SYSTEM).</li><li>3. DETERMINE H<sub>2</sub>S CONCENTRATIONS.</li><li>4. ASSESS SITUATION AND TAKE CONTROL MEASURES.</li></ol>  |
| TOOL PUSHER:      | <ol style="list-style-type: none"><li>1. REPORT TO UP WIND BRIEFING AREA.</li><li>2. DON BREATHING EQUIPMENT AND RETURN TO POINT OF RELEASE WITH DRILLING FOREMAN OR DRILLER (BUDDY SYSTEM).</li><li>3. DETERMINE H<sub>2</sub>S CONCENTRATION.</li><li>4. ASSESS SITUATION AND TAKE CONTROL MEASURES.</li></ol>  |
| DRILLER:          | <ol style="list-style-type: none"><li>1. DON ESCAPE UNIT.</li><li>2. CHECK MONITOR FOR POINT OF RELEASE.</li><li>3. REPORT TO BRIEFING AREA.</li><li>4. CHECK STATUS OF PERSONNEL (IN AN ATTEMPT TO RESCUE. USE THE BUDDY SYSTEM).</li><li>5. ASSIGNS LEAST ESSENTIAL PERSON TO NOTIFY DRILLING FOREMAN AND TOOL PUSHER BY QUICKEST MEANS IN CASE OF THEIR ABSENCE.</li><li>6. ASSUMES THE RESPONSIBILITIES OF THE DRILLING FORMAN AND TOOL PUSHER UNTIL THEY ARRIVE SHOULD THEY BE ABSENT.</li></ol> |

### **EMERGENCY PROCEDURES**

- DERRICK MAN  
FLOOR MAN #1  
FLOOR MAN #2
1. WILL REMAIN IN BRIEFING AREA UNTIL INSTRUCTED BY SUPERVISOR.
- MUD ENGINEER:
1. REPORT TO BRIEFING AREA.
  2. WHEN INSTRUCTED, BEGIN CHECK OF MUD FOR PH AND H2S LEVEL. (GARETT GAS TRAIN.)
- SAFETY PERSONNEL:
1. MASK UP AND CHECK STATUS OF ALL PERSONNEL AND SECURE OPERATIONS AS INSTRUCTED BY DRILLING FOREMAN AND REPORT TO BRIEFING AREA.

### **TAKING A KICK**

WHEN TAKING A KICK DURING AN H2S EMERGENCY, ALL PERSONNEL WILL FOLLOW STANDARD BOP PROCEDURES AFTER REPORTING TO BRIEFING AREA AND MASKING UP.

### **OPEN-HOLE LOGGING**

ALL UNNECESSARY PERSONNEL OFF FLOOR. DRILLING FOREMAN AND SAFETY PERSONNEL SHOULD MONITOR CONDITION, ADVISE STATUS AND DETERMINE NEED FOR USE OF AID EQUIPMENT.

### **RUNNING CASING OR PLUGGING**

FOLLOWING THE SAME "TRIPPING" PROCEDURE AS ABOVE DRILLING FOREMAN AND SAFETY PERSONNEL SHOULD DETERMINE IF ALL PERSONNEL HAVE ACCESS TO PROTECTIVE EQUIPMENT.

## H2S CONTINGENCY PLAN

### IGNITION PROCEDURES

THE DECISION TO IGNITE THE WELL IS THE RESPONSIBILITY OF COMPANY FOREMAN IN THE EVENT HE IS INCAPACITATED. IF BECOMES THE RESPONSIBILITY OF THE CONTRACT RIG TOOL PUSHER. THE DECISION SHOULD BE MADE ONLY AS A LAST RESORT AND IN A SITUATION WHERE IT IS CLEAR THAT:

1. HUMAN LIFE AND PROPERTY ARE ENDANGERED.
2. THERE IS NO HOPE CONTROLLING THE BLOWOUT UNDER THE PREVAILING CONDITIONS AT THE WELL.

NOTIFY THE DISTRICT OFFICE IF TIME PERMITS, BUT DO NOT DELAY IF HUMAN LIFE IS IN DANGER.

INITIATE FIRST PHASE OF EVACUATION PLAN.

## IGNITION PROCEDURES

### INSTRUCTIONS FOR IGNITING THE WELL

1. TWO PEOPLE ARE REQUIRED FOR THE ACTUAL IGNITING OPERATION. THEY MUST WEAR SELF-CONTAINED BREATHING UNITS AND HAVE SAFETY ROPE ATTACHED. ONE MAN (TOOL PUSHER OR SAFETY ENGINEER) WILL CHECK THE ATMOSPHERE FOR EXPLOSIVE GASES WITH THE EXPLOSIMETER. THE OTHER MAN (DRILLING FOREMAN) IS RESPONSIBLE FOR IGNITING THE WELL.
2. PRIMARY METHOD TO IGNITE: 25 MM FLARE GUN WITH RANGE OF APPROXIMATELY 500 FEET.
3. IGNITE UP WIND AND DO NOT APPROACH ANY CLOSER THAN IS WARRANTED.
4. SELECT THE IGNITION SITE BEST FOR PROTECTION, AND WHICH OFFERS AN EASY ESCAPE ROUTE.
5. BEFORE FIRING, CHECK FOR PRESENCE OF COMBUSTIBLE GAS.
6. AFTER LIGHTING, CONTINUE EMERGENCY ACTION AND PROCEDURE AS BEFORE.
7. ALL UNASSIGNED PERSONNEL WILL LIMIT THEIR ACTIONS TO THOSE DIRECTED BY THE DRILLING FOREMAN.

**REMEMBER:** AFTER WELL IS IGNITED, BURNING HYDROGEN SULFIDE WILL CONVERT TO SULFUR DIOXIDE, WHICH IS ALSO HIGHLY TOXIC. DO NOT ASSUME THE AREA IS SAFE AFTER THE WELL IS IGNITED.

## H2S CONTINGENCY PLAN

### TRAINING REQUIREMENTS

WHEN WORKING IN AN AREA WHERE HYDROGEN SULFIDE GAS (H<sub>2</sub>S) MIGHT BE ENCOUNTERED, DEFINITE TRAINING REQUIREMENTS MUST BE CARRIED OUT. ALL COMPANIES WILL INSURE THAT ALL PERSONNEL AT THE WELL SITE WILL HAVE HAD ADEQUATE TRAINING IN THE FOLLOWING:

1. HAZARDS AND CHARACTERISTICS OF H<sub>2</sub>S.
2. PHYSICAL EFFECTS OF HYDROGEN SULFIDE ON THE HUMAN BODY.
3. TOXICITY OF HYDROGEN SULFIDE AND SULFUR DIOXIDE.
4. H<sub>2</sub>S DETECTION.
5. EMERGENCY RESCUE.
6. RESUSCITATORS.
7. FIRST AID AND ARTIFICIAL RESPIRATION.
8. EFFECTS OF H<sub>2</sub>S ON METALS.
9. LOCATION SAFETY.

### SERVICE COMPANY AND VISITING PERSONNEL

- A. EACH SERVICE COMPANY THAT WILL BE ON THIS WELL WILL BE NOTIFIED IF THE ZONE CONTAINS H<sub>2</sub>S.
- B. EACH SERVICE COMPANY MUST PROVIDE FOR THE TRAINING AND EQUIPMENT OF THEIR EMPLOYEES BEFORE THEY ARRIVE AT THE WELL SITE.
- C. EACH SERVICE COMPANY WILL BE EXPECTED TO ATTEND A WELL SITE BRIEFING.

## H2S CONTINGENCY PLAN

### EMERGENCY EQUIPMENT REQUIREMENTS

#### 1. SIGNS

- A. ONE SIGN LOCATED AT LOCATION ENTRANCE WITH THE FOLLOWING LANGUAGE:

**(LEASE)**  
**CAUTION – POTENTIAL POISON GAS**  
**HYDROGEN SULFIDE**  
**NO ADMITTANCE WITHOUT AUTHORIZATION**

#### 2. WIND SOCK -- WIND STREAMERS

- A. ONE 36" (IN LENGTH) WIND SOCK LOCATED AT PROTECTION CENTER, AT HEIGHT VISIBLE FROM RIG FLOOR.
- B. ONE 36" (IN LENGTH) WIND SOCK LOCATED AT HEIGHT VISIBLE FROM PIT AREAS.

#### 3. HYDROGEN SULFIDE DETECTOR AND ALARMS

- A. H2S MONITORS WITH ALARMS WILL BE LOCATED ON THE RIG FLOOR, AT THE BELL NIPPLE, AND AT THE FLOW LINE. THESE MONITORS WILL BE SET TO ALARM AT 10 PPM WITH RED LIGHT, AND TO ALARM AT 15 PPM WITH RED LIGHT AND AUDIBLE ALARM.
- B. HAND OPERATED DETECTORS WITH TUBES.
- C. H2S MONITOR TESTER.

#### 4. CONDITION FLAGS

- A. ONE EACH OF ORANGE, YELLOW, AND RED CONDITION FLAGS TO BE DISPLAYED TO DENOTE CONDITIONS.

**GREEN – NORMAL CONDITIONS**  
**YELLOW – POTENTIAL DANGER**  
**RED – DANGER, H2S PRESENT**

- B. CONDITION FLAG SHALL BE POSTED AT LOCATION SIGN ENTRANCE.



## H2S CONTINGENCY PLAN

### EMERGENCY EQUIPMENT REQUIREMENTS

#### 5. AUXILIARY RESCUE EQUIPMENT

- A. STRETCHER
- B. 100' LENGTH OF 5/8" NYLON ROPE.

#### 6. MUD INSPECTION DEVICES

GARRETT GAS TRAIN OR HACH TESTER FOR INSPECTION OF SULFIDE CONCENTRATION IN MUD SYSTEM.

#### 7. FIRE EXTINGUISHER

ADEQUATE FIRE EXTINGUISHERS SHALL BE LOCATED AT STRATEGIC LOCATIONS.

#### 8. BLOW OUT PREVENTION EQUIPMENT

THE WELL SHALL HAVE HYDRAULIC BOP EQUIPMENT FOR THE ANTICIPATED BHP OF 1500 PSI. EQUIPMENT IS TO BE TESTED ON INSTALLATION.

#### 9. COMBUSTIBLE GAS DETECTOR

THERE SHALL BE ONE COMBUSTIBLE GAS DETECTOR ON LOCATION AT ALL TIMES.

#### 10. BOP TESTING

BOP AND CHOKE LINE AND KILL LINE WILL BE TESTED.

#### 11. AUDIO SYSTEM

RADIO COMMUNICATION WILL BE AVAILABLE AT THE RIG.

- A. RIG FLOOR OR TRAILER
- B. VEHICLE

#### 12. SPECIAL CONTROL EQUIPMENT

- A. HYDRAULIC BOP EQUIPMENT WITH REMOTE CONTROL ON GROUND.
- B. ROTATING HEAD

## H2S CONTINGENCY PLAN

### EMERGENCY EQUIPMENT REQUIREMENTS

#### 13. EVACUATION PLAN

EVACUATION ROUTES SHOULD BE ESTABLISHED PRIOR TO SPUDDING EACH WELL AND DISCUSSED WITH ALL RIG PERSONNEL.

#### 14. DESIGNATED AREA

- A. PARKING AND VISITOR AREA: ALL VEHICLES ARE TO BE PARKED AT A PREDETERMINED SAFE DISTANCE FROM THE WELLHEAD. THIS WILL BE THE DESIGNATED SMOKING AREA.
- B. TWO BRIEFING AREAS ON EITHER SIDE OF THE LOCATION AT THE MAXIMUM ALLOWABLE DISTANCE FROM THE WELL BORE SO THEY OFFSET PREVAILING WINDS PERPENDICULARLY, OR AT A 45-DEGREE ANGLE IF WIND DIRECTION TENDS TO SHIFT IN THE AREA.
- C. PROTECTION CENTERS OR IF A MOVABLE TRAILER IS USED, IT SHOULD BE DEPT UPWIND OF EXISTING WINDS. WHEN WIND IS FROM THE PREVAILING DIRECTIONS, BOTH PROTECTION CENTERS SHOULD BE ACCESSIBLE.

## H2S CONTINGENCY PLAN

### STATUS CHECK LIST

NOTE. ALL ITEMS ON THIS LIST MUST BE COMPLETED BEFORE DRILLING TO PRODUCTION CASING POINT.

1. SIGN AT LOCATION ENTRANCE.
2. TWO (2) WIND SOCKS LOCATED AS REQUIRED.
3. TWO (2) 30-MINUTE PRESSURE DEMAND AIR PACKS ON LOCATION FOR ALL RIG PERSONNEL AND MUD LOGGERS.
4. AIR PACK INSPECTED FOR READY USE.
5. CASCADE SYSTEM AND HOSE LINE HOOK-UP.
6. CASCADE SYSTEM FOR REFILLING AIR BOTTLES.
7. SAFE BREATHING AREAS SET UP.
8. CONDITION FLAG ON LOCATION AND READY FOR USE.
9. H2S DETECTION SYSTEM HOOKED UP.
10. H2S ALARM SYSTEM HOOKED UP AND READY.
11. OXYGEN RESUSCITATOR ON LOCATION AND TESTED FOR USE.
12. STRETCHER ON LOCATION AT SAFETY TRAILER.
13. 1 – 100' LENGTH OF NYLON ROPE ON LOCATION.
14. ALL RIG CREW AND SUPERVISORS TRAINED AS REQUIRED.
15. ALL OUTSIDE SERVICE CONTRACTORS ADVISED OF POTENTIAL H2S HAZARD ON WELL.
16. NO SMOKING SIGN POSTED.
17. HAND OPERATED H2S DETECTOR WITH TUBES ON LOCATION.

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

(12)

## H2S CONTINGENCY PLAN

### PROCEDURAL CHECK LIST

#### **PERFORM EACH TOUR:**

1. CHECK FIRE EXTINGUISHERS TO SEE THAT THEY HAVE THE PROPER CHARGE.
2. CHECK BREATHING EQUIPMENT TO ENSURE THAT IT HAS NOT BEEN TAMPERED WITH.
3. MAKE SURE ALL THE H2S DETECTION SYSTEM IS OPERATIVE.

#### **PERFORM EACH WEEK:**

1. CHECK EACH PIECE OF BREATHING EQUIPMENT TO MAKE SURE THAT DEMAND REGULATOR IS WORKING. THIS REQUIRES THAT THE BOTTLE BE OPENED AND THE MASK ASSEMBLY BE PUT ON TIGHT ENOUGH SO THAT WHEN YOU INHALE, YOU RECEIVE AIR.
2. BLOW OUT PREVENTER SKILLS.
3. CHECK SUPPLY PRESSURE ON BOP ACCUMULATOR STAND BY SOURCE.
4. CHECK ALL SKA-PAC UNITS FOR OPERATION: DEMAND REGULATOR, ESCAPE BOTTLE AIR VOLUMES, SUPPLY BOTTLE OF AIR VOLUME.
5. CHECK BREATHING EQUIPMENT MASK ASSEMBLY TO SEE THAT STRAPS ARE LOOSENED AND TURNED BACK, READY TO PUT ON.
6. CHECK PRESSURE ON BREATHING EQUIPMENT AIR BOTTLES TO MAKE SURE THEY ARE CHARGED TO FULL VOLUME.
7. CONFIRM PRESSURE ON ALL SUPPLY AIR BOTTLES.
8. PERFORM BREATHING EQUIPMENT DRILLS WITH ON-SITE PERSONNEL.
9. CHECK THE FOLLOWING SUPPLIES FOR AVAILABILITY.
  - A. EMERGENCY TELEPHONE LIST.
  - B. HAND OPERATED H2S DETECTORS AND TUBES.

## H2S CONTINGENCY PLAN

### GENERAL EVACUATION PLAN

THE DIRECT LINES OF ACTION PREPARED BY **INDIAN FIRE & SAFETY, INC.** TO PROTECT THE PUBLIC FROM HAZARDOUS GAS SITUATIONS ARE AS FOLLOWS:

1. WHEN THE COMPANY APPROVED SUPERVISOR (DRILLING FOREMAN, CONSULTANT, RIG PUSHER, OR DRILLER) DETERMINES THE H2S GAS CANNOT BE LIMITED TO THE WELL LOCATION AND THE PUBLIC WILL BE INVOLVED, HE WILL ACTIVATE THE EVACUATION PLAN. ESCAPE ROUTES ARE NOTED ON AREA MAP.
2. "COMPANY MAN" OR DESIGNEE WILL NOTIFY LOCAL GOVERNMENT AGENCY THAT A HAZARDOUS CONDITION EXISTS AND EVACUATION NEEDS TO BE IMPLEMENTED.
3. COMPANY SAFETY PERSONNEL THAT HAVE BEEN TRAINED IN THE USE OF H2S DETECTION EQUIPMENT AND SELF-CONTAINED BREATHING EQUIPMENT WILL MONITOR H2S CONCENTRATIONS, WIND DIRECTIONS, AND AREA OF EXPOSURE. THEY WILL DELINEATE THE OUTER PERIMETER OF THE HAZARDOUS GAS AREA. EXTENSION TO THE EVACUATION AREA WILL BE DETERMINED FROM INFORMATION GATHERED.
4. LAW ENFORCEMENT PERSONNEL (STATE POLICE, POLICE DEPT., FIRE DEPT., AND SHERIFF'S DEPT.) WILL BE CALLED TO AID IN SETTING UP AND MAINTAINING ROAD BLOCKS. ALSO, THEY WILL AID IN EVACUATION OF THE PUBLIC IF NECESSARY.

**IMPORTANT: LAW ENFORCEMENT PERSONNEL WILL NOT BE ASKED TO COME INTO A CONTAMINATED AREA. THEIR ASSISTANCE WILL BE LIMITED TO UNCONTAMINATED AREAS. CONSTANT RADIO CONTACT WILL BE MAINTAINED WITH THEM.**

5. AFTER THE DISCHARGE OF GAS HAS BEEN CONTROLLED, COMPANY SAFETY PERSONNEL WILL DETERMINE WHEN THE AREA IS SAFE FOR RE-ENTRY.

## H2S CONTINGENCY PLAN

### EMERGENCY ACTIONS

#### WELL BLOWOUT – IF EMERGENCY

1. EVACUATE ALL PERSONNEL IF POSSIBLE.
2. IF SOUR GAS – EVACUATE RIG PERSONNEL.
3. IF SOUR GAS – EVACUATE PUBLIC WITHIN 3000 FT RADIUS OF EXPOSURE.
4. DON SCBA AND RESCUE.
5. CALL 911 FOR EMERGENCY HELP (FIRE DEPT AND AMBULANCE) AND NOTIFY SR. DRILLING FOREMAN AND DISTRICT FOREMAN.
6. GIVE FIRST AID.

#### PERSON DOWN LOCATION/FACILITY

1. IF IMMEDIATELY POSSIBLE. CONTACT 911. GIVE LOCATION AND WAIT FOR CONFIRMATION.
2. DON SCBA AND RESCUE.

## EMERGENCY PHONE LIST

### GOVERNMENTAL AGENCIES

<u>Eddy County Sheriff's Office</u>	911
Non emergency .....	505-746-9888
<u>Fire Departments</u>	911
Carlsbad – Non-emergency.....	505-885-2111
<u>BLM</u>	
Carlsbad .....	505-361-2822
<u>State Police Department</u>	911
Non-emergency .....	505-437-1313
<u>City of Carlsbad</u>	
.....	505-885-2111
<u>Ambulance</u>	911
Carlsbad – Non Emergency.....	505-885-2111
<u>Hospitals</u>	
Carlsbad .....	505-887-4100
<u>AEROCARE</u> .....	806-747-8923
<u>CHEMTREC</u> .....	1-800-424-9300
<u>OSHA</u>	
Lubbock TX .....	1-800-692-4204

## EMERGENCY CONTACT LIST

### OGX Resources

Jim Auld	Consultant on Location	432-209-2431
Randy Ford	R.K. Ford & Assoc.	432-682-0440
Steven Douglas	OGX Company Man	432-934-6800(Cell)
Kip Agar	OGX President	432-685-1287 (Office) 432-631-1736 (Cell)

### Permian Drilling

R.C. Castillo. Supt  
Cell: 575-631-2919

Walt Evans: Asst. Supt  
Cell: 575-441-3700

Rig #3: 575-390-0901

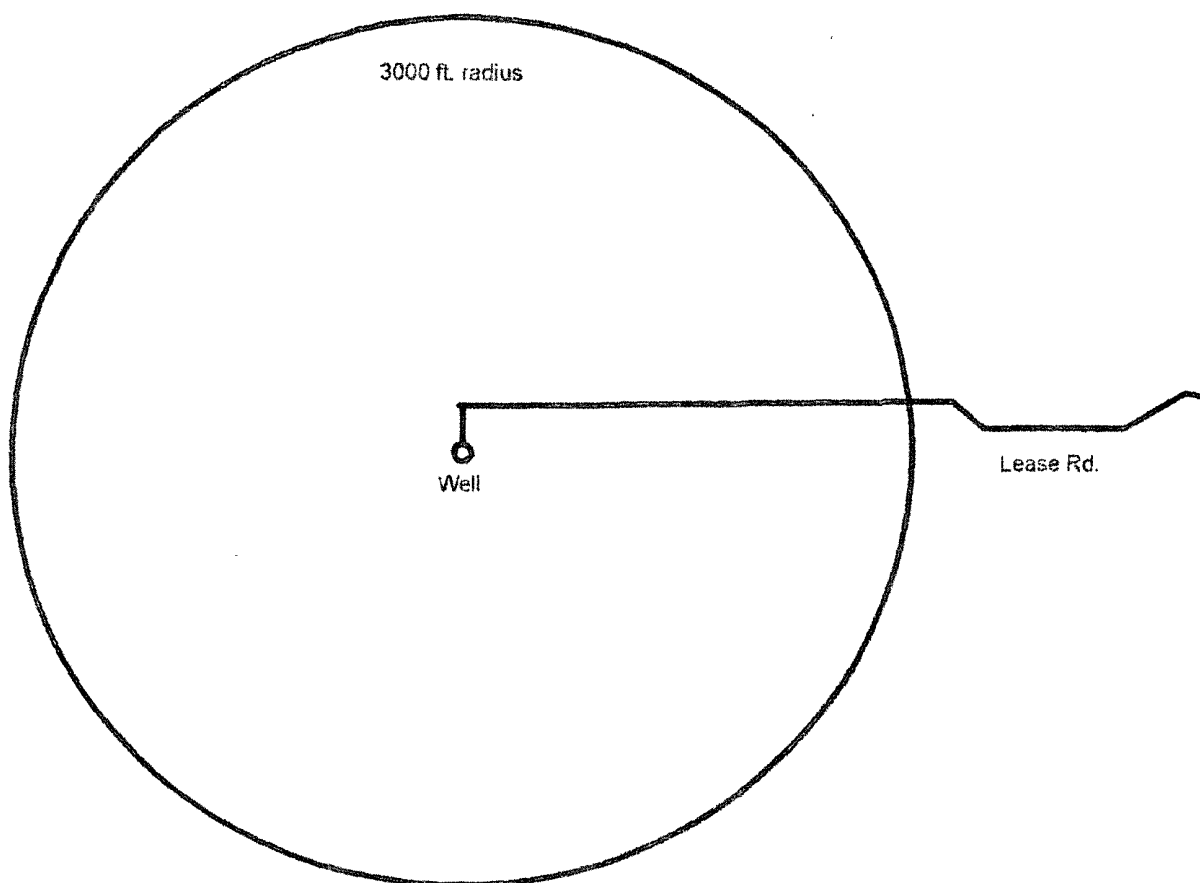


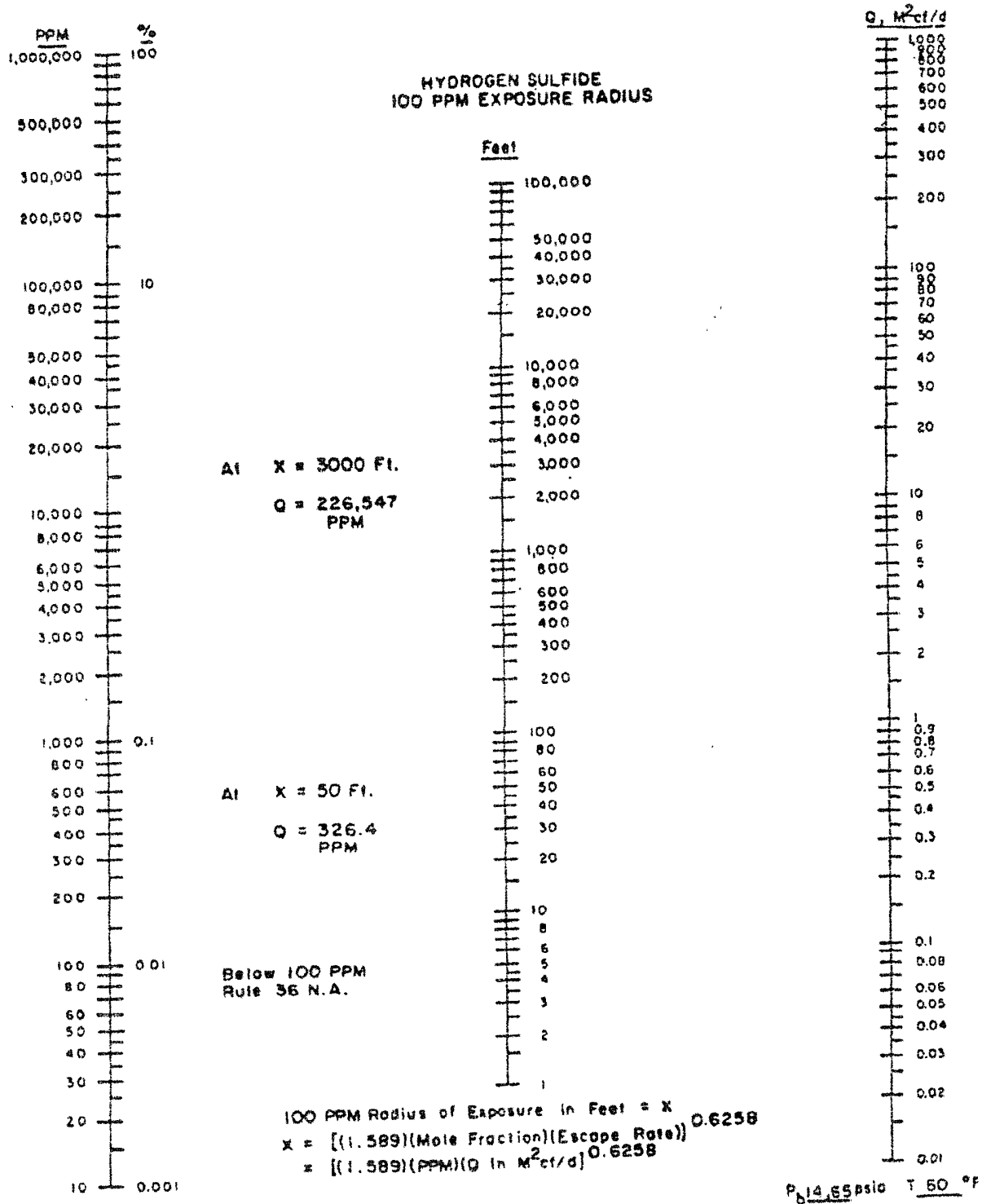
**Indian Fire & Safety, Inc.**  
3317 W. County Road  
505-393-3093 - office  
800-530-8693 -- toll free  
505-392-6274 -- fax

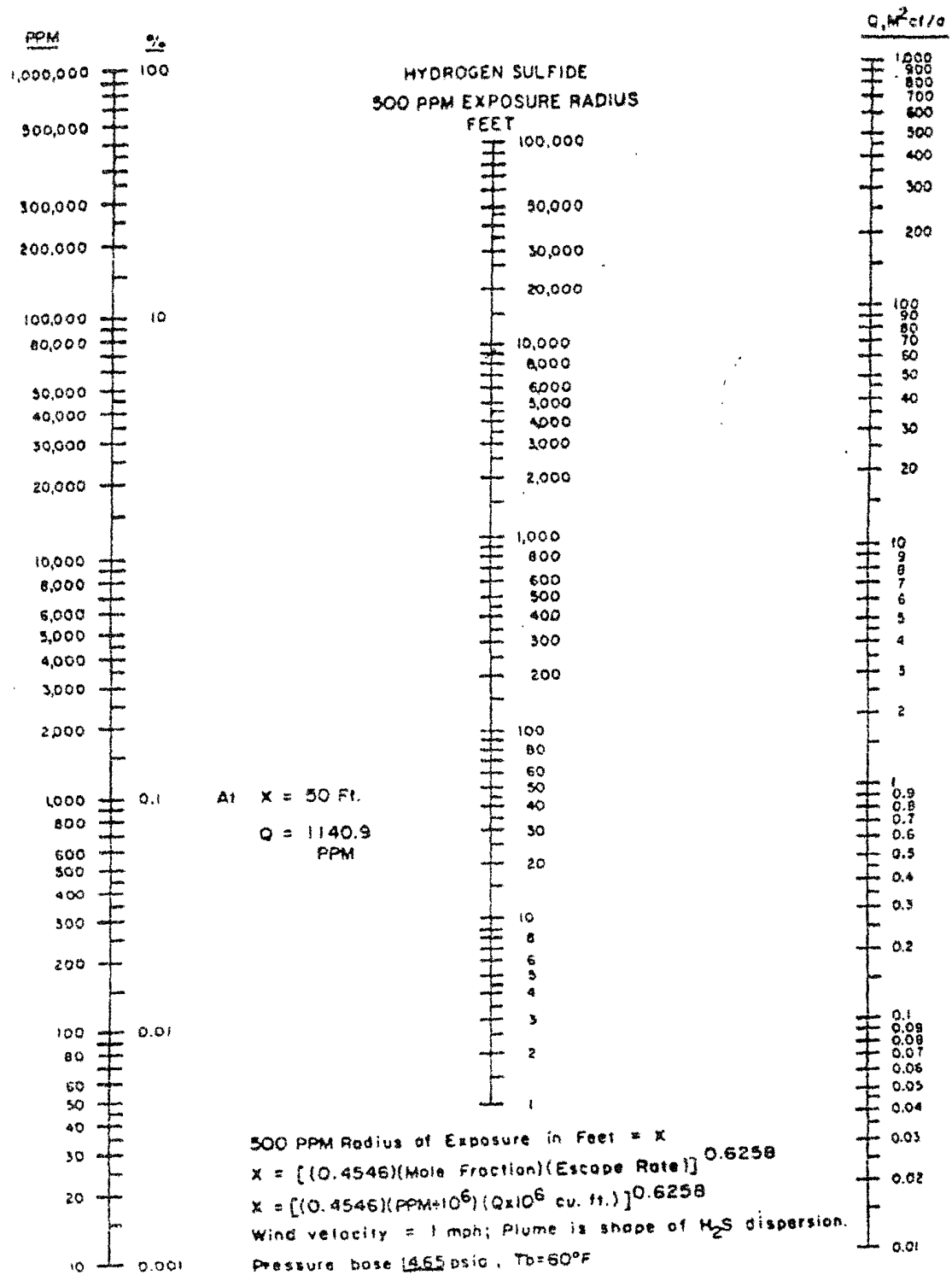
**Personnel Contact List**

	<b>Cell Phone</b>	<b>Home Phone</b>
Lanny Taylor	631-9755	392-6161
James Spurgeon	390-8582	492-9354
Scott Dudenhoefler	631-9753	392-4833
Sam Abney	631-9712	393-5427
Curtis Newton	631-1255	393-3762
Chris Spurgeon	806-215-1087	806-592-0079

OGX RESOURCES  
Cooper 31 Federal # 1  
Sec. 31, T-25-S, R-29-E  
Eddy County, NM







## H2S CONTINGENCY PLAN

### TOXIC EFFECTS OF HYDROGEN SULFIDE

HYDROGEN SULFIDE IS EXTREMELY TOXIC. THE ACCEPTABLE CEILING CONCENTRATION FOR EIGHT-HOUR EXPOSURE IS 10 PPM, WHICH IS .001% BY VOLUME. HYDROGEN SULFIDE IS HEAVIER THAN AIR (SPECIFIC GRAVITY - 1.192) AND COLORLESS. IT FORMS AN EXPLOSIVE MIXTURE WITH AIR BETWEEN 4.3 AND 46.0 PERCENT BY VOLUME. HYDROGEN SULFIDE IS ALMOST AS TOXIC AS HYDROGEN CYANIDE AND IS BETWEEN FIVE AND SIX TIMES MORE TOXIC THAN CARBON MONOXIDE. TOXICITY DATA FOR HYDROGEN SULFIDE AND VARIOUS OTHER GASES ARE COMPARED IN TABLE I. PHYSICAL EFFECTS AT VARIOUS HYDROGEN SULFIDE EXPOSURE LEVELS ARE SHOWN IN TABLE II.

TABLE I  
TOXICITY OF VARIOUS GASES

COMMON NAME	CHEMICAL FORMULA	SPECIFIC GRAVITY (SC=1)	THRESHOLD LIMIT (1)	HAZARDOUS LIMIT (2)	LETHAL CONCENTRATION (3)
HYDROGEN CYANIDE	HCN	0.94	10 PPM	150 PPM/HR	300 PPM
HYDROGEN SULFIDE	H2S	1.18	10 PPM	250 PPM/HR	600 PPM
SULFUR DIOXIDE	SO2	2.21	5 PPM	-	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 PPM	COMBUSTIBLE ABOVE 5% IN AIR	

- 1) THRESHOLD LIMIT - CONCENTRATION AT WHICH IT IS BELIEVED THAT ALL WORKERS MAY BE REPEATEDLY EXPOSED DAY AFTER DAY WITHOUT ADVERSE EFFECTS.
- 2) HAZARDOUS LIMIT - CONCENTRATION THAT WILL CAUSE DEATH WITH SHORT-TERM EXPOSURE.
- 3) LETHAL CONCENTRATION - CONCENTRATION THAT WILL CAUSE DEATH WITH SHORT-TERM EXPOSURE.

## H2S CONTINGENCY PLAN

### TOXIC EFFECTS OF HYDROGEN SULFIDE

TABLE II  
PHYSICAL EFFECTS OF HYDROGEN SULFIDE

<u>PERCENT (%)</u>	<u>PPM</u>	<u>CONCENTRATION</u>	<u>PHYSICAL EFFECTS</u>
		<u>GRAINS</u> <u>100 STD. FT3*</u>	
0.001	<10	00.65	Obvious and unpleasant odor.
0.002	10	01.30	Safe for 8 hours of exposure.
0.010	100	06.48	Kill smell in 3 - 15 minutes. May sting eyes and throat.
0.020	200	12.96	Kills smell shortly; Stings eyes and throat.
0.050	500	32.96	Dizziness; Breathing ceases in a few minutes; Needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; Death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; Followed by death within minutes.

\*AT 15.00 PSIA AND 60°F.

## H2S CONTINGENCY PLAN

### USE OF SELF-CONTAINED BREATHING EQUIPMENT

1. WRITTEN PROCEDURES SHALL BE PREPARED COVERING SAFE USE OF SCBA'S IN DANGEROUS ATMOSPHERE, WHICH MIGHT BE ENCOUNTERED IN NORMAL OPERATIONS OR IN EMERGENCIES. PERSONNEL SHALL BE FAMILIAR WITH THESE PROCEDURES AND THE AVAILABLE SCBA.
2. SCBA'S SHALL BE INSPECTED FREQUENTLY AT RANDOM TO INSURE THAT THEY ARE PROPERLY USED, CLEANED, AND MAINTAINED.
3. ANYONE WHO MAY USE THE SCBA'S SHALL BE TRAINED IN HOW TO INSURE PROPER FACE-PIECE TO FACE SEAL. THEY SHALL WEAR SCBA'S IN NORMAL AIR AND THEN WEAR THEM IN A TEST ATMOSPHERE. (NOTE: SUCH ITEMS AS FACIAL HAIR {BEARD OR SIDEBURNS} AND EYEGLASSES WILL NOT ALLOW PROPER SEAL.) ANYONE THAT MAY BE REASONABLY EXPECTED TO WEAR SCBA'S SHOULD HAVE THESE ITEMS REMOVED BEFORE ENTERING A TOXIC ATMOSPHERE. A SPECIAL MASK MUST BE OBTAINED FOR ANYONE WHO MUST WEAR EYEGLASSES OR CONTACT LENSES.
4. MAINTENANCE AND CARE OF SCBA'S:
  - A. A PROGRAM FOR MAINTENANCE AND CARE OF SCBA'S SHALL INCLUDE THE FOLLOWING:
    1. INSPECTION FOR DEFECTS, INCLUDING LEAK CHECKS.
    2. CLEANING AND DISINFECTING.
    3. REPAIR.
    4. STORAGE.
  - B. INSPECTION: SELF-CONTAINED BREATHING APPARATUS FOR EMERGENCY USE SHALL BE INSPECTED MONTHLY FOR THE FOLLOWING PERMANENT RECORDS KEPT OF THESE INSPECTIONS.
    1. FULLY CHARGED CYLINDERS.
    2. REGULATOR AND WARNING DEVICE OPERATION.
    3. CONDITION OF FACE PIECE AND CONNECTIONS.
    4. ELASTOMER OR RUBBER PARTS SHALL BE STRETCHED OR MASSAGED TO KEEP THEM PLIABLE AND PREVENT DETERIORATION.
  - C. ROUTINELY USED SCBA'S SHALL BE COLLECTED, CLEANED AND DISINFECTED AS FREQUENTLY AS NECESSARY TO INSURE PROPER PROTECTION IS PROVIDED. (22)

## H2S CONTINGENCY PLAN

### USE OF SELF-CONTAINED BREATHING EQUIPMENT

5. PERSONS ASSIGNED TASKS THAT REQUIRES USE OF SELF-CONTAINED BREATHING EQUIPMENT SHALL BE CERTIFIED PHYSICALLY FIT FOR BREATHING EQUIPMENT USAGE BY THE LOCAL COMPANY PHYSICIAN AT LEAST ANNUALLY.
6. SCBA'S SHOULD BE WORN WHEN:
  - A. ANY EMPLOYEE WORKS NEAR THE TOP OR ON TOP OF ANY TANK UNLESS TEST REVEALS LESS THAN 10 PPM OF H2S.
  - B. WHEN BREAKING OUT ANY LINE WHERE H2S CAN REASONABLY BE EXPECTED.
  - C. WHEN SAMPLING AIR IN AREAS TO DETERMINE IF TOXIC CONCENTRATIONS OF H2S EXISTS
  - D. WHEN WORKING IN AREAS WHERE OVER 10 PPM H2S HAS BEEN DETECTED.
  - E. AT ANY TIME THERE IS A DOUBT AS TO THE H2S LEVEL IN THE AREA TO BE ENTERED.



## H2S CONTINGENCY PLAN

### **RESCUE** **FIRST AID FOR H2S POISONING**

#### **DO NOT PANIC!**

REMAIN CALM -- THINK!

1. HOLD YOUR BREATH. (DO NOT INHALE FIRST; STOP BREATHING.)
2. PUT ON BREATHING APPARATUS
3. REMOVE VICTIM(S) TO FRESH AIR AS QUICKLY AS POSSIBLE. (GO UP-WIND FROM SOURCE OR AT RIGHT ANGLE TO THE WIND. NOT DOWN WIND.)
4. BRIEFLY APPLY CHEST PRESSURE -- ARM LIFT METHOD OF ARTIFICIAL RESPIRATION TO CLEAN THE VICTIM'S LUNGS AND TO AVOID INHALING ANY TOXIC GAS DIRECTLY FROM THE VICTIM'S LUNGS.
5. PROVIDE FOR PROMPT TRANSPORTATION TO THE HOSPITAL, AND CONTINUE GIVING ARTIFICIAL RESPIRATION IF NEEDED.
6. HOSPITAL(S) OR MEDICAL FACILITIES NEED TO BE INFORMED. BEFORE-HAND, OF THE POSSIBILITY OF H2S GAS POISONING -- NO MATTER HOW REMOTE THE POSSIBILITY IS.
7. NOTIFY EMERGENCY ROOM PERSONNEL THAT THE VICTIM(S) HAS BEEN EXPOSED TO H2S GAS.

BESIDES BASIC FIRST AID, EVERYONE ON LOCATION SHOULD HAVE A GOOD WORKING KNOWLEDGE OF ARTIFICIAL RESPIRATION, AS WELL AS FIRST AID FOR EYES AND SKIN CONTACT WITH LIQUID H2S. EVERYONE NEEDS TO MASTER THESE NECESSARY SKILLS.

MULTI POINT SURFACE USE AND OPERATIONS PLAN FOR

**OGX Resources LLC**

**Cooper Federal #1**

Surface Location: 660' FNL & 660' FEL

Section 31, T-25-S, R-29-E

Eddy County, New Mexico

Lease No.:

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well; the proposed construction activities and operations plan to be followed in rehabilitating the surface and environmental effects associated with the operation.

1. EXISTING ROADS:

- A. Exhibit "A" is a location verification map showing the location of the proposed well as staked.
- B. Directions: From the junction of Hwy 285 and Co. Rd. 725, proceed east on Co. Rd. 725 approx. 4.0 miles to lease road, go northeast for 1.8 miles to lease road left, follow lease road 0.2 miles northwest to lease road. Go left on lease (northwest) 1.8 miles to lease road, on lease road turn left & go 0.7 miles to location road.

2. PLANNED ACCESS ROAD:

- A. Length and Width: Exhibit "C" is the proposed access road. It will be approximately 505.4' long and 20' wide and run North to the South of the Northeast  $\frac{1}{4}$   $\frac{1}{4}$  of section 31.
- B. Construction: The proposed access road will be constructed by grading and topping with compacted caliche. The surface will be properly drained.
- C. Turnouts: None required.
- D. Culverts: None necessary.
- E. Cuts and Fills: 1' cut to West with 1' fill to East.
- F. Gates and Cattle Guards: None
- G. Off lease right of way: None required.

**2-1. PLANNED PIPELINE**

There are no pipelines planned at this time.

**3. LOCATION OF EXISTING WELLS:**

Existing wells in the immediate area are shown on the Vicinity Map, Exhibit "B".

**4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:**

A. OGX Resources, LLC. has no production facility on this lease at this time.

B. If the well proves to be commercial, the necessary production facilities, gas separation-process equipment and tank battery, if required, will be installed on the drilling pad.

**5. LOCATION AND TYPE OF WATER SUPPLY:**

It is planned to drill the proposed well with fresh water that will be obtained from private or commercial sources and will be transported over the existing and proposed access roads.

**6. SOURCE OF CONSTRUCTION MATERIAL:**

Caliche for surfacing the proposed access road and well site pad will be obtained from the location, if available, or from an approved Federal pit. No surface materials will be disturbed except those necessary for actual grading and leveling of the drill site and access road.

**7. METHODS OF HANDLING WASTE DISPOSAL:**

A. Drill cuttings will be disposed of in the reserve pits.

B. Drilling fluids will be allowed to evaporate in the drilling pits until the pits are dry.

C. All pits will be fenced with normal fencing materials to prevent livestock from entering the area.

D. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or a separate disposal application will be submitted to the BLM for approval.

- E. Oil Produced during tests will be stored in test tanks.
- F. Current laws and regulations pertaining to the disposal of human waste will be complied with.
- G. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES:

None required.

9. WELL SITE LAYOUT:

- A. Exhibit "D" shows the relative location and dimensions of the well pad, reserve pits, and major rig components. The pad and pit area has been staked and flagged 600' x 600'.
- B. Mat Size: 225' x 300', plus 150' x 150' reserve pit on the east.
- C. Cut & Fill: 1' cut to North with 1' fill to South
- D. The surface will be topped with compacted caliche and the reserve pits will be plastic lined.

10. PLANS FOR RESTORATION OF THE SURFACE:

- A. After completion of drilling and/or completion operations, all equipment and other material unnecessary for operations will be removed. The well site will be cleaned of trash leaving the site aesthetically pleasing to the extent possible.
- B. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled as soon as they are dry enough to be worked.

11. OTHER INFORMATION:

- A. Surface Ownership – Federal Land
- B. No significant archaeological resources were found in the area of the planned access road or of the proposed well site.

C. Oil & Gas Lease:

NM

Township 25 South, Range 29 East  
NE/ ¼ ¼ of Section 31

D. RECORD LESSEE:

EOG Resources, Inc.

100%

E. BOND COVERAGE:

\$25,000 Statewide Oil & Gas Surety Bond

BLM Bond #: NMB 000244

12. OPERATOR'S REPRESENTATIVE:

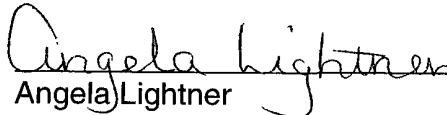
The field representative for assuring compliance with the approved use and operations plan is as follows:

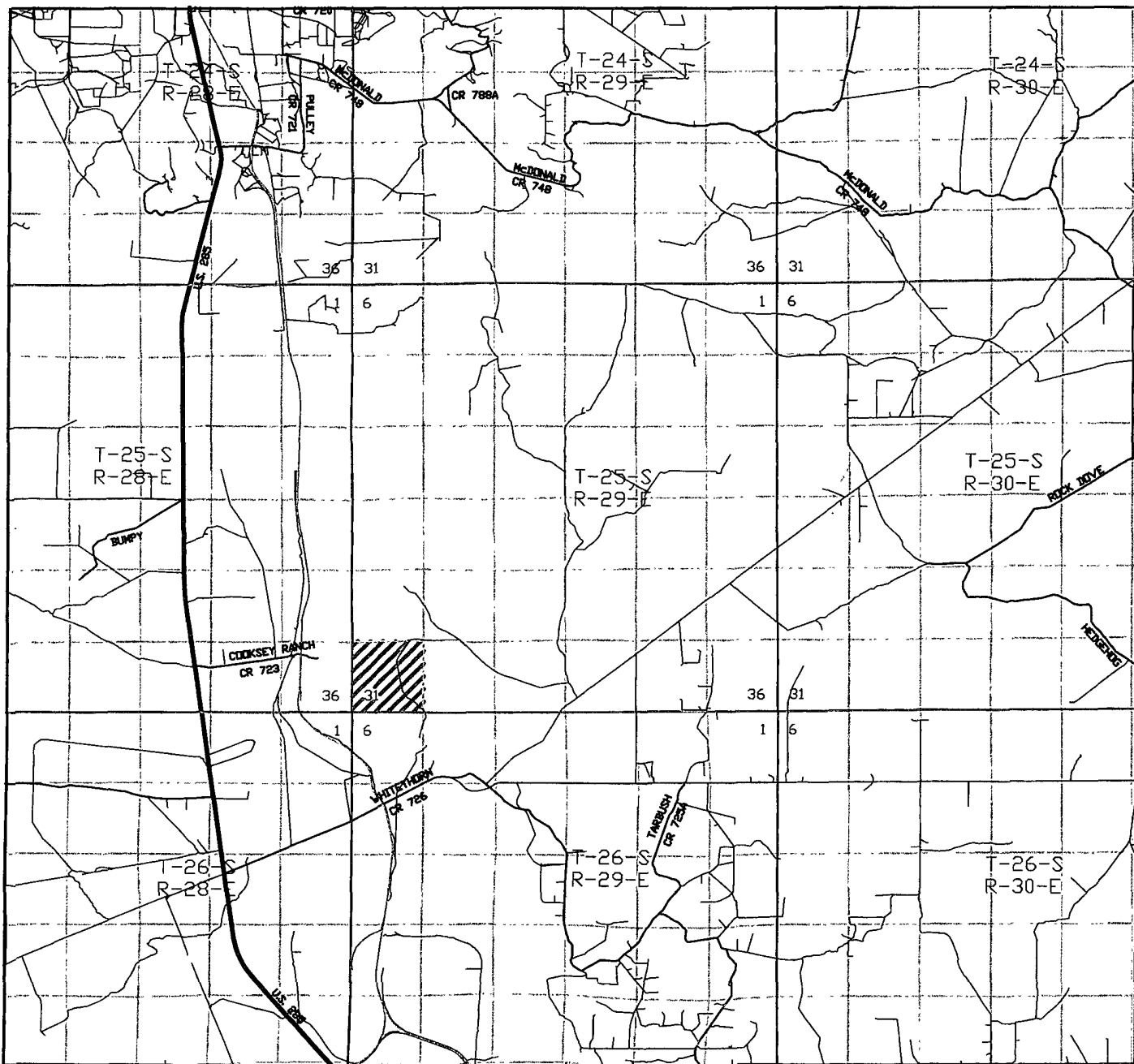
R. K. Ford & Associates  
415 West Wall, Suite 1700  
Midland, Texas 79701  
432-682-0440 (Office)  
432-682-0441 (Fax)  
432-570-7216 (Home)  
432-559-2222 (Cell)  
[angela@rkford.com](mailto:angela@rkford.com) (E-mail)

13. CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by OGX Resources, LLC and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

January 11, 2008

  
Angela Lightner  
Consultant



COOPER "31" FEDERAL #1  
 Located at 660' FNL and 660' FEL  
 Section 31, Township 25 South, Range 29 East,  
 N.M.P.M., Eddy County, New Mexico.

**basin**  
**surveys**

focused on excellence  
 in the oilfield

P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W.O. Number: JMS 18949TR

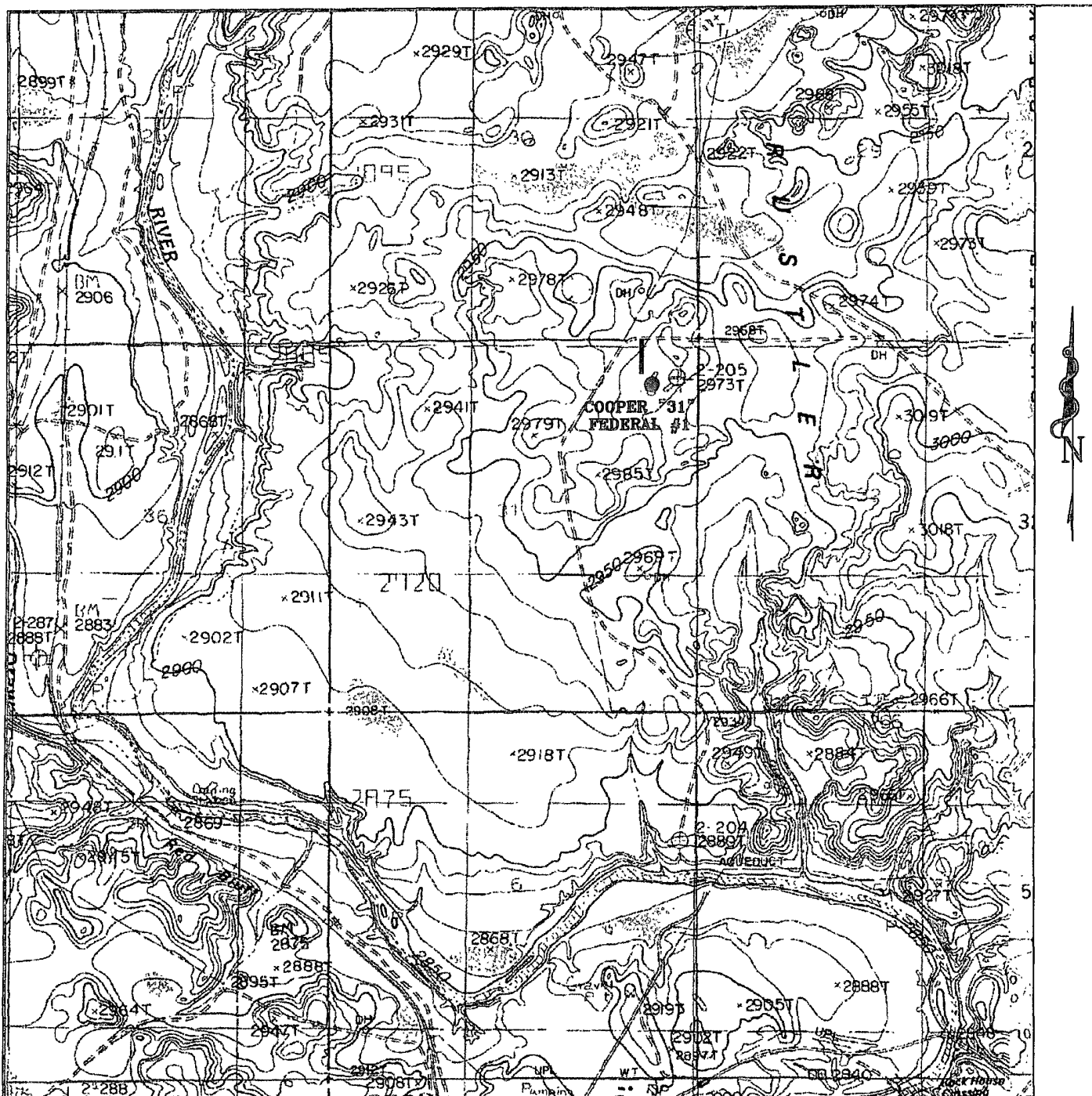
Survey Date: 12-28-2007

Scale: 1" = 2 MILES

Date: 01-02-2008

OGX  
 RESOURCES,  
 L.L.C.

Exhibit A



**COOPER "31" FEDERAL #1**  
 Located at 660' FNL and 660' FEL  
 Section 31, Township 25 South, Range 29 East,  
 N.M.P.M., Eddy County, New Mexico.

**basin**  
**surveys**  
 focused on excellence  
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P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W.O. Number: 18949T

Survey Date: 12-28-2007

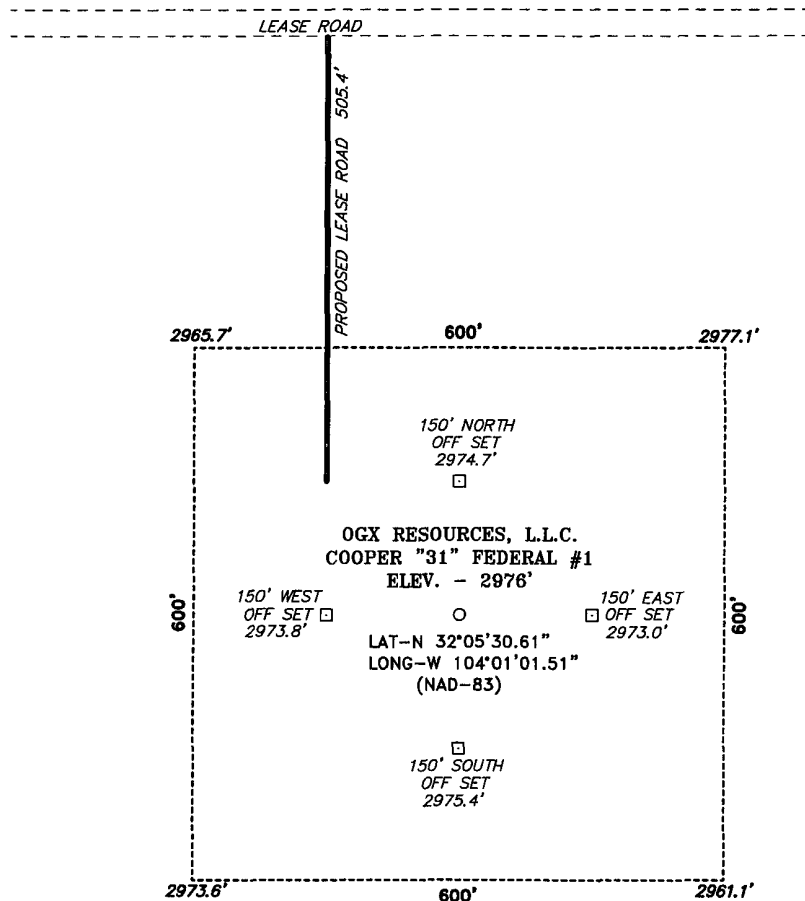
Scale: 1" = 2000'

Date: 01-02-2008

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

Exhibit B

SECTION 31, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



200 0 200 400 FEET

SCALE: 1" = 200'

**DIRECTIONS TO LOCATION:**

FROM THE JUNCTION OF US HWY 285 AND CO. RD. 725, GO EAST ON CO. RD. 725 FOR 4.0 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTHEAST FOR 1.8 MILES TO LEASE ROAD LEFT, FOLLOW LEASE ROAD 0.2 MILES NORTHWEST TO LEASE ROAD, ON LEASE ROAD GO LEFT AND GO NORTHWEST 1.8 MILES TO LEASE ROAD, ON LEASE ROAD GO TURN LEFT AND GO FOR 0.7 MILES TO PROPOSED LEASE ROAD.

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

W.O. Number: 18949

Drawn By: J. M. SMALL

Date: 01-02-2008

Disk: JMS 18949W

REF: COOPER "31" FEDERAL #1 / Well Pad Topo

THE COOPER "31" FEDERAL #1 LOCATED 660' FROM  
THE NORTH LINE AND 660' FROM THE EAST LINE OF  
SECTION 31, TOWNSHIP 25 SOUTH, RANGE 29 EAST,

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

Survey Date: 12-28-2007

Sheet 1 of 1 Sheets

Exhibit C



## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OGX Resources, LLC
LEASE NO.:	NM-100555
WELL NAME & NO.:	Cooper 31 Federal No.1
SURFACE HOLE FOOTAGE:	660' FNL & 660' FEL
BOTTOM HOLE FOOTAGE:	' F L & ' F L
LOCATION:	Section 31, T. 25 S., R 29 E., NMPM
COUNTY:	Eddy County, New Mexico

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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.

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## **I. GENERAL PROVISIONS**

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

## **II. PERMIT EXPIRATION**

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

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

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

## **IV. NOXIOUS WEEDS**

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

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

**Due to the close proximity to the Pecos River and all drainages draining toward the Pecos River along with all of the playa features around this location the entire location will need to be BERMED to keep all drilling activity on the location.**

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

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

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

### **B. TOPSOIL**

There is no measurable soil on this well pad to stockpile. No topsoil stockpile is required.

### **C. RESERVE PITS**

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 150' X 150' on the South side of the well pad.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

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

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

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

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

Surfacing of the well pad is not required.

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

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

#### **F. ON LEASE ACCESS ROADS**

##### **Road Width**

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

##### **Surfacing**

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

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

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

##### **Crowning**

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

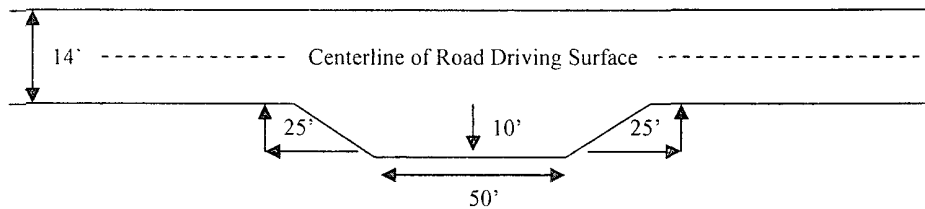
##### **Ditching**

Ditching shall be required on both sides of the road.

### Turnouts

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

**Standard Turnout – Plan View**

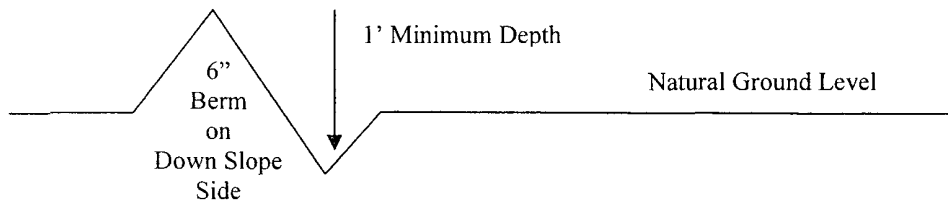


### Drainage

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

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

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



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

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

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

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

### **Culvert Installations**

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

### **Cattleguards**

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

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

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

### **Fence Requirement**

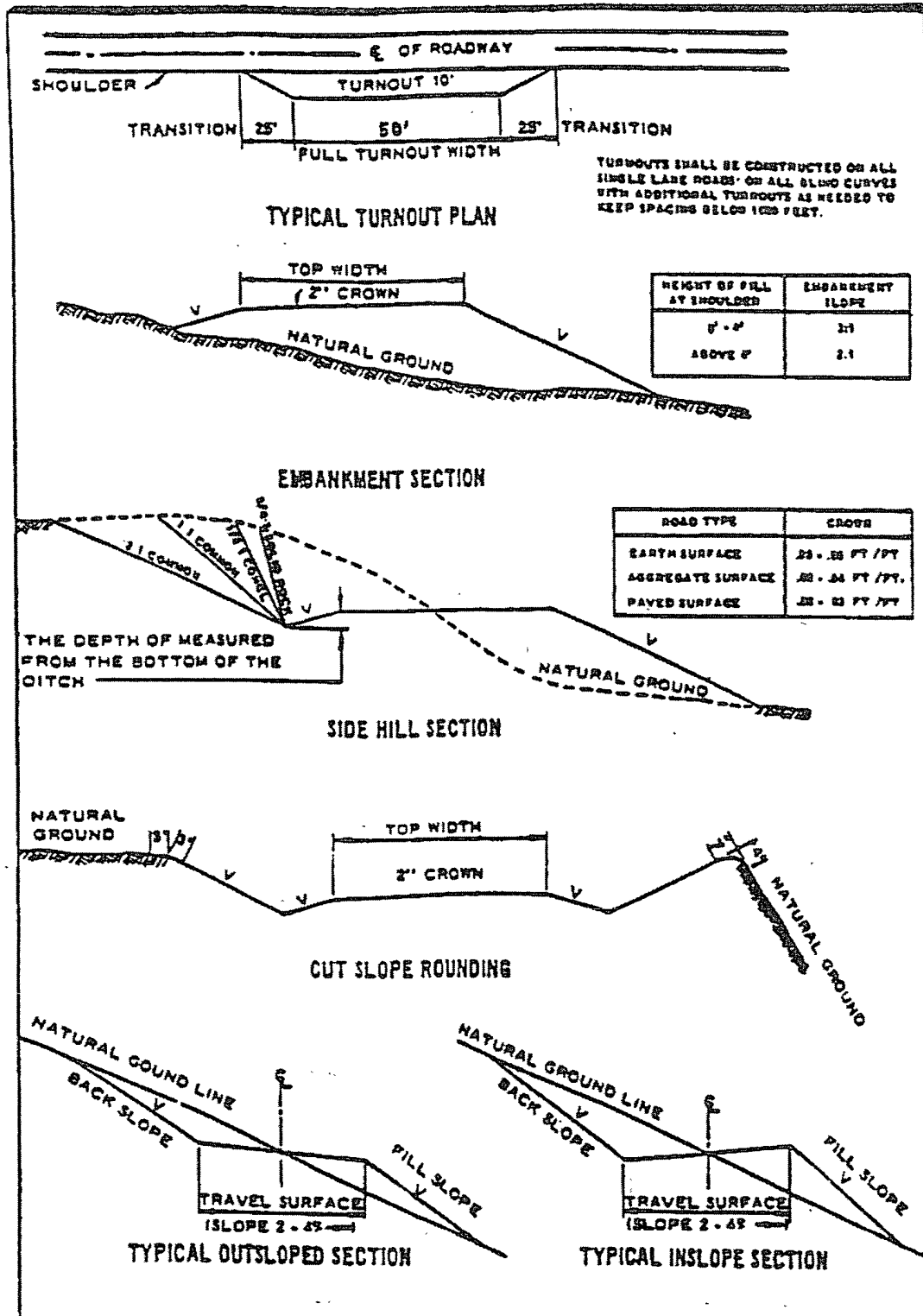
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

### **Public Access**

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

Figure 1 – Cross Sections and Plans For Typical Road Sections





## VII. DRILLING

**Changes to COAs:**

**WOC times required prior to cementing.**

**Casing/cement modifications to be approved prior to work.**

**Centralizers on surface casing.**

### A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

### B. CASING

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work.**

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

**Mud program to be modified if Rustler is deeper or salt is deeper.**

**Medium cave/karst.**

**Possible lost circulation in the Delaware Mountain Group and the Bone Spring formations.**

**Possible water flows in the Salado, Delaware Mountain Group, and Bone Spring formations.**

1. The 13-3/8 inch surface casing shall be set **at approximately 525 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **Fresh water mud to be used to setting depth of casing.**
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).
  - c. **Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing.**
  - d. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - e. If cement falls back, remedial action will be done prior to drilling out that string.
2. **NB! If the casing has to be set at 3100', the proposed casing does not meet BLM requirements for collapse.** The minimum required fill of cement behind the 9-5/8 inch intermediate casing (**casing must be set a minimum of 25 feet into the Lamar Limestone below the salt – could be as deep as 3100' – brine water mud to be used to setting depth**) is:
  - ☒ Cement to surface. If cement does not circulate see B.1.a-d above. **Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing.**

**Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.**

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement may be required.**

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. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.
  - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
  - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

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

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

**WWI 040308**

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

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

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

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

#### **Containment Structures**

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

#### **Painting Requirement**

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

#### **VRM Facility Requirement**

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

### **A. INTERIM RECLAMATION**

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

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

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

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

### **B. RESERVE PIT CLOSURE**

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

### 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 authorised 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

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

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

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