HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

30-015-38532

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



HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

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HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

General H2S Emergency Actions:

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

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

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

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

City Police - City Street(s)

State Police - State Rd

County Sheriff - County Rd.

Call the NMOCD

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

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

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

		the state of the s	And the second s	
	OFFICE	MOBILE	HOME	
Jeff Birkelbach	432-685-1287	432-694-7880	432-553-0391	
Donny Leek		432-634-4862	432-399-4489	
Silver Oak Drilling Co,	575-748-1288	575-748-8622 MARK ELDRIDGE	Cell 575-748-8605 EDDIE LaRUE	
Rig Phone 575-513-	1745	•		
·				
State Police State Police	Eddy County Lea County	·	575 -748-9718 575 -392-5588	
Sheriff Sheriff	Eddy County Lea County		373-746-2701	
Emergency Medical	Eddy County		911 or 575-746-2701	
Service (Ambulance)	Lea County	Eunice	911 or 575-394-3258	
Emergency Respons	e Eddy County S Les County	ERC	575—476-9620	
Artesia Police Dept Artesia Fire Dept		•	575746-5001 575746-5001	
Carisbad Police Dep Carisbad Fire Dept	ġŧ.	. ·	575- 885-2 111 575 88 5-3125	

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

EMERGENCY CALL LIST (CONT.)

Loco Hills Police Dept		575- 677-2349
Jal Police Dept Jal Fire Dept Jal Ambulance		575395-2501 575395-2221 575395-2221
Eunice Police Dept Eunice Fire Dept Eunice Ambulance Hobbs Police Dept		575- 394-0112 575-394-3258 575-394-3258
Hobbs Fire Dept		575 <u>397-9308</u>
NMOCD	District 1 (Lea, Roosevelt, Curry) District 2 (Eddy, Chavez)	575 - -393-6161 575 748- 1283
Lea County Information	L	575—393-8203
Callaway Safety	Eddy/Lea Counties	575392-2973
BJ Services	Artesia Hobbs	575746-3140 575392-555 6
Halliburton	Artesia Hobbs	1-800-523-2482 1-800-523-2482
Wild Well Control	Midland Mobile	432-550-6202 432-553-1166

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

PROTECTION OF THE GENERAL PUBLIC (ROE)

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

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

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

CALCULATION FOR THE 500 PPM ROE:

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

Example:

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

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

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

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

PUBLIC EVACUATION PLAN:

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

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

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

PROCEDURE FOR IGNITING AN UNCONTROLABLE CONDITION:

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

INSTRUCTION FOR IGNITION:

- Two people are required. They must be equipped with positive pressure, self contained breathing apparatus and a "D" ring style full body, OSHA approved safety harness. Non flammable rope will be attached.
- One of the people will be qualified safety person who will test the atmosphere for H2S, oxygen and LFL. The other person will be the company supervisor; he is responsible for igniting the well.
- 3. Ignite up wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25 mm flare gun shall be used, with a ± 500 ft. range to ignite the gas.
- 4. Prior to ignition, make a final check with combustible gases.
- 5. Following ignition, continue with the emergency actions & procedures as before.

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

REQUIRED EMERGENCY EQUIPMENT:

1. Breathing apparatus:

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

2. Signage & Flagging:

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

3. Briefing Area:

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

4. Wind Socks:

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

5. H2S Detectors & Alarms:

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

6. Auxiliary Rescue Equipment:

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

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

USING SELF CONTAINED BREATHING AIR EQUIPMENT (SCBA):

- (SCBA) SHOULD BE WORN WHEN ANY OF THE FOLLOWING ARE PERFORMED:
 - Working near the top or on the top of a tank.
 - Disconnecting any line where H2S can reasonably be expected
 - Sampling air in the area to determine if toxic concentration of H2S can exist.
 - Working in areas where over 10 ppm on H2S has been detected.
 - At any time there is a doubt as the level of H2S in the area.
- All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.
- Facial hair and standard eyeglasses are not allowed with SCBA.
- Contact lenses are never allowed with SCBA.
- Air quality shall be continuously checked during the entire operation.
- After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.
- All SCBA shall be inspected monthly.

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

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

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

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

HYDROGEN SULFIDE CONTINGENCY PLAN FOR DRILLING/WORKOVER/FACILITY

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

COMMON NAME	CHEMICAL ABBREV.	SPECIFIC GRVTY.	THRESHOLD LIMITS	HAZARDOUS LIMITS	LETHAL CONCENTRATIONS
Hydrogen Sulfide	H2S	1.19	10 ррт 15 ррт	100 ppm/hr	600ppm
Hydrogen Cyanide	HCN .	0.94	10 ррт	150 ppm/hr	300 ppm
Sulfur Dioxide	SO2	2.21	2 ppm	N/A	1000 ppm
Chlorine	C1.2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO2	1.52	5000 ppm	5%	10%
Methane	CH4	0,55	90,000	Combustible @ 5%	N/A

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

Hazardous Limit: Concentrations that may cause death.

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

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

PHYSICAL EFFECTS OF HYDROGEN SULFIDE:

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

SURFACE USE PLAN

OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #1H
UNIT "H" SECTION 31

T26S9R29E

EDDY CO. NM

1. EXISTING AND PROPOSED ROADS:

- A. Exhibit "B" is a reporduction of a County General Hi-way map showing existing roads. Exhibit "C" is a reproduction of a USGS topographic map showing existing roads and and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. All new roads will be constructed to BLM specifications.
- B. Exhibit "A" shows the proposed well site as staked.
- C. Directions to location: From Malaga New Mexico take U. S. Hi-way 285 South 16.4 miles to Co Road 726 (Catfish Road and New Mexico State line). Turn Left (East) go .8 miles and location is on the Left Side of road approximately 460' North.
- D. Exhibit "C" shows a topographic map with existing road and proposed roads. Tank battery will be constructed on location, no additional flowlines will be required at this time.
- 2. PLANNED ACCESS ROADS: Approximately 450' of new road will be constructed.
 - A. The access roads will be crowned and sitched to a 14' wide travel surface, within a 30'- R=0-W. 20' ROW -> See Conditions of Approval
 - B. Gradient of all roads will be less than 5%.
 - C. Turn-outs will be constructed where necessary. No turnouts
- D. If require new access roads will be surface with a minimum of 4-6" of caliche. this material will be obtained from a local source.
 - E. Center line for new roads will be flagged, road construction will be done as field conditions require.
 - F. Culverts will be placed in the access road as drainage conditions require. Roads will be constructed to use low water crossings for drainage as required by the topographic conditions.

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

A. Water wells

- None known

B. Disposal wells

- None known

C. Drilling wells

- None known

D. Producing wells

- As shown on Exhibit "A-1"

E. Abandoned wells

- As shown on Exhibit "A-1"

4. If on completion this well is a success the operator will complete it as a producer. The operator will construct production facilities and tank battery on location. If power lines will be required to produce this well they may be constructed along existing R-O-W's as shown on Exhibit "C".

5. LOCATION AND TYPE OF WATER SUPPLY:

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

6. SOURCE OF CONSTRUCTION MATERIAL:

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

7. METHODS OF HANDLING WASTE MATERIAL:

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

8. ANCILLARY FACILITIES:

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

SURFACE USE PLAN

OGX RESOURCES, LLC.

COPPERHEAD "31" FEDERAL COM. #1H

UNIT "H" SECTION 31

T26S9R29E EDDY CO. NM

9. WELL SITE LAYOUT:

A. Exhibit "D" shows a generic well site for a well drilled using a closed mud system.

10. PLANS FOR RESTORATION OF SURFACE:

Rehabilition of the surface will start after the well has been completed, if the well is completed as a producer production facilities will be consturcted on the location. What area is not required for the operation of this project will be reclaimed and restored as near as possible to the original grade and vegetation.

If in case this well is unsuccessful and is a dry hole the drilling pad and the access roads will be reclaimed according to specifications provided by The Bureau of Land Management. Caliche or other road material will be removed for the possible use in another location or deposited in an approved reclaimation site.

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

11. ADDITIONAL INFORMATION:

- A. Topogrsphy consists of ridge-hill tops, and side slopes, with open exposure and varied drainage patterns draining into the Pecos River.
- B Vegetation consists of typical desert shrub, such as snakeweed, prickley pear, Cat Claw, Cholla, creosote, and native grasses.
- C. The surface and minerals are owned by The U. S. Department of Interior and is administered by The Bureau of Land Management. The surface is used for the grazing of livestock and for the production of Oil and Gas.
- D. An archaeological survey will be conducted and the results will be filed with the Carlsbad Field Office of The Bureau of Land Management.
- E. There are no dwellings with in 2 miles of this location.

CERTIFICATION

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

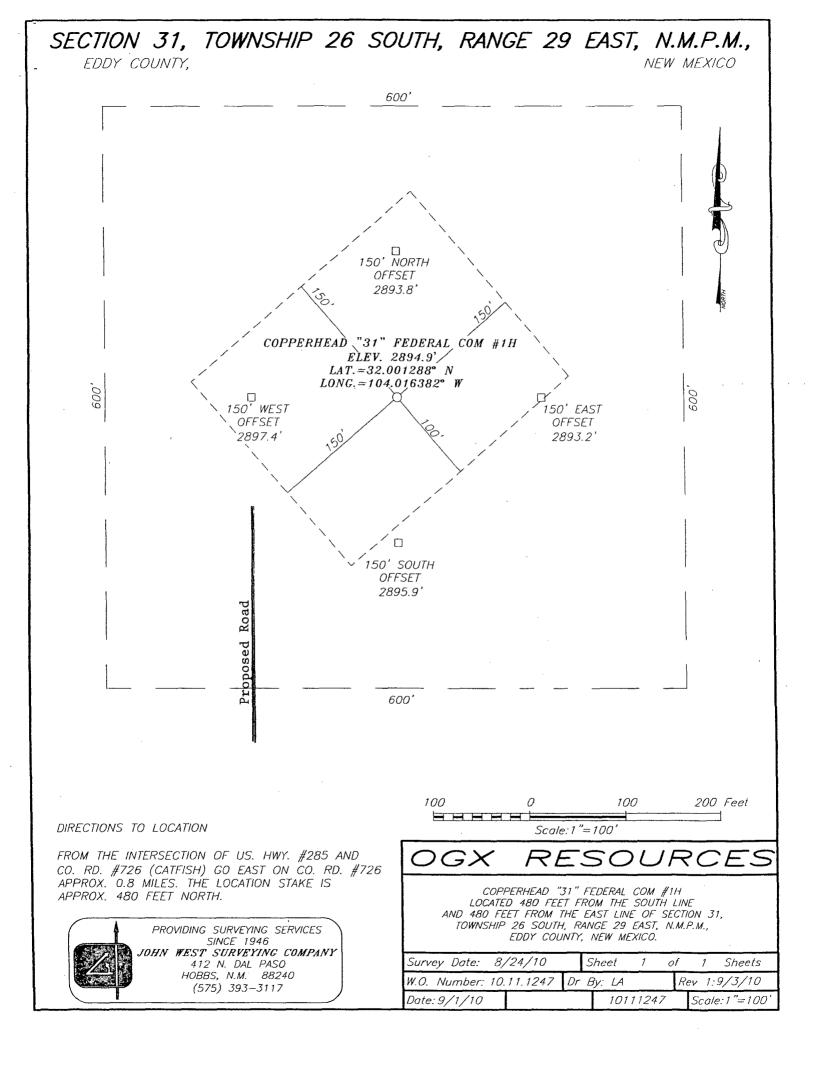
OPERATOR'S REPRESENTATIVES:

BEFORE CONSTRUCTION

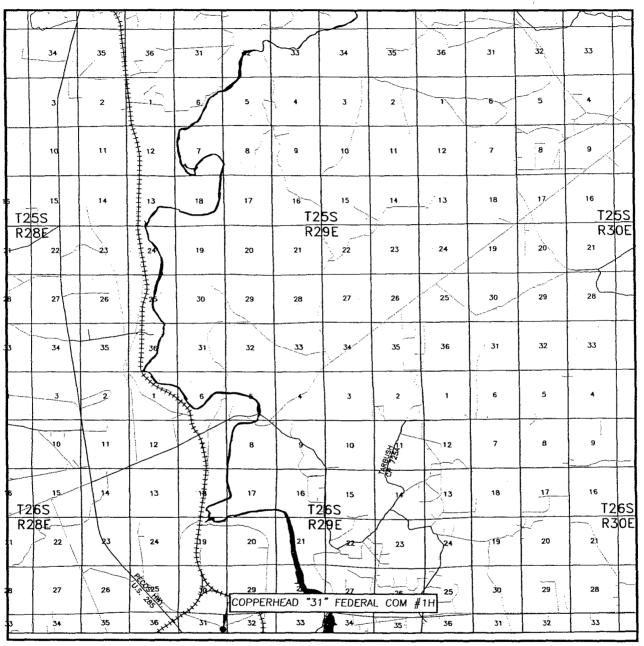
DURING & AFTER CONSTRUCTION

TIERRA EXPLORATION, INC P. O. BOX 2188 HOBBS, NEW MEXICO 88241 JOE JANICA 575-391-8503 CELL 575-390-1598 OGX RESOURCES, LLC.
P. O. BOX 2064
MIDLAND, TEXAS 79701
JEFF BIRKELBACH 432-685-1287
CELL 432-553-0391

NAME (Let Janica
TITLE	Permit Eng.
DATE	09/24/10



VICINITY MAP



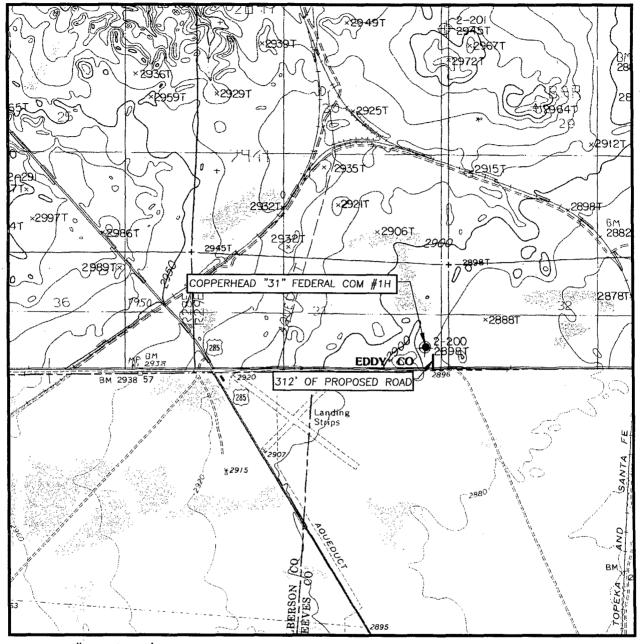
SCALE: 1" = 2 MILES

SEC. 31 TWP. 26-S RGE. 29-E
SURVEYN.M.P.M.
COUNTY EDDY STATE NEW MEXICO
DESCRIPTION 480' FSL & 480' FEL
ELEVATION 2895'
OPERATOR OGX RESOURCES
LEASE COPPERHEAD "31" FEDERAL COM



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

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

SEC. 31 TWP. 26—S RGE. 29—E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 480' FSL & 480' FEL

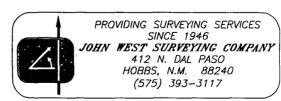
ELEVATION 2895'

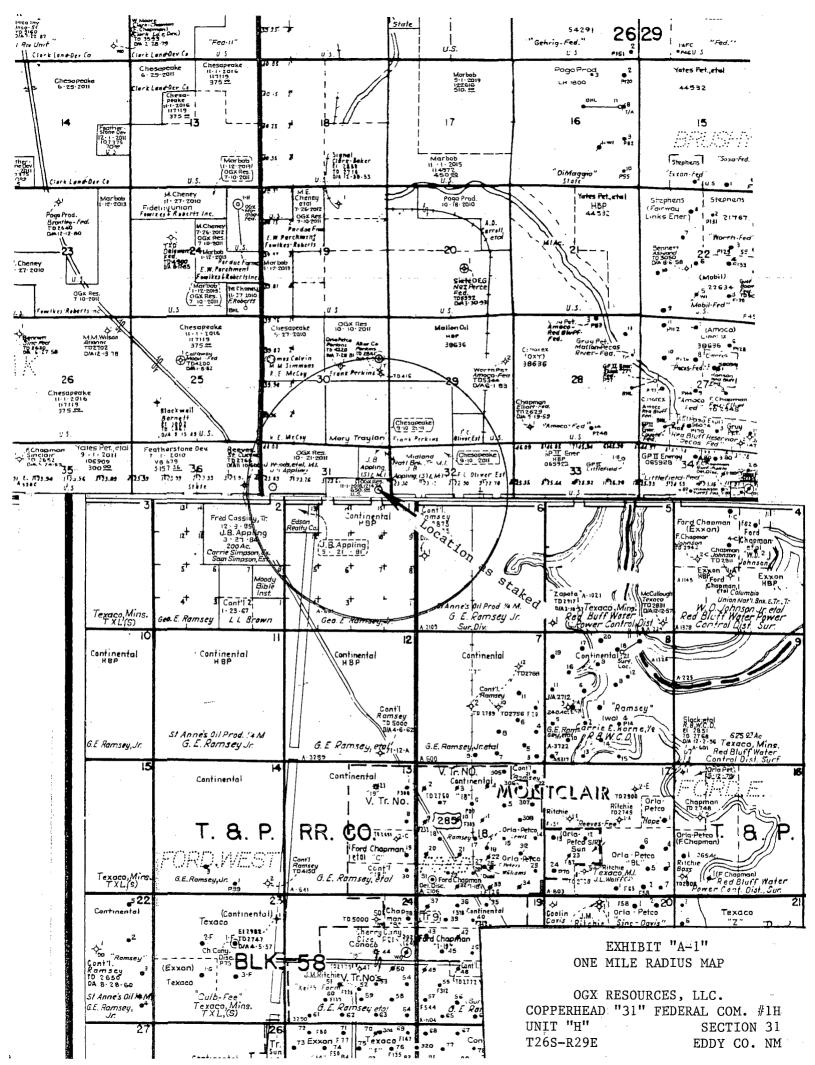
OPERATOR OGX RESOURCES

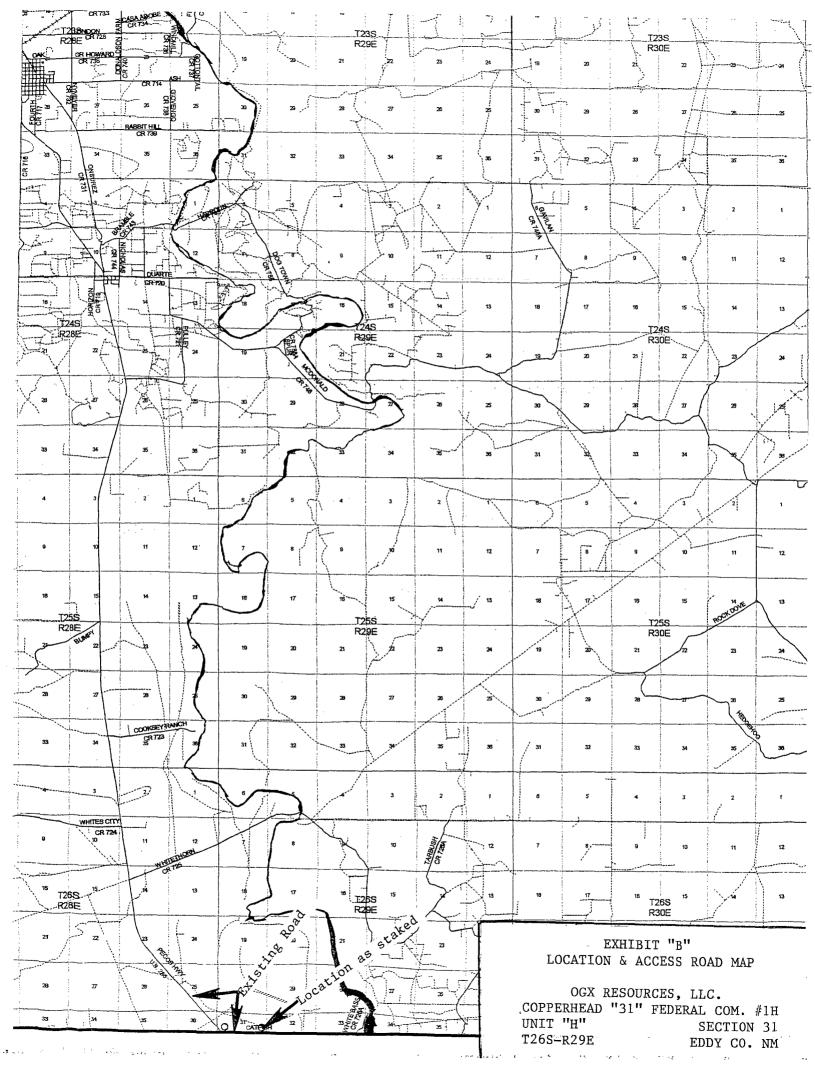
LEASE COPPERHEAD "31" FEDERAL COM

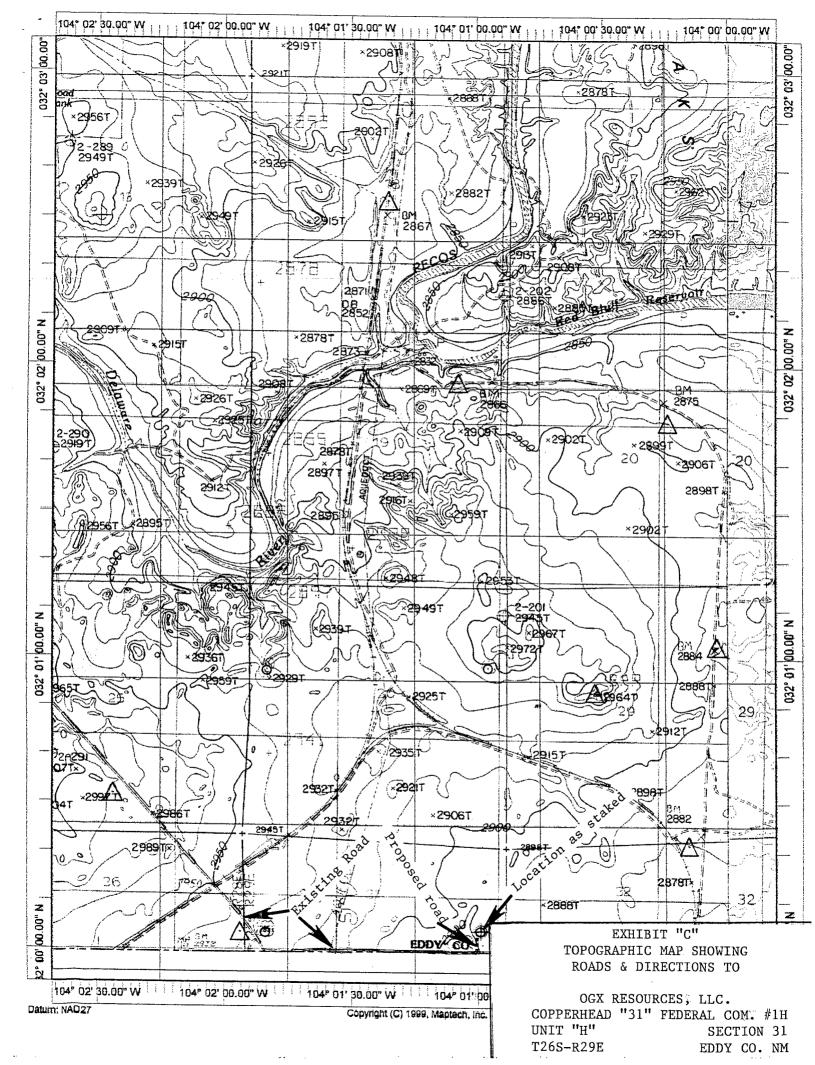
U.S.G.S. TOPOGRAPHIC MAP

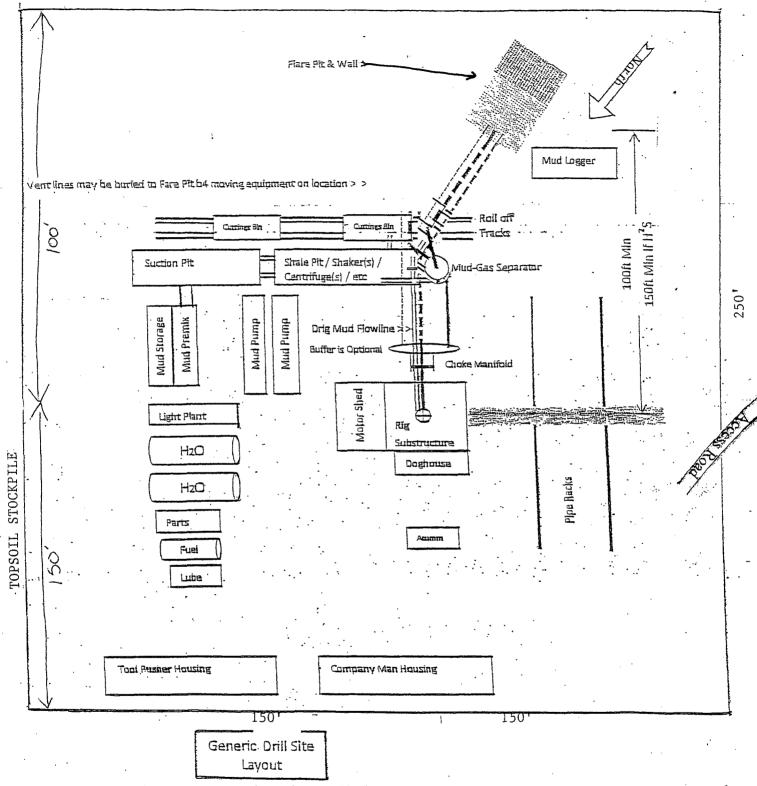
RED BLUFF, N.M.











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

EXHIBIT "D"
RIG LAYOUT PLAT

OGX RESOURCES, LLC.
COPPERHEAD "31" FEDERAL COM. #1H
UNIT "H" SECTION 31

