

13-209

Form 3160-3
(August 2007)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

Lease Serial No.
NMLC-029418B

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

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

8. Lease Name and Well No.
LEA C FEDERAL 18 <395797>

9. API Well No.
30-015- 40993

10. Field and Pool, or Exploratory
GRAYBURG JACKSON, SR & G SA <267707>

11. Sec., T. R. M. or Blk. and Survey or Area
SESW 11-17S-31E NMPM

12. County or Parish
EDDY

13. State
NM

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone

2. Name of Operator CAPSTONE NATURAL RESOURCES, LLC <289372>

3a. Address 200 NORTH LORRAINE, SUITE 1225
MIDLAND, TX 79701

3b. Phone No. (include area code)
432 218-7924

4. Location of Well (Report location clearly and in accordance with any State requirements.)*

At surface 1280' FSL & 2599' FWL

At proposed prod. zone SAME

**UNORTHODOX
LOCATION**

14. Distance in miles and direction from nearest town or post office*
4 AIR MILES SW OF MALJAMAR, NM

15. Distance from proposed* location to nearest property or lease line, ft.
(Also to nearest drig. unit line, if any) 1280'

16. No. of acres in lease
1,200

17. Spacing Unit dedicated to this well
SESW

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 633' (Tea Mack 11 #39)

19. Proposed Depth
4,500'

20. BLM/BIA Bond No. on file
NMB000879

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3,942' UNGRADED

22. Approximate date work will start*
12/15/2012

23. Estimated duration
3 WEEKS

24. Attachments

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

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

25. Signature

B. Wood

Name (Printed/Typed)

BRIAN WOOD (505 466-8120)

Date

11/11/2012

Title

CONSULTANT

(FAX 505 466-9682)

Approved by (Signature)

/s/ James A. Amos

Name (Printed/Typed)

Date

JAN 10 2013

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

*(Instructions on page 2)

Roswell Controlled Water Basin

NSL

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

**Approval Subject to General Requirements
& Special Stipulations Attached**

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Benito Rd., Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015- 40993	Pool Code 28500	Pool Name GRAYBURG JACKSON; SR-Q-G-SA
Property Code 20880 39579	Property Name LEA C FEDERAL	Well Number 18
OGRID No. 289372	Operator Name CAPSTONE NATURAL RESOURCES, LLC	Elevation 3942'

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	11	17 S	31 E		1280	SOUTH	2599	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
40			NSL -

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.

2599' 1280' LEA C FEDERAL 18 SHL NMSP-E (NAD 83) Y = 671648.2' N X = 692712.2' E LAT = N32° 50' 43.49" LONG = W103° 50' 25.57" NMSP-E (NAD 27) Y = 671584.0' X = 651533.7' LAT = N 32.845296707° LONG = W 103.839928996°	OPERATOR CERTIFICATION 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 or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to voluntary pooling agreement, or a compulsory pooling order heretofore entered by the division. <i>[Signature]</i> 11-11-12 Signature Date Brian Wood Print Name brian@permitswest.com E-mail Address
	SURVEYORS CERTIFICATION 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. JUNE 27, 2012 Date of Survey Signature and Seal of Professional Surveyor <i>[Signature]</i> James E. Tompkins Job No. WTC48591 JAMES E. TOMPKINS 14729 Certificate Number



Bureau of Land Management
Carlsbad Field Office
620 E. Greene Street
Carlsbad, NM 88220

July 2, 2012

Re: Designation of Agent

Gentlemen,

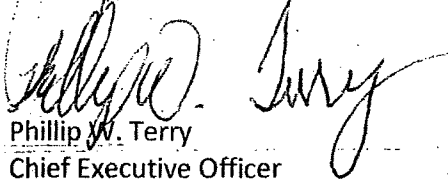
Please be informed that Brian Wood with Permits West, Inc. is an Agent employed by Capstone Natural Resources, LLC. He is authorized to prepare and submit APD's, Right of Way applications, and other BLM required forms.

Permits West, Inc.'s address is as follows:

37 Verano Loop
Santa Fe, NM 87508
505-466-8120 Office
505-466-9682 Fax
505-699-2276 Cell

Should you have any questions or require any additional information, please contact Phil Terry at 918-236-3800 or email pterry@capstonenr.com.

Sincerely,

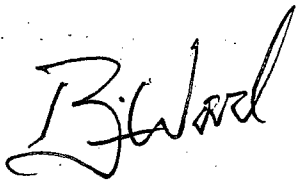

Phillip W. Terry
Chief Executive Officer

Capstone Natural Resources, LLC
Lea C Federal 18
1280' FSL & 2599' FWL
Sec. 11, T. 17 S., R. 31 E.
Eddy County, New Mexico

PAGE 9

REPRESENTATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U. S. C. 1001 for the filing of false statements. Executed this 11th day of November, 2012.



Brian Wood, Consultant
Permits West, Inc.

37 Verano Loop, Santa Fe, NM 87508

(505) 466-8120

FAX: (505) 466-9682

Cellular: (505) 699-2276

Field representative will be:

Darren Seglem, Production Manager

Capstone Natural Resources, LLC

200 N. Lorraine, Suite 1225

Midland, TX 79701

(432) 218-7924: office & FAX

(432) 664-5477: cellular

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Eddy County, New Mexico

PAGE 1

Drilling Program

1. ESTIMATED TOPS

<u>Name</u>	<u>GL Depth</u>	<u>KB Depth</u>	<u>Elevation</u>
Quaternary sand	0'	10'	+3,942'
Rustler anhydrite	647'	657'	+3,295'
Salado salt top	802'	812'	+3,140'
bottom Salado	1,772'	1,782'	+2,170'
Yates	1,952'	1,962'	+1,990'
Seven Rivers	2,332'	2,342'	+1,610'
Queen	2,902'	2,912'	+1,040'
Grayburg	3,342'	3,352'	+600'
San Andres	3,672'	3,682'	+270'
Total Depth	4,500'	4,510'	-558'

2. NOTABLE ZONES

<u>Gas or Oil Zones</u>	<u>Water Zone</u>	<u>Mineral Zone</u>
Grayburg	Quaternary	anhydrite
San Andres		salt

Water zones will be protected with casing, cement, and weighted mud. Fresh water found while drilling will be recorded.

3. PRESSURE CONTROL (see PAGE 3)

A 2,000 psi BOP stack and manifold system will be used. A typical 2,000 system is shown on PAGE 3. If the equipment changes, then a Sundry Notice will be filed. System will meet Onshore Orders 2 (BOP) and 6 (H₂S) requirements.

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Sec. 11, T. 17 S., R. 31 E.
Eddy County, New Mexico

PAGE 2

BOP and choke manifold will be installed and pressure tested before drilling out of the surface casing. Subsequent pressure tests will be performed whenever the pressure seals are broken. BOP and manifold mechanical operating conditions will be checked daily. BOP will be tested at least once every 30 days.

See Log [Ram type preventers and related pressure control equipment will be pressure tested to the working pressure of the stack if a test plug is used. If a plug is not used, then the stack will be tested to the rated working pressure of the stack or 70% of the minimum internal yield of the casing, whichever is less. Annular type preventers will be pressure tested to 50% of their working pressure. All casing strings will be pressure tested to 0.22 psi/foot or 1,500 psi, whichever is greater, not to exceed 70% of the internal yield. No co-flex hose is planned at this time. If co-flex is planned, then manufacturer, serial number, and pressure test results will be provided to BLM before installation.

A manual locking device (e. g., hand wheels) or automatic locking devices will be installed on the BOP stack. Remote controls capable of both opening and closing all preventers will be readily accessible to the driller.

Choke manifold and accumulator will meet or exceed BLM standards. BOP equipment will be tested after any repairs. Pipe and blind rams and annular preventer will be activated on each trip. Weekly BOP drills will be conducted with each crew. All tests, maintenance, and BOP drills will be recorded on the rig tower sheets.

Auxiliary equipment will include:

- upper kelly cock, lower kelly cock will be installed while drilling
- inside BOP or stabbing valve with handle available on rig floor
- safety valve(s) and subs to fit all string connections in use
- electronic/mechanical mud monitor will with a minimum pit volume totalizer; stroke counter; flow sensor

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Eddy County, New Mexico

PAGE 4

4. CASING & CEMENT

SEL
COA

Hole Size	O. D.	Weight (lb/ft)	Grade	Age	Connection	Set Depth
26.0"	20"	conductor		New		40'
12.25"	8.625" $\frac{5}{8}$	24	J-55	New	ST & C	775'
7.875"	5.5" $\frac{1}{2}$	17	J-55	New	ST & C	4,500'

The casing design factors are: collapse = 1.25, burst = 1.0, yield = 1.5, joint strength 8-R = 1.8, buttress = 1.6, tension dry = 1.6, & tension buoyant = 1.8.

Conductor pipe will be cemented to the surface with ready mix.

Surface casing will be set in a competent bed below the Magenta dolomite (part of the Rustler), but at least 25' above the salt (estimated salt top = 802').

Surface casing will be cemented to the surface with >100% excess. Lead with 250 sacks (532 cubic feet) 35:65 poz Class C + additives (5% bwow NaCl_2 + 0.25% bwoc cello flake + 5 #/sack LCM-1 + 0.005 gps FP-6L + 1% bwoc sodium metasilicate + 0.25% bwoc FL+ 52A + 5% bwoc MPA-5 + 4% bentonite) mixed to yield 2.13 cubic feet per sack and 12.5 pounds per gallon. Tail with 100 sacks (134 cubic feet) Class C + 2% CaCl_2 + 0.005 gps FP-6L mixed to yield 1.34 cubic feet per sack and 13.5 pounds per gallon. Total cement = 636 cubic feet.

Production casing will be cemented to the surface with 100% excess. Lead with 500 sacks (1,230 cubic feet) 50:50 poz Class C + additives (5% bwow NaCl_2 + 0.125 #/sack cello flake + 5 #/sack LCM-1 + 0.05% bwoc ASA-301 + 0.005 gps FP-6L + 0.25 bwoc sodium metasilicate + 0.25 FL-52A + 10% bwoc bentonite II) mixed to yield 2.46 cubic feet per sack and 11.8 pounds per gallon. Tail with 250 sacks (325 cubic feet) 50:50 poz Class C + additives (5% bwow NaCl_2 + 0.4% bwoc FL-25 + 0.005 gps FP-6L + 0.2% bwoc sodium metasilicate + 2% bwoc bentonite II) mixed to yield 1.30 cubic feet per sack and 14.2 pounds per gallon. Total cement = 1,555 cubic feet.

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Sec. 11, T. 17 S., R. 31 E.
Eddy County, New Mexico

PAGE 5

5. MUD PROGRAM

Will drill the surface hole with 8.4 to 8.7 pound fresh water spud mud and lost circulation material. Viscosity will be 29 to 32. Production hole will be drilled with 10.1 to 10.2 pound brine. Saltwater gel will be added if the mud does not maintain sufficient viscosity (29 to 38). Lost circulation material and starch will be added as needed.

Enough mud material will be on site to maintain mud properties and control lost circulation or a kick. An electronic/mechanical mud monitor with a minimum pit volume totalizer, stroke counter, and flow sensor will be used.

6. CORES, TESTS, & LOGS *See COA*

No core or drill stem test is planned. A mud logger will be on location after Capstone drills out of the surface casing. Cased hole gamma ray and CBL logs will be run from TD to the surface casing shoe.

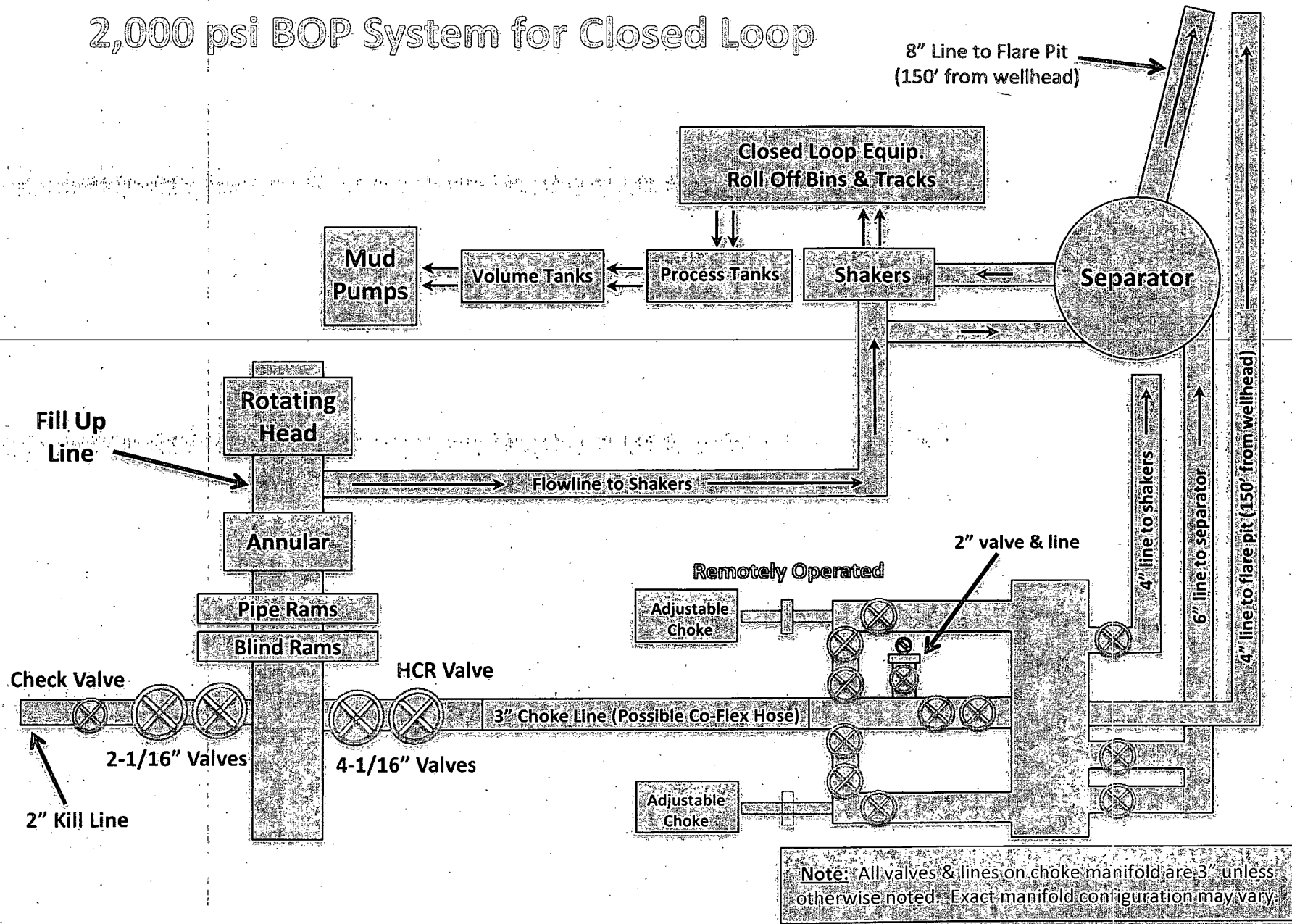
7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Hydrogen sulfide is expected in the Grayburg. H₂S monitoring equipment will be on the rig floor and air packs will be available 500' before the Grayburg is drilled. An H₂S drilling operations contingency plan is attached. Maximum expected bottom hole pressure will be ≈1,949 psi.

8. OTHER INFORMATION

The anticipated spud date is upon approval. It is expected it will take ≈1 week to drill and ≈2 weeks to complete the well.

2,000 psi BOP System for Closed Loop



Capstone Natural Resources, LLC
Closed Loop System Plan
Design, Operation & Maintenance, and Closure Plan

Design

The closed loop system plan (CLSP) uses above ground steel tanks, roll off bins, and overflow-frac tanks suitable for holding the cuttings and fluids from rig operations. These containers will be sufficient in volume to maintain a safe free board between disposal of liquids and solids. There will be no drying pad, temporary pit, below grade tank, or sump. (A document showing a schematic of a typical well pad and closed loop system (CLS) is attached.)

- Signage will comply with 19. 15. 3. 103. NMAC
- Frac tanks to store fresh water will be on location
- No fence is required for this above ground CLSP

Operation & Maintenance

- 1) The steel above ground tanks will contain liquids and solids to prevent the contamination of fresh water sources.
- 2) Liquids & solids will either be vacuumed out separately or hauled off in roll off bins. Disposal will occur at appropriate OCD licensed facilities on a periodic basis to prevent over topping. Solids will be trucked to Controlled Recovery's facility (NM-01-0006) in 27-20s-32e. Liquids will be trucked to the Gandy Marley facility (NM-01-0019) in 4-11s-31e.
- 3) No hazardous waste, miscellaneous solid waste or debris will be discharged into or placed in the tanks. Only fluids or cuttings used or generated by rig operations will be placed or stored in the tanks.
- 4) No waste will be disposed of or buried on location.
- 5) All of the operations will be inspected and a log will be signed daily during rig operations.
- 6) Upon discovery of a compromised closed loop tank, repairs will begin immediately. The OCD district office will be notified within 48 hours of discovery of any compromise.

Closure

- 1) The closed loop tanks will be closed in accordance with 19. 15. 17. 13. NMAC.
- 2) Cuttings and all remaining sludge will be transported to an appropriate OCD licensed facility immediately following completion of rig operations.
- 3) All remaining liquids will be transported to an appropriate OCD licensed facility.
- 4) Tanks will be removed from the location as part of the rig move.
- 5) At time of well plugging & abandonment, the entire well site will be reclaimed and re-vegetated to preexisting conditions when possible.

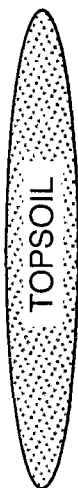
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Eddy County, New Mexico

PAGE 14

NORTH

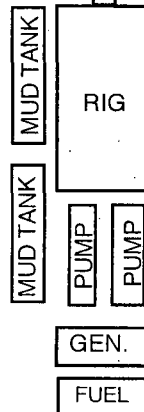


1" = 40'



TRACTOR TRAILER
TURN AROUND AREA
&
FRAC TANK PARKING

ENTRANCE



CAMPER TRAILERS



TRASH
CAGE

HYDROGEN SULFIDE (H2S) PLAN & TRAINING

This plan was developed in accordance with 43 CFR 3162.3-1, section III.C, Onshore Oil and Gas Operations Order No. 6.

Based on our area testing H2S at 100 PPM has a radius of 139' and does not get off our well sites. There are no schools, residences, churches, parks, public buildings, recreation area or public within 2+ miles of our area.

A. Training

1. Training of Personnel

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in accordance with 43 CFR 3162.3-1, section III.C.3.a. Training will be given in the following areas prior to commencing drilling operations on each well:

- a. The hazards and characteristics of Hydrogen Sulfide (H2S).
- b. The proper use and maintenance of personal protective equipment and life support systems.
- c. The proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures and the prevailing wind.
- d. The proper techniques for first aid and rescue procedures.
- e. **ATTACHED HYDROGEN SULFIDE (H2S) CONTINGENCY PLAN DRILLING EXHIBIT O**
- f. **ATTACHED EMERGENCY CALL LIST FOR ANY ON SITE EMERGENCY DRILLING EXHIBIT P.**

2. Training of Supervisory Personnel

In addition to the training above, supervisory personnel will also be trained in the following areas:

- a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in special maintenance requirements.
- b. Corrective action and shut-in procedures when drilling or reworking a well, blowout prevention and well control procedures.
- c. The contents and requirements of the H2S Drilling Operations Plan and the Public Protection Plan (if applicable.)

3. Initial and Ongoing Training

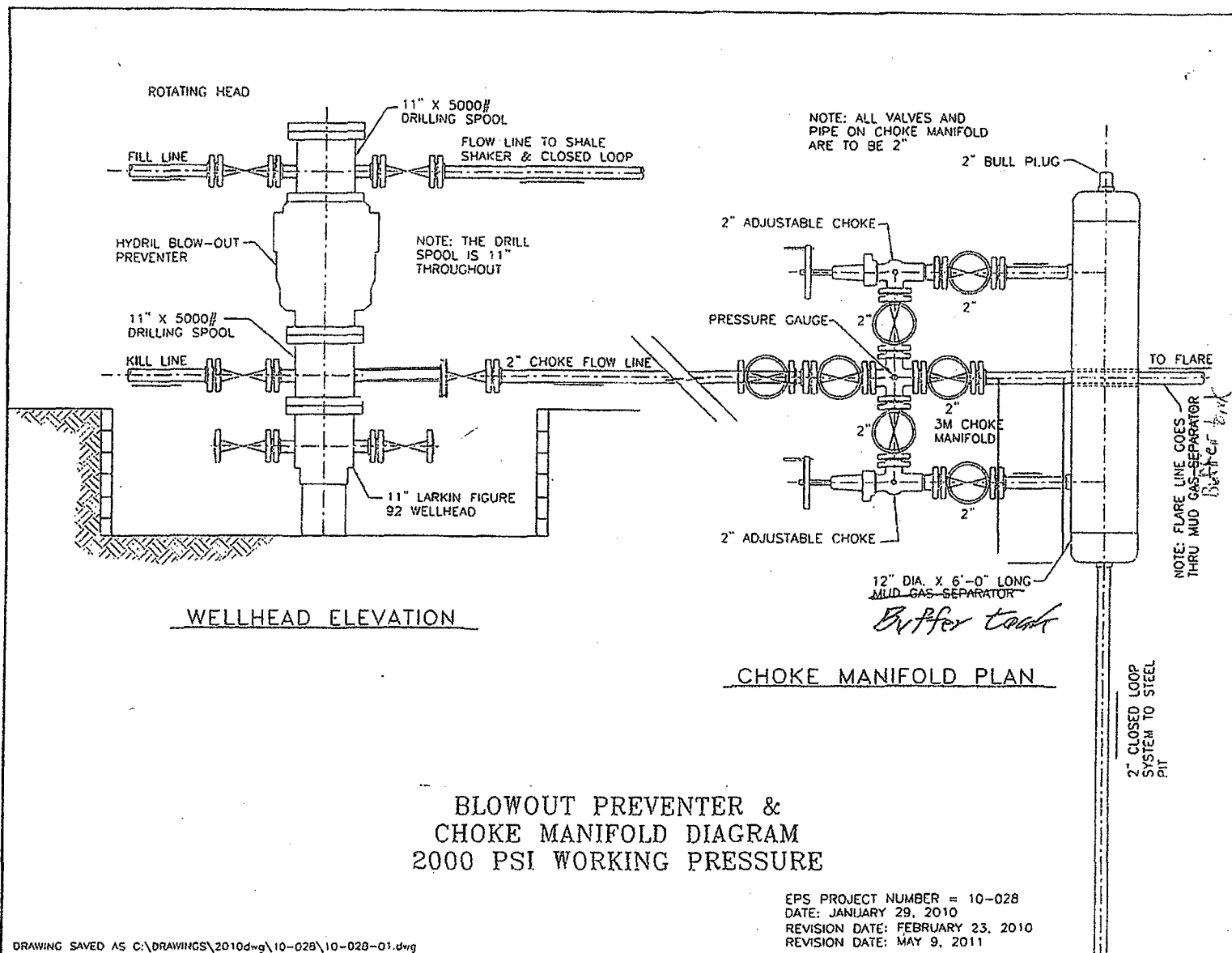
There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan (if applicable). This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

B. H2S Drilling Operations Plan

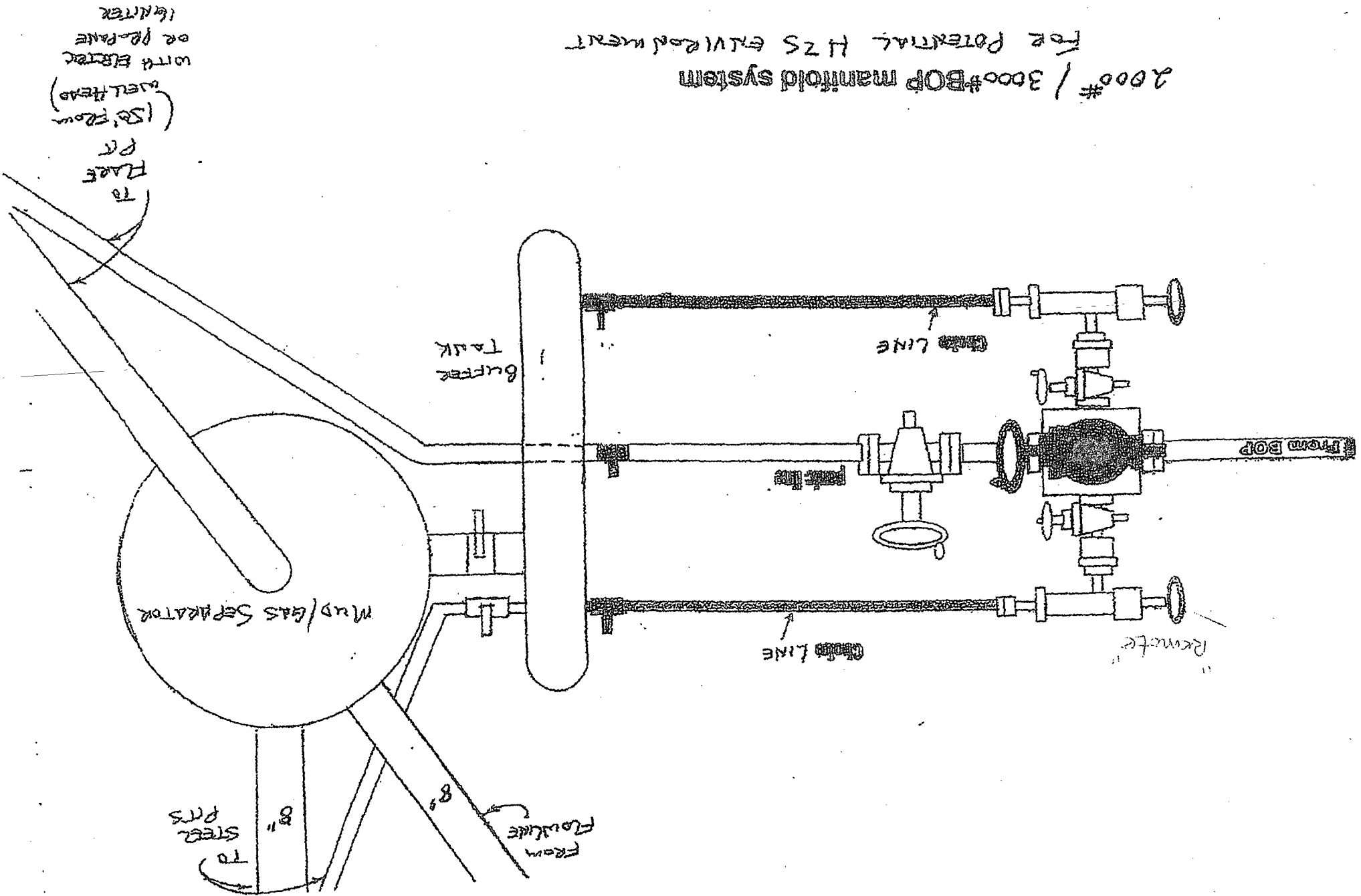
1. Well Control Equipment
 - a. Flare line(s) and means of ignition
 - b. Remote control choke
 - c. Flare gun/flares
 - d. Mud-gas separator
2. **Protective equipment for essential personnel:**
 - a. Mark II Surviveair (or equivalent) 30 minute units located in the dog house and at the primary briefing area (to be determined.)
 - b. Means of communication when using protective breathing apparatus.
3. **H2S detection and monitoring equipment:**
 - a. Three (3) portable H2S monitors positioned on location for best coverage and response. These units have warning lights at 10 PPM and warning lights and audible sirens when H2S levels of 15 PPM is reached. A digital display inside the doghouse shows current H2S levels at all three (3) locations.
 - b. An H2S Safety compliance set up is on location during all operations.
 - c. We will monitor and start fans at 1- ppm or less, an increase over 10 ppm results in the shutdown and installation of the mud/gas separator.
 - d. Portable H2S and SO2 monitor(s).
4. **Visual warning systems:**
 - a. Wind direction indicators will be positioned for maximum visibility.
 - b. Caution/Danger signs will 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 reasonable distance from the immediate location. Bilingual signs will be used when appropriate.
5. **Mud program:**
 - a. The mud program has been designed to minimize the volume of H2S circulated to the surface Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.
6. **Metallurgy:**
 - a. All drill strings, casings, tubing, wellheads, Hydril BOPS, drilling spools, kill lines, choke manifold, valves and lines will be suitable for H2S service.
 - b. All elastomers used for packing and seals shall be H2S trim.

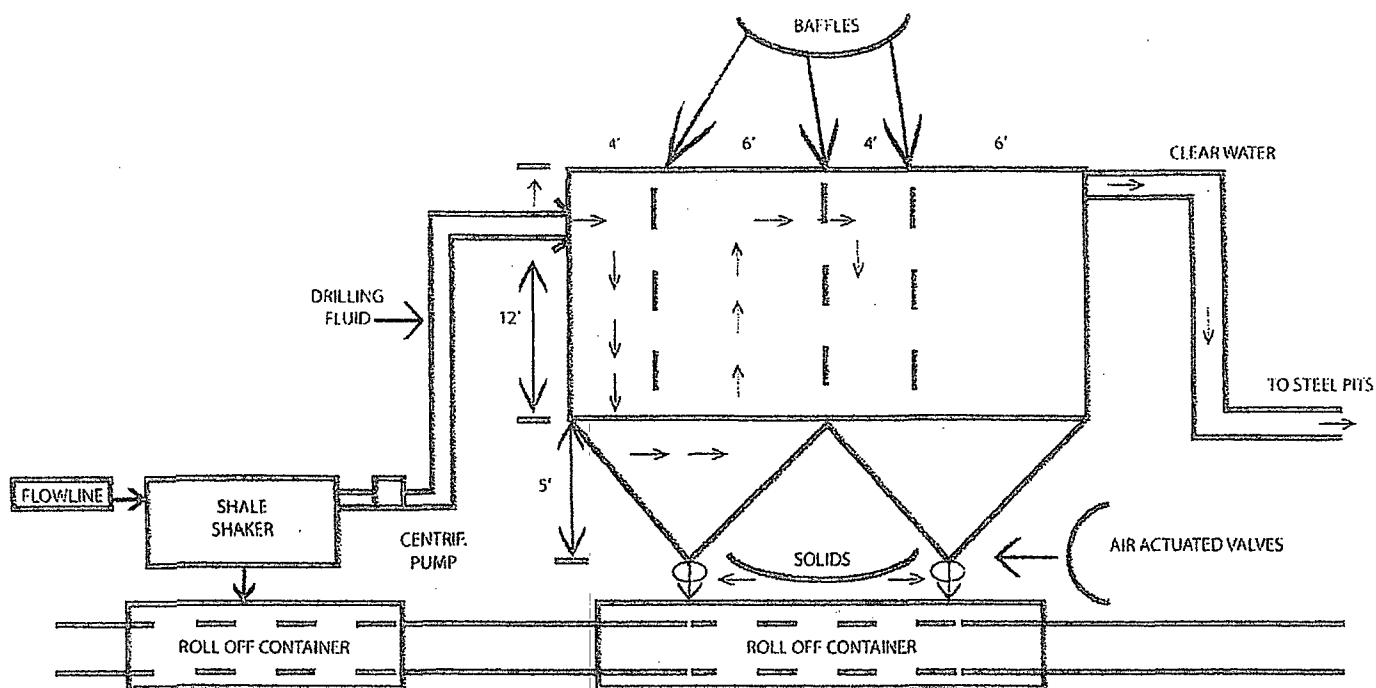
7. Communication:

- a. Cellular Telephone and/or 2-way radio will be provided at well site.
- b. Landline telephone is located in our field office.



2000# / 3000# BOP manifold system
 For POTENTIAL H2S environment





OPERATIONS & MAINTENANCE

Drilling Fluids from the wellbore will go through the flow line across the shale shaker. Solids will drop into roll off containers with baffles as drawn above. Baffles slow fluid velocity to allow solids to fall down through 6" air actuated valves into roll off containers. Clean water goes back out to the drilling fluid steel pits. Solids and any leftover liquid will be hauled to disposal.

INSPECTION

The closed loop equipment will be inspected daily by each tour and any necessary maintenance performed. Any leak in the system will be repaired and .or contained immediately. OCD will be notified within 48 hours. Remediation process started.

CLOSURE PLAN

During drilling operations, all liquids, drilling fluids and cutting will b e hauled off via CRO (Controlled Recovery Incorporated Permit R-9166)

Hydrogen Sulfide (H₂S) Drilling Operations Plan

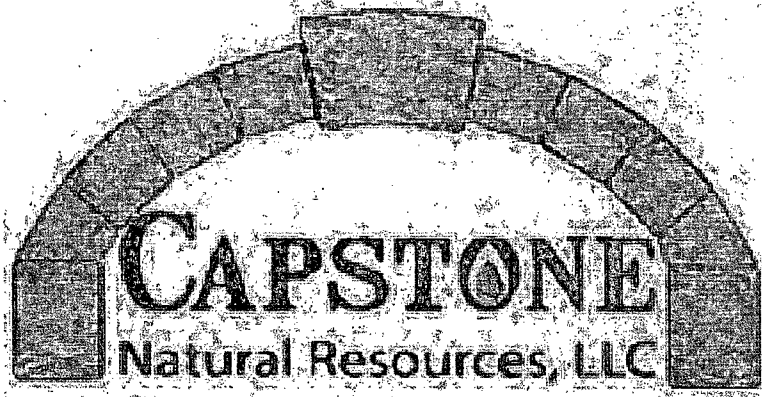
Lea C Federal 18

1280' FSL & 2599' FWL Section 11, T. 17 S., R. 31 E.

Eddy County, New Mexico

32° 50' 43.49" North & 103° 50' 25.27" West

Prepared for



Prepared by



Table of Contents

1.0 General	1
1.0 Description of Hydrogen Sulfide Gas	1
1.1 Toxicity	1
1.2 H ₂ S First Aid and Treatment Procedures	2
2.0 Hydrogen Sulfide H₂S Contingency Plan	3
2.1 Introduction	3
2.2 Purpose	3
2.3 Operating Procedures	4
2.4 H ₂ S Emergency Procedures	8
3.0 Appendices	12

Checklist for Drilling, Work Over, and Maintenance in H₂S Environment

1. All personnel will receive proper H₂S training in accordance with Onshore Order 6, Section III.C.3.a.
2. Two safety-briefing areas will be established at least 100 yards from the wellhead. At least one briefing area will be upwind at all times. These sites should be located uphill whenever possible. (see Appendix 3.1)
3. Identify direction of prevailing winds (see Appendix 3.1)
4. At least two wind socks will be installed at all times
5. Primary and secondary emergency escape routes (flagged trail minimum)
6. Number, types, and storage location of H₂S emergency respirators for personnel, and number of personnel to be present onsite at any one time.
7. H₂S detector locations (3 minimum to include cellar or bell nipple and mud tanks at shale shaker). Type and location of visual and audible alarms to be used.
8. H₂S evacuation and emergency training procedures and schedule (i.e. Contingency Plan)
9. List of area residents within a two-mile radius, evacuation plan, and contact list (including agencies and individuals)
10. Types and quantities of mud additives and scavengers to be available at location for H₂S operations
11. Design features and operational procedures to be used to provide safe working environment (all equipment meets standards for H₂S service)
12. Appropriate warning signs and flags on all access roads
13. Provisions for blocking and monitoring access to location during critical incident
14. Ventilation fan under rig floor
15. In event of uncontrolled blowout, designation of local official who has authority to ignite flow
16. Swabbing or drill stem fluids containing H₂S should be put through a separator to permit flaring of gas. Flare should have a continuous pilot light to ensure ignition of all such gas.

1.0 General

1.1 Description of Hydrogen Sulfide Gas

Hydrogen Sulfide (H_2S) is a colorless, transparent gas with a distinct and characteristic rotten-egg odor at low concentrations. It is not detectable by odor at high concentrations. H_2S at higher concentrations and/or over longer periods of exposure paralyzes the olfactory sense for that specific odor. The gas is extremely toxic to humans and can easily become dangerous and lethal. Extreme care and caution is needed to prevent injury and/or death. H_2S has a specific gravity of 1.192 that is heavier than air. It tends, therefore, to accumulate in low places. This collection of gas can lead to dangerous concentrations in areas such as arroyos and drainages. H_2S from down hole is often warmer than surface air and will therefore tend to rise and therefore affect workers above the escaping source. Hydrogen Sulfide is explosive and water soluble.

1.2 Toxicity

American National Standards Institute standard: Z37.2-1972 Acceptable Concentrations of Hydrogen Sulfide describes H_2S toxicity in this way: Hydrogen Sulfide is an extremely toxic and irritating gas. Free hydrogen sulfide in the blood reduces its oxygen-carrying capacity, thereby depressing the nervous system. Hydrogen sulfide is oxidized quite rapidly to sulfates in the body, therefore no permanent aftereffects occur in cases of recovery from acute exposures unless oxygen deprivation of the nervous system is prolonged. There is no evidence that repeated exposures to hydrogen sulfide result in accumulative or systemic poisoning. Effects such as eye irritation, respiratory tract irritation, slow pulse rate, lassitude, digestive disturbances, and cold sweats may occur but these symptoms disappear in a relatively short time after removal from the exposure. Odors become detectable in concentrations as low as .008 parts per million (ppm) (California studies), but the sense of smell is lost after 2-15 minutes at 100 ppm.

1.3 H₂S First Aid and Treatment Procedures

- Victim should be removed to fresh air immediately**
- If victim is not breathing, rescue breathing or artificial breathing should be started immediately
- Treat for shock; keep victim warm and comfortable
- Call ambulance and/or doctor, take victim immediately to emergency room or other healthcare facility

****The rescuer(s) should always wear personal protective equipment when attempting to rescue an H₂S victim. It is important to never increase the number of victims unnecessarily during an H₂S emergency.**

2.0 Hydrogen Sulfide (H₂S) Contingency Plan

2.1 Introduction

This plan provides required procedures to be followed to provide for a safe H₂S working environment. These required procedures include safety procedures, precautionary measures, and training for emergency and standard procedures. This document sets forth the responsibilities of the operator and all individuals and entities under employment or contract with the operator working in a sour oil or gas (H₂S) area.

To make this contingency plan effective and in order to provide a safe working environment, cooperation from all individuals is a necessity. Each person on site must understand normal and emergency operating procedures for this site. Each individual on site must have adequate information, training, and practice with the specific procedures described in this Contingency Plan. It is the responsibility of both the operator to provide adequate equipment, training, and procedures, as well as the individual worker's responsibility to participate fully in all H₂S procedures, to familiarize themselves with the location of all safety equipment and features, and to keep equipment and procedures in working order and up to date.

In order for Capstone Natural Resources, LLC to provide a safe working environment for all workers and individuals in the vicinity of the well the safeguards are put in place. **Initiative lies with each and every individual for the safety of all. The drilling foreman is required to and will enforce all safety procedures, for the benefit of all involved.**

2.2 Purpose

Capstone Natural Resources, LLC will provide a safe working environment for all neighbors, employees, contractors, and others involved with the drilling of its well. There exists the possibility of encountering toxic H₂S gas during the drilling, completion, maintenance, and production of the well. This H₂S contingency plan will be put into effect after surface casing is drilled or when it is deemed necessary by the BLM in consultation with Capstone Natural Resources, LLC

Safety procedures are established for each person's safety connected with the operation and for the safety of the residents of the local area. No house is within 2 miles.

The Capstone Natural Resources, LLC foreman will strictly enforce these procedures. Noncompliance may result in loss of pay or dismissal from the site, job, or employment.

2.3 Operating Procedures

Before this H₂S contingency plan is operational, all personnel that are to be involved with operation will be thoroughly trained* in the proper use of breathing apparatus (i. e. Self Contained Breathing Apparatus and Escape Units), emergency procedures, and H₂S first aid and rescue methods. Training will include means of communication when wearing breathing apparatus. An approved list of trained personnel will be supplied by the safety company and stored with the drilling foreman.**

*Required training for operation personnel will include, but not be limited to, an H₂S safety course from an approved training company, safety briefing at the drill site on all safety equipment use and locations before the start of work for each and every person onsite, safety related training in-place, on-site 1,000 feet before drilling the first H₂S formation.

**Throughout this contingency plan breathing apparatus shall be understood as

- a) A Self-Contained Breathing Apparatus (SCBA) manufactured such as Scott Industrial C100 or similar.
- b) Or an emergency Escape Unit such as the Scott SCRAM or Elsa (or similar) often referred to as hip packs, hoods, or pony bottles.

The two types of breathing apparatus will be differentiated as a SCBA or as an Escape Unit as required.

2.3.1 Safety Equipment

Personal H₂S & SO₄ monitors - Every person on site will be required to wear a personal H₂S & SO₄ monitor at all times while onsite. Monitors will not be worn on hard hats, but should be worn on the waist belt or preferably near the chest in-front.

Breathing Apparatus - All personnel on the drill site will be assigned an individual breathing apparatus unit. This may be either an escape unit or a SCBA unit. A minimum of two SCBA type units will be onsite. These units will be used by the team whose duty it is to serve as the onsite rescue team.

Monitoring and Recording Devices - An experienced safety company (such as Total Safety U. S., Inc., Artesia, NM) will responsible for the installation and monitoring of H₂S detectors placed on site. These units will be tested and recalibrated as the safety company requires. If H₂S is detected, the monitors will be tested and recalibrated at least every 12 hours. This monitoring system may or may not be integral to the required 2-stage alarm system on site. This 2-stage system (visual and audio) will have a minimum

of three H₂S detector locations. Monitors will be located: 1) in the cellar or on the bell nipple, 2), at the mud tanks' shale shaker, and 3), to be determined by the safety company. Visual (light) and audio (siren) alarms will activate when H₂S concentrations reach 10 ppm.

First-Aid and rescue equipment - Stored on-site, but ideally uphill and upwind from H₂S sources a minimum of one "rescue pack" will contain at least:

- 1 backboard, straps, head blocks
- a set of cervical collars (s-xl)
- 1 bag valve mask
- 1 bottle of oxygen
- gauze and other standard first-aid items

suggest - 1 AED (automatic external defibrillator)

Gas Monitor - An appropriate monitor should be on-site that can measure for LLE, VOC, and other explosive or hazardous gasses.

2.3.2 Safety Procedures

Cascade System - Every person required to perform duties within "safety zones" (see list below) will be provided with breathing equipment attached to a cascade air system. These areas are as follows:

- rig floor
- mud pit
- derrick
- shale shaker
- mud hopper and bulk hopper
- all hazardous locations will be accessible by hose and work pack (SCBA)

Escape Routes - Two escape routes will be at a minimum flagged and kept clear at all times.

Safety Briefing Areas - Two safety-briefing areas will be located at the end of escape routes (see above). The briefing areas will be clearly marked, at least one up-hill, and located so that one site is always up wind. Please see attached site map for safety briefing areas in Appendix 3.1.

Safety, first-aid, and rescue equipment - Will be stored on site using best practices. This will include proper maintenance and scheduled testing, inspection, and training/practice.

Service companies - All service companies will be briefed regarding potential hazards of the well site including the presence (or potential for) H₂S. These companies will be required to provide breathing apparatus and training to their employees. No service company personnel will be allowed onsite without meeting these requirements. In addition a safety briefing under the direction of the drill foreman regarding site specific H₂S procedures will be provided to each new personnel member reporting on-site.

Drills and practice - Drills reviewing all and any safety procedures including evacuation, rescue, and proper procedures to shut-in a well, and identify source of H₂S in instance of a leak will be practiced under the supervision of the safety company representative and company foreman. Proper use of breathing apparatus will be instructed during such drills. Drill schedule will be designed to familiarize new personnel with all safety procedures. Each crew should also be familiar with all operations. Drills should include a short work period in safety equipment.

Warning Signs - Warning signs will be posted on all access roads. "No smoking" signs will be posted at access points as well. Signs will be posted at least 200 feet and no more that 500 from well pad. When H₂S is present at 10 ppm or greater a red flag shall be displayed on the warning sign. Gates, road barricades, and/or gate guards will be used if necessary to prevent access during critical or hazardous situations.

Wind Socks - A minimum of two windsocks should be installed at locations easily observable from all work areas. If more than two windsocks are needed in order to allow "workers" at all times to easily identify the wind direction; more windsock will be installed.

Vehicle Parking - Vehicles should be parked 200 feet from the well site with their fronts pointing away from the well site. Preferably vehicles will be located up hill and up wind from the well along the escape route.

Testing Fluids - Swabbing and testing fluids containing H₂S will be pass through a separator to permit flaring of the gas. There will be a pilot light in such instances.

Bug Blowers - Circulation will be provided by explosion proof electric fans at all critical locations when necessary.

Drills - Reviewing any and all safety procedures including evacuation, rescue, proper procedures to shut-in a well, and how to identify the source of H₂S if a leak occurs

will be practiced under the supervision of the safety company representative and company foreman. Proper use of breathing apparatus will be taught during such drills. The drill schedule will be designed to familiarize new personnel with all safety procedures. Each crewmember will be familiar with all operations. Drills should include a short work period in safety equipment.

2.3.3 Working Conditions

Occupational Safety and Health Administration (OSHA) has set guidelines for Permissible Exposure Limits (PEL). The standard is to be considered the threshold **never to be exceeded** for the health and safety of all workers on this site. Ideally, exposure would never be this high.

2.3.3.1 Exposure Limits

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Z-2 Table -- Exposures shall not exceed 20 ppm (ceiling) with the following exception: if no other measurable exposure occurs during the 8-hour work shift, exposures may exceed 20 ppm, but not more than 50 ppm (peak), for a single time period up to 10 minutes.

OSHA Permissible Exposure Limit (PEL) for Construction Industry: 29 CFR 1926.55 Appendix A -- 10 ppm, 15 mg/m³ TWA (accessed via the internet at: http://www.osha.gov/dts/chemicalsampling/data/CH_246800.html#exposure on 19 July 2007)

The maximum exposure limit for an 8 hour day is less than 10 ppm.

2.4 H₂S Emergency Procedures

2.4.1 Incident

H₂S alarm system activation. Light and siren warnings or personal H₂S monitor activation for any one "worker."

2.4.2 Primary Emergency Procedure

- i. All rig crew personnel and all auxiliary personnel must **DON BREATHING APPARATUS IMMEDIATELY.**
- ii. Rig crew should mask up with SCBA type work packs preferentially
- iii. All auxiliary crew should move to safety briefing area, uphill and upwind.
- iv. All non-essential personal should continue to evacuate site.

2.4.3 Secondary Emergency Procedure

I. Supervisory Personnel

- i. Company Foreman
 - a. Proceed to cascade trailer and check for safe operation of the cascade system.
 - b. Proceed to active safety briefing areas and account for all personnel. If all personnel are not accounted, then initiate an appropriate search.
 - c. Return to the drilling floor and supervise operations.
- ii. Tool Pusher
 - a. Proceed to cascade trailer and check if Company Foreman is operating cascade system safely. If NOT ensure safe operations of the cascade system.
 - b. Proceed to drilling floor and supervise operations. Make sure all crewmembers are accounted for and institute buddy system. If all personnel are not accounted for, initiate appropriate search.

II. Rig Crew

- i. Driller
 - a. if drilling

1. after donning breathing apparatus proceed to console and raise kelly to slip set position

2. shut down mud pumps

3. monitor well flow, remain at console

4. use hand signals to verify all personnel are at stations, verify company man and tool pusher's position, initiate search if well is not flowing

b. If tripping

1. after donning breathing apparatus put pipe in the slip-set position

2. stab safety valve, close safety valve

3. monitor well flow-remain at console

4. watch derrick man descend from derrick, verify all personnel locations, verify company man and tool pusher's position, initiate search if well is not flowing

c. if well is flowing

1. after donning breathing apparatus, shut well in HARD

2. verify all personnel locations, verify company man and tool pusher's position, initiate search if necessary

3. obtain necessary pressures for well control

4. proceed to safety briefing area with crew, plan well control operations with all personnel

ii. Derrick Man

- a. after donning breathing apparatus, go to pit side window on the floor whether drilling or tripping (descend derrick)

- b. maintain visual contact with driller and monitor flow

- c. if mud properties are needed, then proceed to the shaker with "buddy"

- d. monitor other hands on pit side of rig visually

- e. proceed to open manual well-head if necessary (with "buddy")

iii. Motorman

- a. after donning breathing apparatus, go to the cascade system and ensure safe operation
- b. maintain visual contact with chain hand on doghouse side of floor

iv. Chain Hand

- a. after donning breathing apparatus, stab safety valve if tripping
- b. go to doghouse/pipe-rack and maintain visual contact with driller and motorman

v. Floor man

- a. after donning breathing apparatus, stab safety valve if tripping
- b. aid driller while maintaining visual contact with driller, derrick man, and chain hand

III. Auxiliary Personnel

- i. Mud engineer and Company man or geologist are to act as wardens. Wardens must account for all other auxiliary crew.
- ii. All auxiliary crew are to remain in safety briefing area unless evacuated by wardens.
- iii. Wardens organize search with notification from company. All searches are to be done with "buddy". Geologist warden should remain in safety briefing area.

2.4.4 Igniting the Well

I. Decision

- i. The Company Foreman is responsible for the decision to ignite a well. If he is incapacitated or absent, then authority passes to the tool pusher, and then the contract driller
- ii. the decision to ignite the well is only to be made as a last resort safety measure if:
 - a. there is threat human life and grave threat to public safety and equipment
 - b. there is no alternative way of containing the well given the emergency faced.
 - c. an attempt was made to contact area office (circumstances permitting)*

***When human life is threatened, there can be no delay in making a decision.**

I. Instructions for Igniting the Well

- i. Two individuals are required for ignition.
- ii. Both individuals will wear self-contained breathing apparatus and have 200-foot retrieval ropes tied to their waists.
- iii. One individual will measure the atmosphere for explosive gasses with appropriate meter.
- iv. The other individual will remain in the safety briefing area
- v. Others in the briefing area are to remain aware of both individuals and aid as able. If either tethered individual is overcome by gas, he should be pulled to safety.
- vi. The well should be lit with a 25 mm meteor type flare gun when well conditions allow. The safest method of igniting the well should always be used.
- vii. Burning H_2S will produce sulfur dioxide which is poisonous. The area therefore is not safe once the well has ignited. Continue to observe all emergency procedures and follow orders from supervisors and the area office. Notice of incident must be reported to all appropriate authorities.

EXISTING LEASE ROAD

200.0'

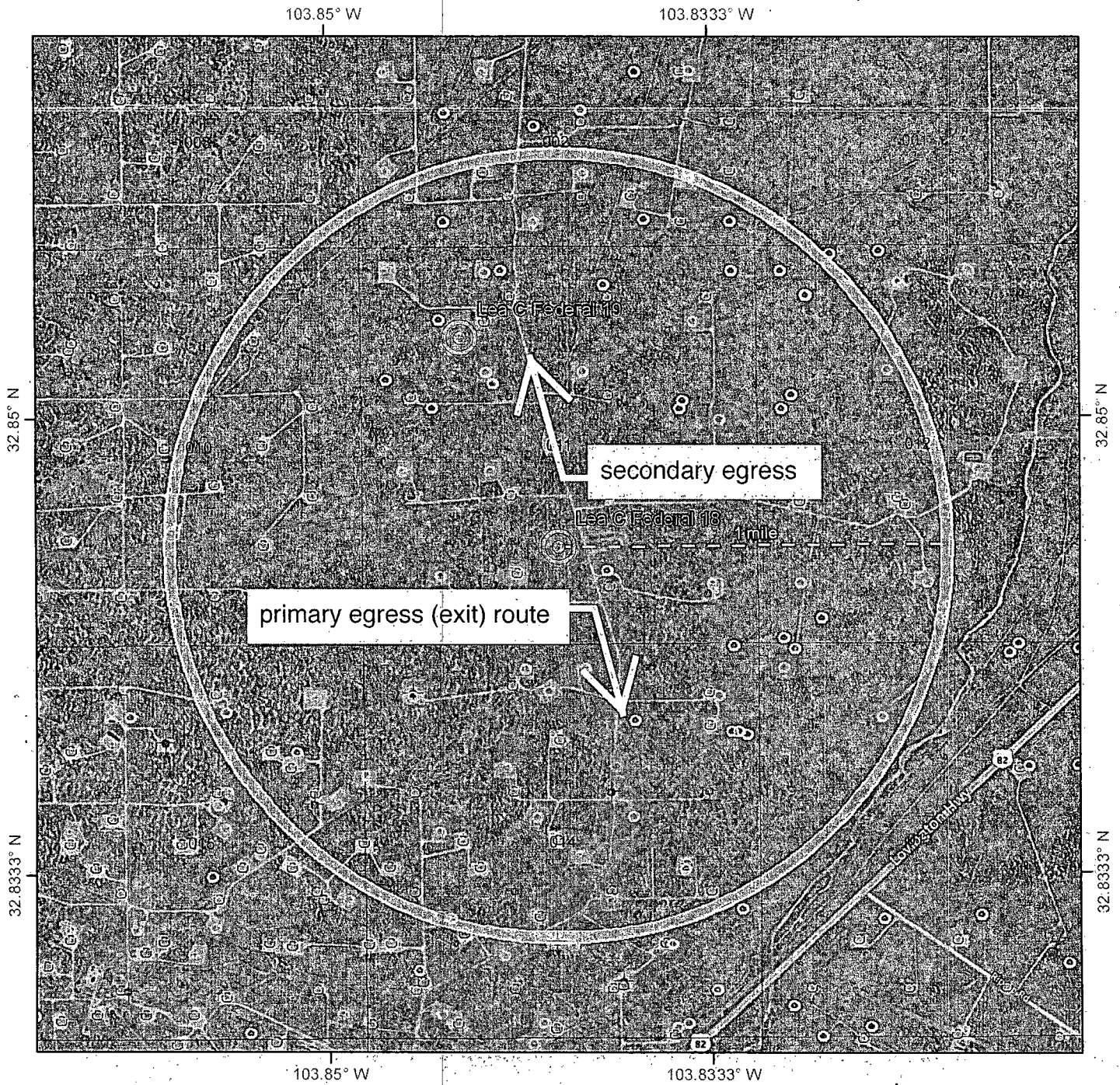
safety briefing area
>100 yards from
well head

prevailing wind
blows from SSE



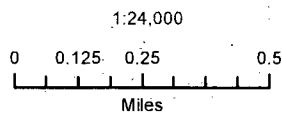
WEST TEXAS CONSULTANTS, INC.
ENGINEERS PLANNERS SURVEYORS
405 S.W. 1st. STREET
ANDREWS, TEXAS 79714
(432) 523-2181



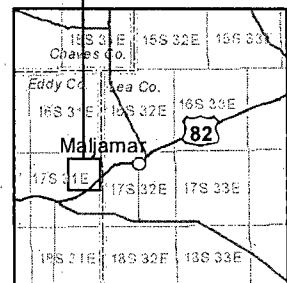


Existing and Proposed Oil & Gas Wells

- ⊙ Producing
- Proposed or Recently Drilled
- ✕ Proposed (never drilled)
- ⊕ Dry Hole
- ⊖ Plugged
- Temporarily Abandoned



NAD 1927 New Mexico State
Plane East FIPS 3001 Feet



3.0 Appendices

3.1 Check List for Safety Equipment (designed for a maximum of 11 people)

Safety Trailer housing cascade system at least ten 300 cu. ft. bottles of compressed air

7 SCBA type breathing apparatus with 45 cu. ft. bottles

5 breathing masks connected to the cascade system with 7 cu. ft. pony bottles

2 extra 300 cu. ft. bottles able to refill SCBA bottles will be at the safety briefing areas

2 Wind socks

1 Flare gun and flares

1 rescue pack (as described in section 2.3.1)

Warning signs for access (flags for marking conditions)

"Safety Briefing Area" signs, evacuation route flags

H₂S monitors (personnel and stationary)

Alarm system (audio and visual—explosion proof)

Gas Monitor

Onshore Order 6 III. A. 1. c. equipment and systems

i. Flare line will have an electronic igniter and/or a continuous pilot flame. The choke manifold will have at least 1 remote controlled choke. There will be a flare gun with flares on the rig floor.

ii. Safety equipment is listed above. Breathing equipment will be stored on the rig floor and at the primary briefing area (see Page 16). Equipment will be tested, and maintained as needed, at least weekly and after any use. Crew will practice using hand signals, or wireless if so equipped, to communicate while wearing breathing apparatus at least weekly.

iii. There will be at least 2 portable H₂S and SO₂ monitors (sensors) on location. Monitors will have warning lights and sirens or horns. Monitors will activate when H₂S levels reach 20-ppm. One monitor will be on the rig floor and one will be at the flare line.

iv. See Page 16 for the location of windsocks and warning signs.

v. The mud program will minimize the amount of H₂S reaching the surface by appropriate mud weight and H₂S scavenger additives. The operator will use an H₂S gas buster and mud gas separator as needed.

vi. The drill pipe, casing, tubing, well head equipment, blow out preventers, drilling spool, kill lines, choke manifold and lines, valves, and elastomers used for packing and seals will be H₂S compatible.

vii. Cellular phones will be on the rig floor, vehicles, and company man's trailer.

3.2 Emergency Phone Numbers

Capstone Natural Resources, LLC Personnel to be Notified

Darren Seglem, Production Manager

Office: (432) 218-7924

Cellular: (432) 664-5477

or

Phillip W. Terry, Chief Executive Officer

Office: (918) 236-3800

Safety Company Personnel

(Name)	(Position)	(Number work)	(Number home)
(Name)	(Position)	(Number work)	(Number home)

Local & County Agencies

Maljamar Fire Department	911 or (575) 676-4100
Loco Hills Fire Department	911 or (575) 677-2349
Eddy County Sheriff (Artesia)	911 (575) 748-2323
Eddy County Emergency Management (Carlsbad)	(575) 887-9511
Eddy County Emergency Management (Artesia)	(575) 746-9540
Eddy County Health Services (Carlsbad)	(575) 887-9511
Artesia Hospital 702 North 13 th Street, Artesia	(575) 748-3333

State Agencies

NM State Police (Artesia)	(575) 748-9718
NM Oil Conservation (Artesia)	(575) 748-1283
NM Oil Conservation (Santa Fe)	(505) 476-3440
NM Dept. of Transportation (Roswell)	(575) 637-7201

Federal Agencies

BLM Carlsbad Field Office

(575) 234-5972

National Response Center

(800) 424-8802

US EPA Region 6 (Dallas)

(800) 887-6063 or (214) 665-6444

Other Contacts

Veterinarian

Artesia Animal Clinic

(575) 748-2042

Residents within 2 miles

There are no homes within 2 miles.

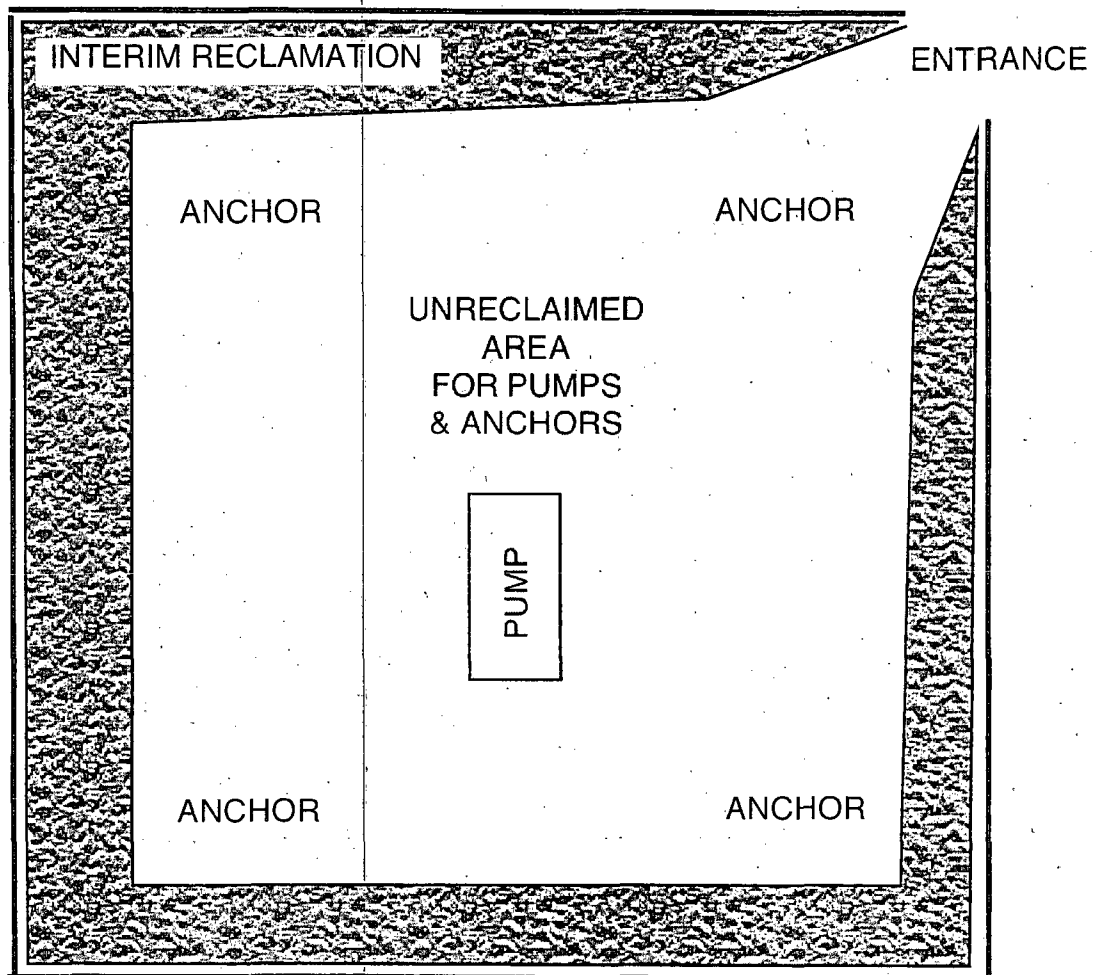
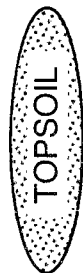
Capstone Natural Resources, LLC
Lea C Federal 18
1280' FSL & 2599' FWL
Sec. 11, T. 17 S., R. 31 E.
Eddy County, New Mexico

PAGE 15

NORTH



1" = 40'



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CAPSTONE NATURAL RESOURCES, LLC
LEASE NO.:	LC0294218B
WELL NAME & NO.:	18-LEA C FEDERAL
SURFACE HOLE FOOTAGE:	1280'/S. & 2599'/W.
LOCATION:	Section 11, T. 17 S., R. 31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Lesser Prairie-Chicken Timing Stipulations
 - Ground-level Abandoned Well Marker
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - H2S Requirements-Onshore Order #6
 - Logging Requirements
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**