ATS-07-270

Month - Year
APR 16 2007
OCD - ARTESIA, NM

OCD ARTESIA

Form 3160-3
(February 2005)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. NMLC 069033
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6. If Indian, Allotee or Tribe Name N/A
2. Name of Operator C.O.G. Operating, L.L.C. 229137	7. If Unit or CA Agreement, Name and No. N/A
3a. Address 550 W. Texas Avenue, Suite 1300 Midland, Texas 79701	8. Lease Name and Well No. 35819 Blue Thunder 5 Federal Com #3
3b. Phone No. (include area code) 432-683-7443	9. API Well No. 30-015-35544
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface 1800' FSL & 1980' FEL, Unit J At proposed prod. zone Same CAPITAN CONTROLLED WATER BASIN	10. Field and Pool, or Exploratory Lusk Morrow, West
14. Distance in miles and direction from nearest town or post office* Approximately 11 miles Southeast from Loco Hills, NM	11. Sec., T. R. M. or Blk. and Survey or Area Sec 5, T19S, R31E
	12. County or Parish Eddy / 13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any) 1800'	16. No. of acres in lease 639.22	17. Spacing Unit dedicated to this well 320
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Approx. 2000' to #1	19. Proposed Depth 12,500'	20. BLM/BIA Bond No. on file NMB 000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3577' GL	22. Approximate date work will start* 05/09/2007	23. Estimated duration 45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must 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 BLM.

25. Signature Denise Menoud	Name (Printed/Typed) Denise Menoud	Date 02/13/2007
Title Agent for C.O.G. Operating, L.L.C.		
Approved by (Signature) /s/ James Stovall	Name (Printed/Typed)	Date APR - 6 2007
Title ACTING 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 1 YEAR

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

*(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

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

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

Form C-102
Revised October 12, 2005

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

as attached E-Mail 2/1

API Number	Pool Code	Pool Name
	80840	Lusk Morrow, West

Property Code	Property Name	Well Number
	BLUE THUNDER "5" FEDERAL	3

OGRID No.	Operator Name	Elevation
229137	C.O.G. OPERATING L.L.C.	3577'

Surface Location

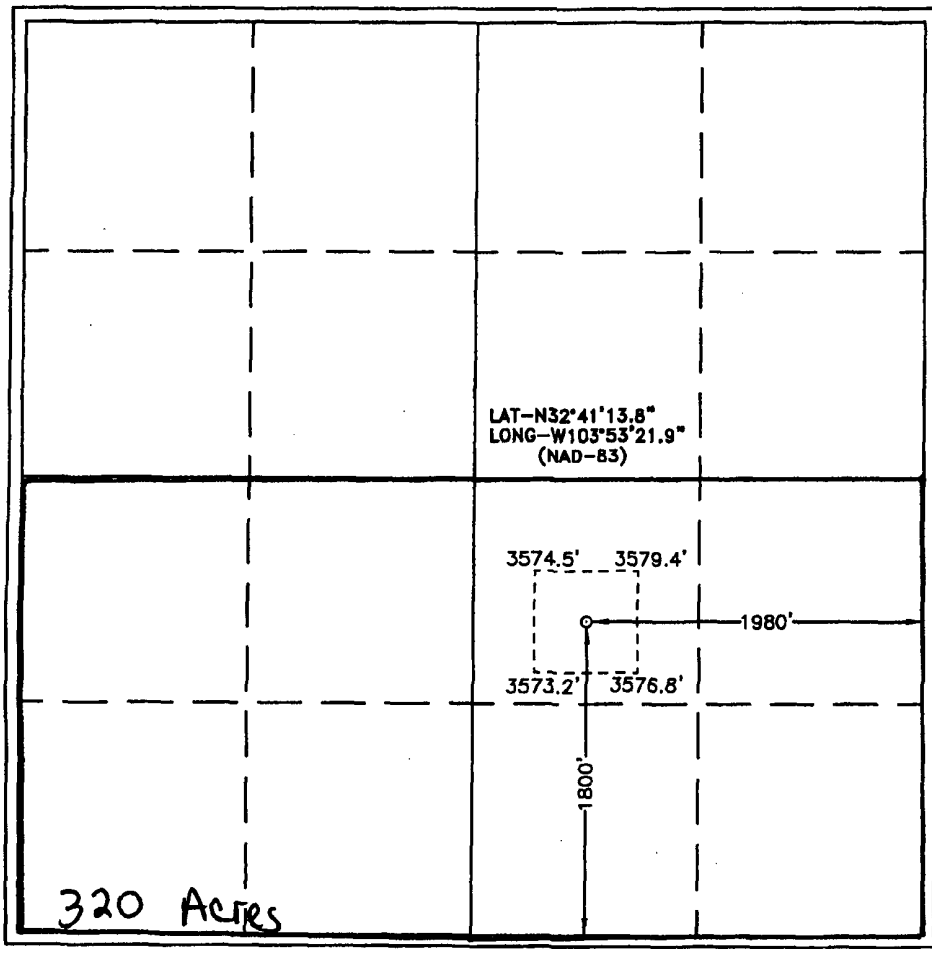
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	5	19 S	31 E		1800	SOUTH	1980	EAST	EDDY

Bottom Hole Location If Different From Surface

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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



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 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.

Leelan Rollins 2/13/07
Signature Date

Lee Ann Rollins
Agent for COG Operating, LLC
Printed Name

SURVEYOR 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 supervison, and that the same is true and correct to the best of my belief.

JANUARY 26, 2007
Date Surveyed

Signature & Seal of Professional Surveyor

W.O. Number 7986

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

"Phyllis Edwards"
<PEdwards@conchoresources.com>
04/05/2007 08:44 AM

To <betty_hill@nm.blm.gov>
cc
bcc
Subject Pool Name & Code for Blue Thunder 5-2 & 5-3

Dear Betty,

Per your request, please add the pool name & code to the COG plats:

Blue Thunder 5 Fed Com #2
Lusk Morrow, West 80840

Blue Thunder 5 Fed Com #3
Lusk Morrow, West 80840

Thanks for taking care of this for COG !!!

Phyllis Edwards
COG Operating LLC
Fasken Tower II
550 W. Texas Avenue, Suite 1300
Midland, TX 79701
432-685-4340 P
432-685-4399 F
pedwards@conchoresources.com

ATTACHMENT TO FORM 3160-3
COG Operating
Blue Thunder 5 Federal Com #3
SL: 1800' FSL & 1980' FEL, Unit J
Sec 5, T19S, R31E
Eddy County, NM

1. Proration Unit Spacing: S/2, 320 acres

2. Ground Elevation: 3577'

3. Proposed Drilling Depth: 12,500'

4. Estimated tops of geological markers:

Rustler anhydrite	600'
Yates	2700'
Queen	3350'
Delaware	4920'
Bone Spring	6500'
Wolfcamp	9850'
Strawn	10850'
Atoka	11150'
Morrow Lime	11350'
Morrow Clastics	11730'

5. Possible mineral bearing formations:

Bone Spring	Oil
Atoka	Gas
Morrow	Gas

6. Hole Size & Casing Program

Hole size	Interval	OD of Casing	Weight	Thread	Collar	Grade
17-1/2"	0' – +/-600'	13-3/8"	48#	8rd	STC	H40
12 1/4"	+/-600' – +/-3500'	8-5/8"	32#	8rd	STC	J-55
7-7/8"	+/-3500' – 12500'	5-1/2"	17#	8rd	LTC	P110

7. Cementing and Setting Depth

13 3/8"	surface	+/- 600'	Set +/- 600' of 13 3/8" 48# STC casing. Cement w/ 200 sx 35:65 Poz: "C" + additives followed by 200 sx + 2% Class "C" + 2% CaCl2. Circulate cement.
8 5/8"	Intermediate	+/- 3500'	Set +/- 3500' of 8 5/8" 32# J-55 STC casing. Cement w/ 800 sx 50:50 Poz "C" light cement + additives followed by 200 sx Class "C" cement. Circulate cement.
5 ½"	Production	+/- 12500'	Set +/- 12500' of 5 ½" 17# P110 LTC casing. Cement w/ 600 sx Class "H" + additives. Est TOC @ +/- 9000'.

SEE COA

8. Pressure Control Equipment

After setting 13-3/8" casing and installing 3000 psi casing head, NU 13-5/8" 3000 psi annular BOP. Test annular BOP, casing and manifold with clear fluid to 1350 psi w/ rig pump.

After setting 8-5/8" casing and installing 5000 psi casing spool, NU 5000 psi double ram BOP and 5000 psi annular BOP. Test double ram BOP and manifold to 4000# with clear fluid and annular to 2500 psi using an independent tester.

9. Proposed Mud Circulating System

Interval	Mud Wt.	Visc.	FL	Type Mud System
0' - 600'	8.4 – 9.2	28 – 35	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for pH.
600' – 3,500'	10.0 – 10.2	28 – 29	NC	Brine mud, lime for pH and paper for seepage and sweeps.
3500' – 10,800'	10.0 – 10.2	NC	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
10,800' – 11,150'	9.2 – 9.6	31 – 32	20	Increase weight with brine additions and reduce fluid loss w/ starch.
11,150' – 11,730'	9.6 – 9.8	36 – 42	<15	Reduce fluid loss w/ starch and XCD Polymer
11,730' – 12,500'	9.8 – 9.9	36 – 42	< 8	Reduce fluid loss w/ starch and XCD Polymer. Maintain properties to TD. Spot a high vis pill on bottom for logs.

10. Anticipated Starting Date

Drilling operations will commence on approximately April 6, 2007 with drilling and completion operations lasting approximately 45 days.

11. Logging, Coring, and Testing Program

A. Open hole logs: Litho Density Comp. Neutron, High Res. Laterlog, BHC Sonic. Caliper from TD back to 8-5/8" casing shoe.
B. Spectral Gamma Ray, Neutron from 8-5/8" casing shoe back to surface.
C. Mud logger on hole from 2400' to TD.
D. Sidewall cores on stand by if sufficient shows are encountered.

12. Potential Hazards

No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S is encountered, the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 5000 psi, and estimated BHT 170°.

EXHIBITS

A. & A-1.	Well Location & Acreage Dedication Maps
B.	Area Road Map
C. & C-1.	Vicinity Oil & Gas Maps
D.	Topographic & Location Verification Map
E. & E-1.	Proposed Lease Roads Maps
F. & F-1	Proposed Electric Line Maps
G.	Drilling Rig Layout
H.	BOPE Schematic
I.	Choke Manifold Schematic

EXISTING ROADS

A. Exhibit A is a portion of a section map showing the location of the proposed well as staked.

B. Exhibit B is a map showing existing roads in the vicinity of the proposed well site.

C. Directions to well location:
From the junction of US Hwy 82 and County Road 222 (Shugart), proceed South 8.2 miles on County Road 222 to lease road. On lease road go West winding Westerly 0.6 miles to lease road and proposed lease road.

ACCESS ROADS

A. Length and Width: 1997.2' long and 30' wide. The access road will be built and is shown on Exhibit A-1.

B. Surface Material: Existing

C. Maximum Grad: Less than five percent

D. Turnouts: None necessary

E. Drainage Design: Existing

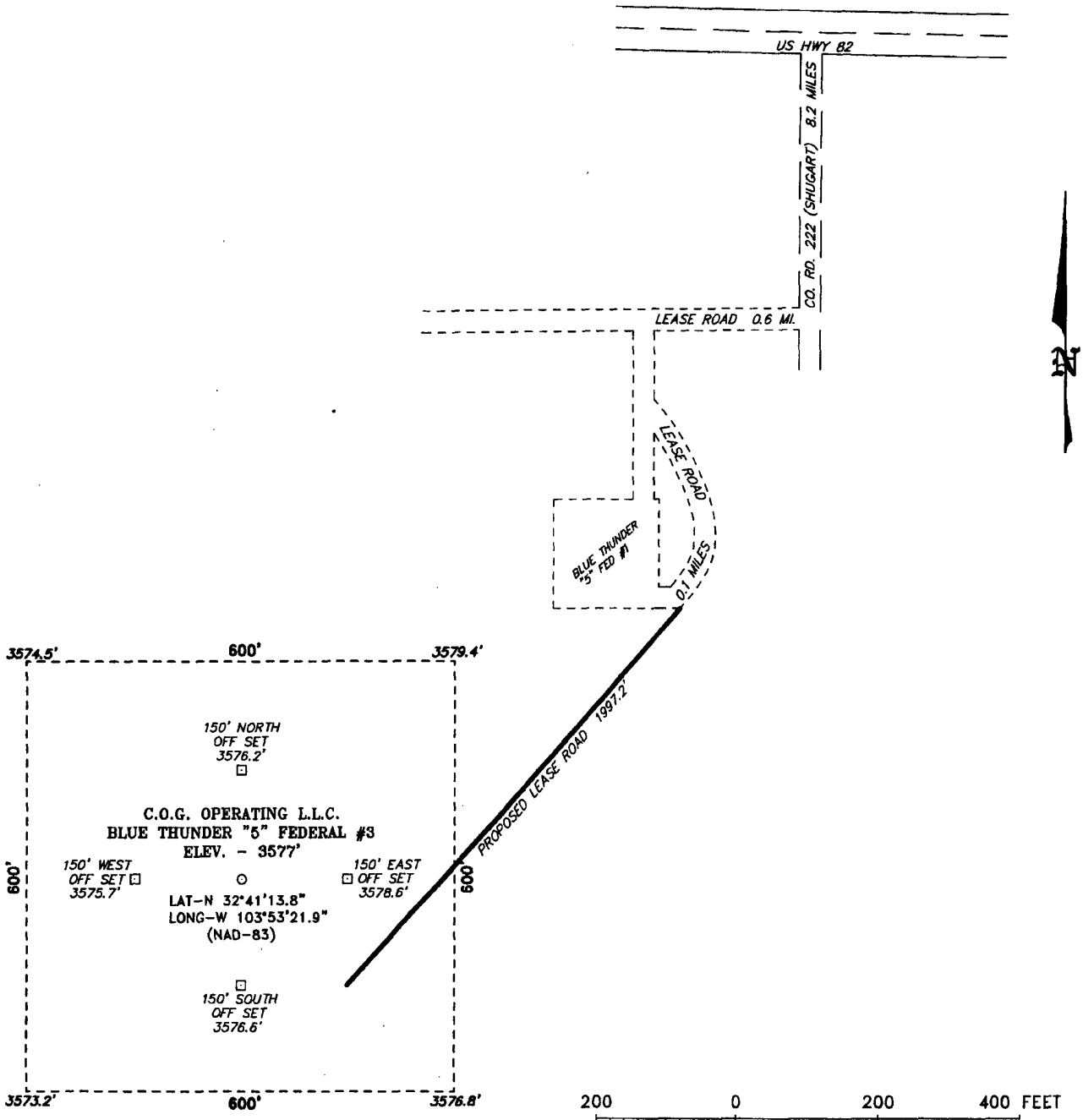
F. Culverts: None necessary

G. Gates and Cattle Guards: None needed

Exhibit "A-1"

SECTION 5, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



SCALE: 1" = 200'

DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF US. HWY 82 AND CO. RD. 222 (SHUGART), PROCEED SOUTH 8.2 MILES ON CO. RD. 222 TO LEASE ROAD, ON LEASE ROAD GO WEST WINDING WESTERLY 0.6 MILES TO LEASE ROAD, ON LEASE ROAD GO SOUTH 0.1 MILES TO PROPOSED LEASE ROAD.

C.O.G. OPERATING L.L.C.

REF: BLUE THUNDER "5" FEDERAL #3 / Well Pad Topo

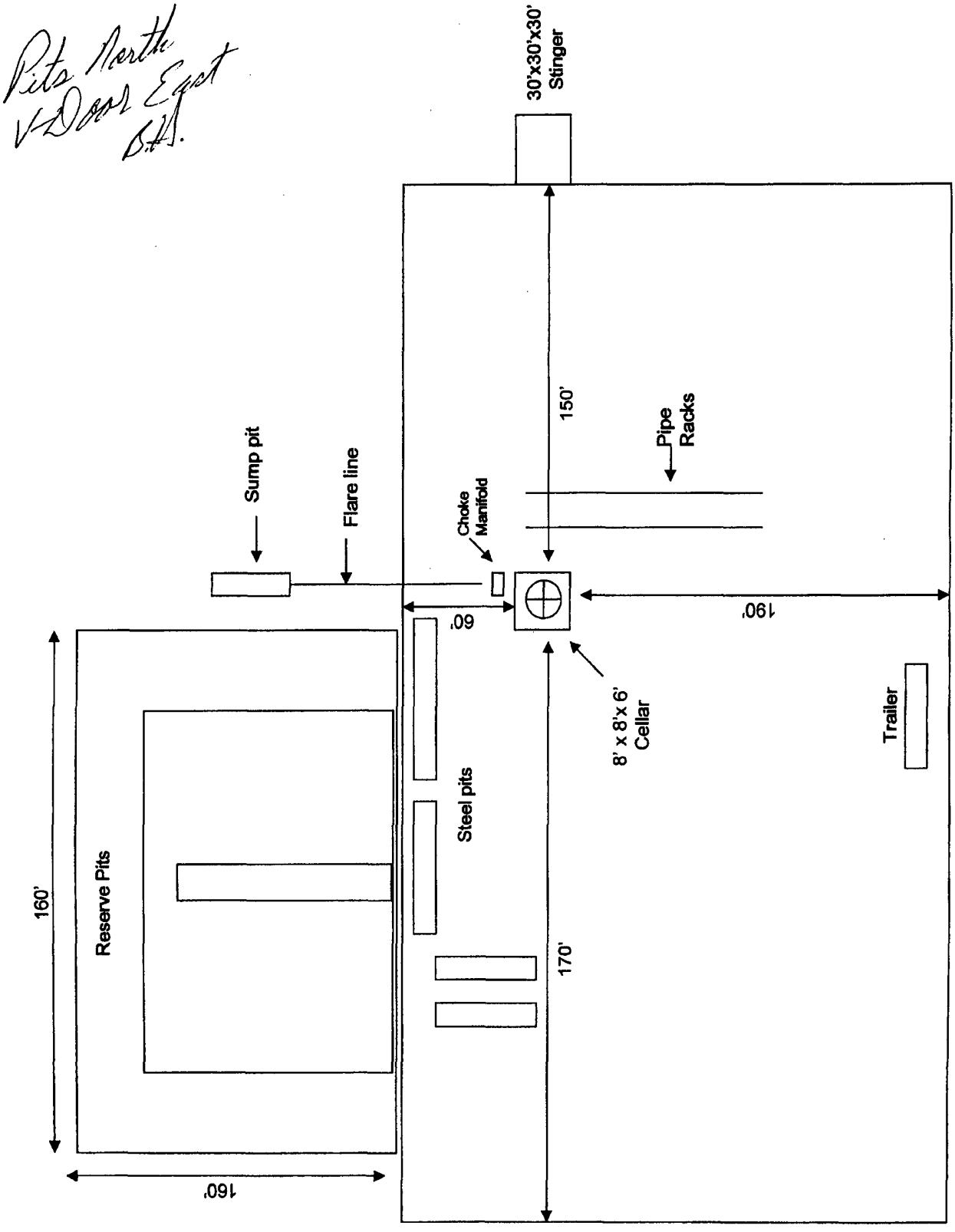
THE BLUE THUNDER "5" FEDERAL No. 3 LOCATED 1800' FROM THE SOUTH LINE AND 1980' FROM THE EAST LINE OF SECTION 5, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

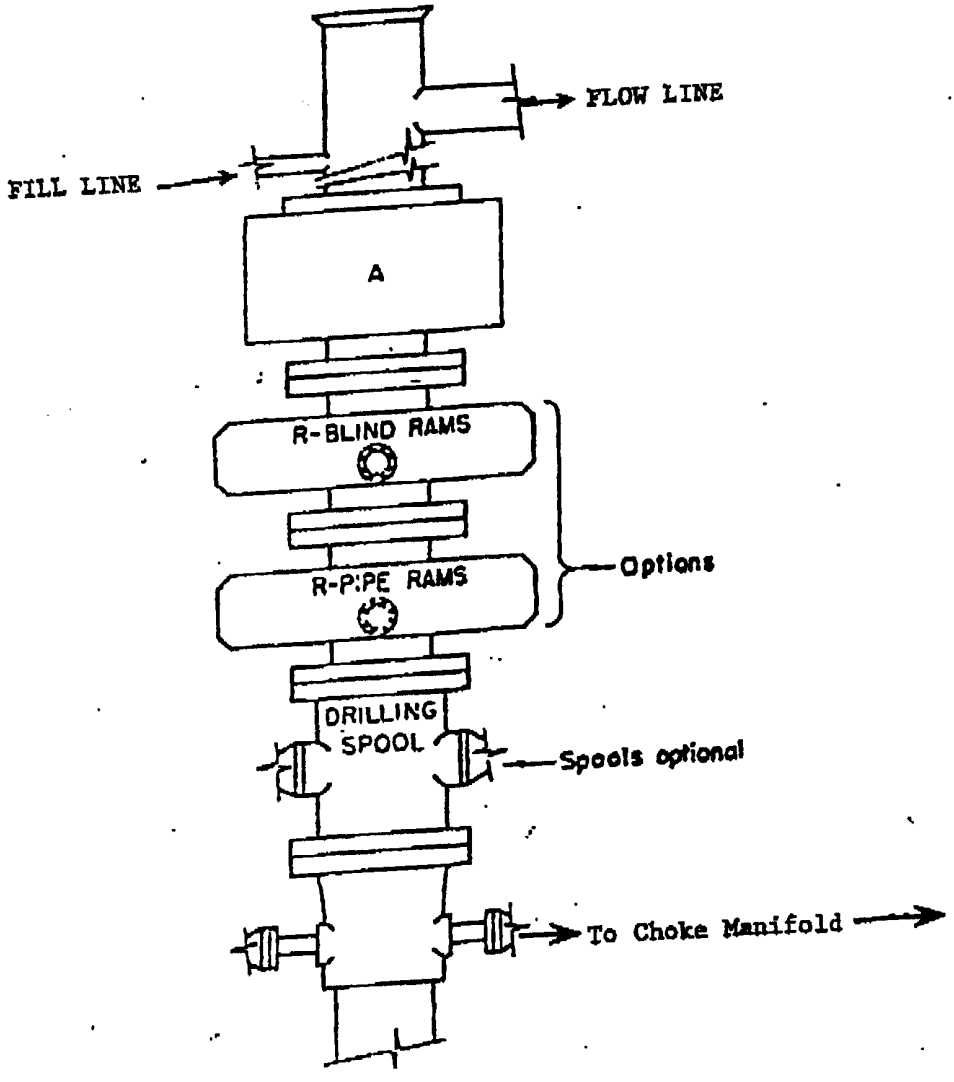
BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 17686	Drawn By: J. M. SMALL	Survey Date: 01-26-2007	Sheet 1 of 1 Sheets
Date: 01-29-2007	Disk: JMS 17686W		

EXHIBIT "G"

Pits North
V-Door East
D.H.



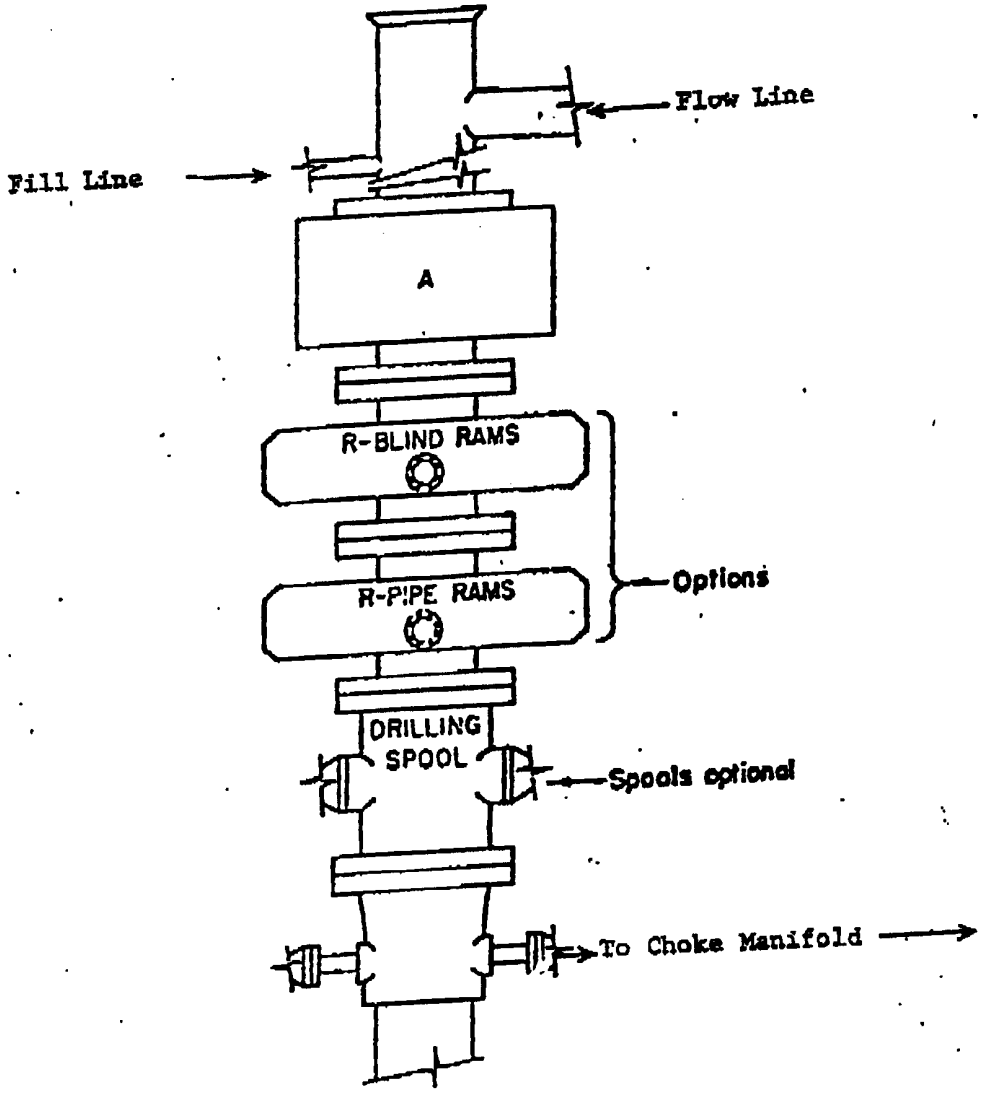


ARRANGEMENT SRRA

900 Series
3000 PSI WP

EXHIBIT H
BOP SKETCH

COG Operating LLC
BLUE THUNDER 5 FEDERAL COM #3
UNIT J, SECTION 5, T19S, R31E
Eddy Co., NM



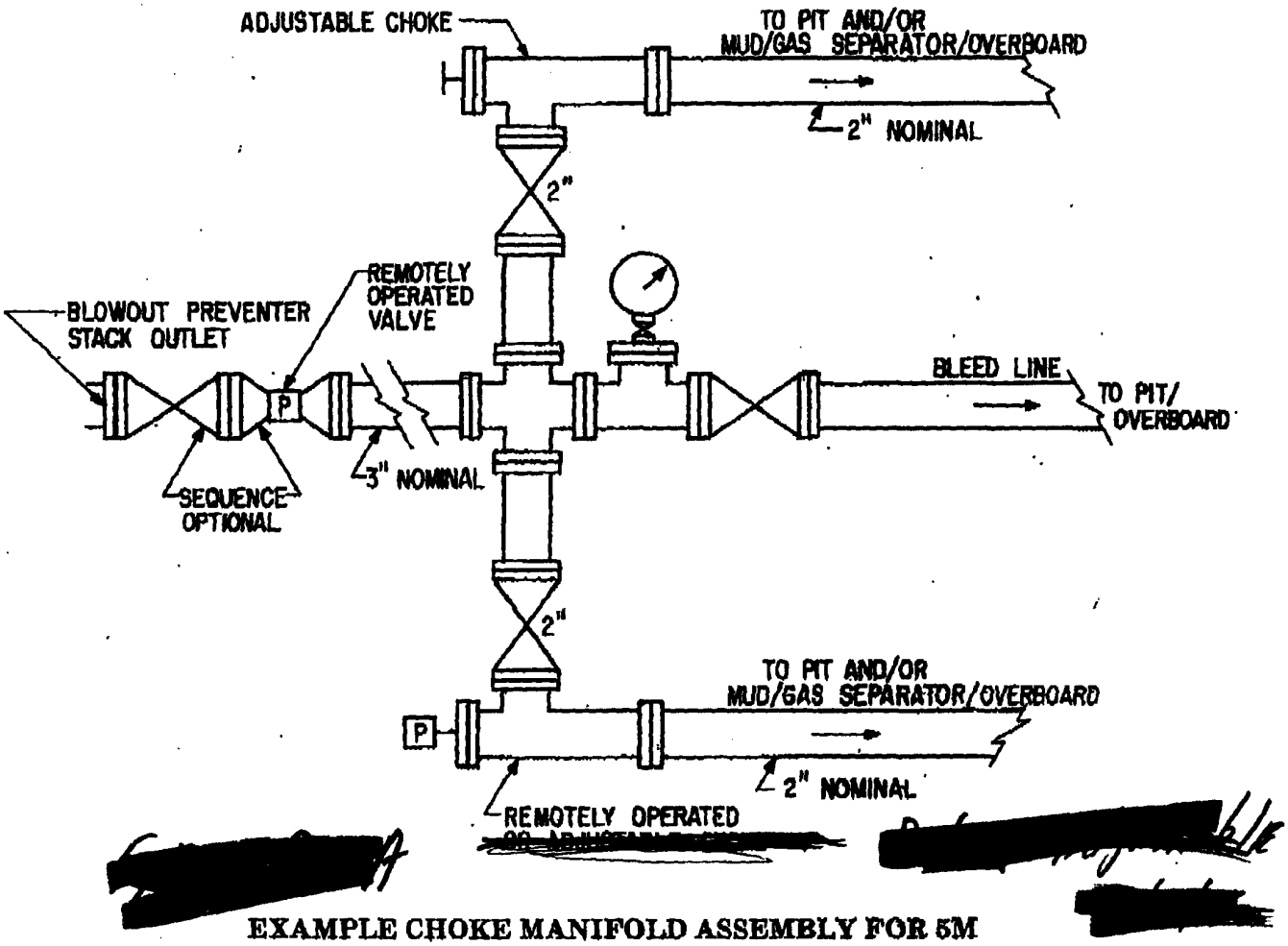
ARRANGEMENT SRRA

1500 Series

5000# Working Pressure

EXHIBIT H
BOP SKETCH

COG Operating LLC
BLUE THUNDER 5 FEDERAL COM #3
UNIT J, SECTION 5, T19S, R31E
Eddy Co., NM



EXAMPLE CHOKE MANIFOLD ASSEMBLY FOR 5M RATED WORKING PRESSURE SERVICE — SURFACE INSTALLATION

EXHIBIT I
CHOKE MANIFOLD
5M SERVICE
SKETCH

COG Operating LLC
BLUE THUNDER 5 FEDERAL COM #3
UNIT J, SECTION 5, T19S, R31E
Eddy Co., NM

COG OPERATING, LLC

HYDROGEN SULFIDE (H2S) CONTINGENCY PLAN
FOR DRILLING / COMPLETING / WORKOVER / FACILITY
WITH THE EXPECTATION OF H2S IN EXCESS OF 100 PPM

BLUE THUNDER 5 FEDERAL COM #3
NEW DRILL WELL
1800' FSL & 1980' FEL, UNIT J
SECTION 5, T19S, R31E
EDDY COUNTY, NEW MEXICO

This well / facility is not expected to have H2S, but the following is submitted as requested.

TABLE OF CONTENTS

GENERAL H2S EMERGENCY ACTIONS

In the event of any evidence of H2S emergency, the following plan will be initiated:

1. All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".

2. If for any reason a person must enter the hazardous area, they must wear a SCBA (self-contained breathing apparatus).

3. Always use the "buddy system".

4. Isolate the well / problem if possible.

5. Account for all personnel.

6. Display the proper colors warning all unsuspecting personnel of the danger at hand.

7. Contact the company representative 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 emergency response agencies and residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1. All personnel will don the self-contained breathing apparatus.

2. Remove all personnel to the "safe area: (always use the "buddy system").

3. Contact company representative if not on location.

4. Set in motion the steps to protect and / or remove the general public to any upwind "safe are". Maintain strict security and safety procedures while dealing with the source.

5. No entry to any unauthorized personnel.

6. Notify the appropriate agencies:
   City Police - City streets
   State Police - State Roads
   County Sheriff - County Roads

7. Call the NMOCD.

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 immediately notify public safety personnel.

EMERGENCY CALL LIST

	Office	Cell	Home
Greg Wilkes	432-683-7443	432-631-6795	432-697-9745
John Coffman	432-683-7443	432-631-9762	432-699-5552

EMERGENCY RESPONSE NUMBERS
Eddy County, New Mexico

State Police	**505-748-9718**
Eddy County Sheriff	**505-746-2701**
Emergency Medical Services (Ambulance)	**911 or 505-746-2701**
Eddy County Emergency Management (Harry Burgess)	**505-887-9511**
State Emergency Response Center (SERC)	**505-476-9620**
Carlsbad Police Department	**505-885-2111**
Carlsbad Fire Department	**505-885-3125**
New Mexico Oil Conservation Division	**505-748-1283**
Callaway Safety Equipment, Inc.	**505-392-2973**

PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppg H2S is present, the ROE calculations will be done to determine if the following is warranted:

* 100 ppm at any public area (any place not associated with this site)

* 500 ppm at any public road (any road which the general public may travel).

* 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE: (H2S concentrations in decimal form)

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

10,000 ppm + = .01
1,000 ppm + = .001
100 ppm + = .0001
10 ppm + = .00001

Calculation for the 500 ppm ROE:

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

EXAMPLE: If a well / facility has been determined to have 150 ppm H2S in the gas mixture and the well / facility is producing at a gas rate of 200 MCFD then:

ROE for 100 ppm X=[(1.589)(.00010)(200,000)] (0.6258)
X=8.8'
ROE for 500 ppm X=[(.4546)(.00050)(200,000)] (0.6258)
X=10.9'

These calculations will be forwarded to the appropriate NMOCD district office when applicable.

PUBLIC EVACUATION PLAN

When the supervisor has determined that the general public will be involved, the following plan will be implemented.

1. Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.

2. A trained person in H2S safety shall monitor with detection equipment the H2S concentration, wind and area of exposure. This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. All monitoring equipment shall be UL approved for use in Class I Groups A, B, C & D, Division I hazardous locations. All monitors will have a minimum capability of measuring H2S, oxygen, and flammable values.

3. Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.

4. The company representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the effected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

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

1. Human life and / or property are endangered.

2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

Instructions for Igniting the Well:

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.

2. One of the people will be a qualified safety person who will test the atmosphere for H2S, oxygen and LFL. The other person will be the company representative.

3. Ignite upwind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun with a range of approximately +/- 500 feet shall be used to ignite the gas.

4. Before igniting, check for the presence of combustible gases.

5. After igniting, continue emergency actions and procedures as before.

REQUIRED EMERGENCY EQUIPMENT

1. Breathing Apparatus

* Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.

* Work / Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.

* Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

2. Signage and Flagging

* One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.

* A Colored Condition flag will be on display reflecting the condition at the site at that time.

3. Briefing Area

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

4. Windsocks

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

5. H2S Detectors and Alarms

* The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible alarm @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The three 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 is being discharged

6. Auxiliary Rescue Equipment

* Stretcher
* Two OSHA full body harnesses
* 100' of 5/8" OSHA approved rope
* One 20 lb. Class ABC fire extinguisher
* Communication via cell phones on location and vehicles on location

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)

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

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

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

3. Facial hair and standard eyeglasses are not allowed with SCBA.

4. Contact lenses are never allowed with SCBA.

5. When breaking out any line where H2S can reasonably be expected.

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

7. All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF H2S POISONING

* Do not panic.

* Remain calm and think.

* Get on the breathing apparatus.

* Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind to achieve upwind.

* Notify emergency response personnel.

* Provide artificial respiration and / or CPR as necessary.

* Remove all contaminated clothing to avoid further exposure.

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

Toxic Effects of H2S Poisoning

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 is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic that Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table 1. toxicity table for H2S and physical effects are shown in Table II.

Table 1
Permissible Exposure Limits of Various Gasses

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	C	
Hydrogen Sulfide	H2S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	SO2	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	CO	.97	25 ppm	200 ppm	
Carbon Dioxide	CO2	1.52	5000 ppm	30,000 ppm	
Methane	CH4	.55	4.7% LEL	14% UEL	

Definitions

A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.

B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H2S is 19 PPM.

C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H2S is 100 PPM.

D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.

TABLE II
Toxicity Table of H2S

Percent %	PPM	Physical Effects
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure
.0015	15	STEL for 15 minutes of exposure
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes.
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H2S

The properties of all gasses are usually described in the context of seven major categories:

COLOR
ODOR
VAPOR DENSITY
EXPLOSIVE LIMITS
FLAMMABILITY
SOLUBILITY (IN WATER)
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

COLOR – TRANSPARENT

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence, a fact that makes the gas extremely dangerous to be around.

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, H2S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H2S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%

Mixed with the right proportion of air or oxygen, H2S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

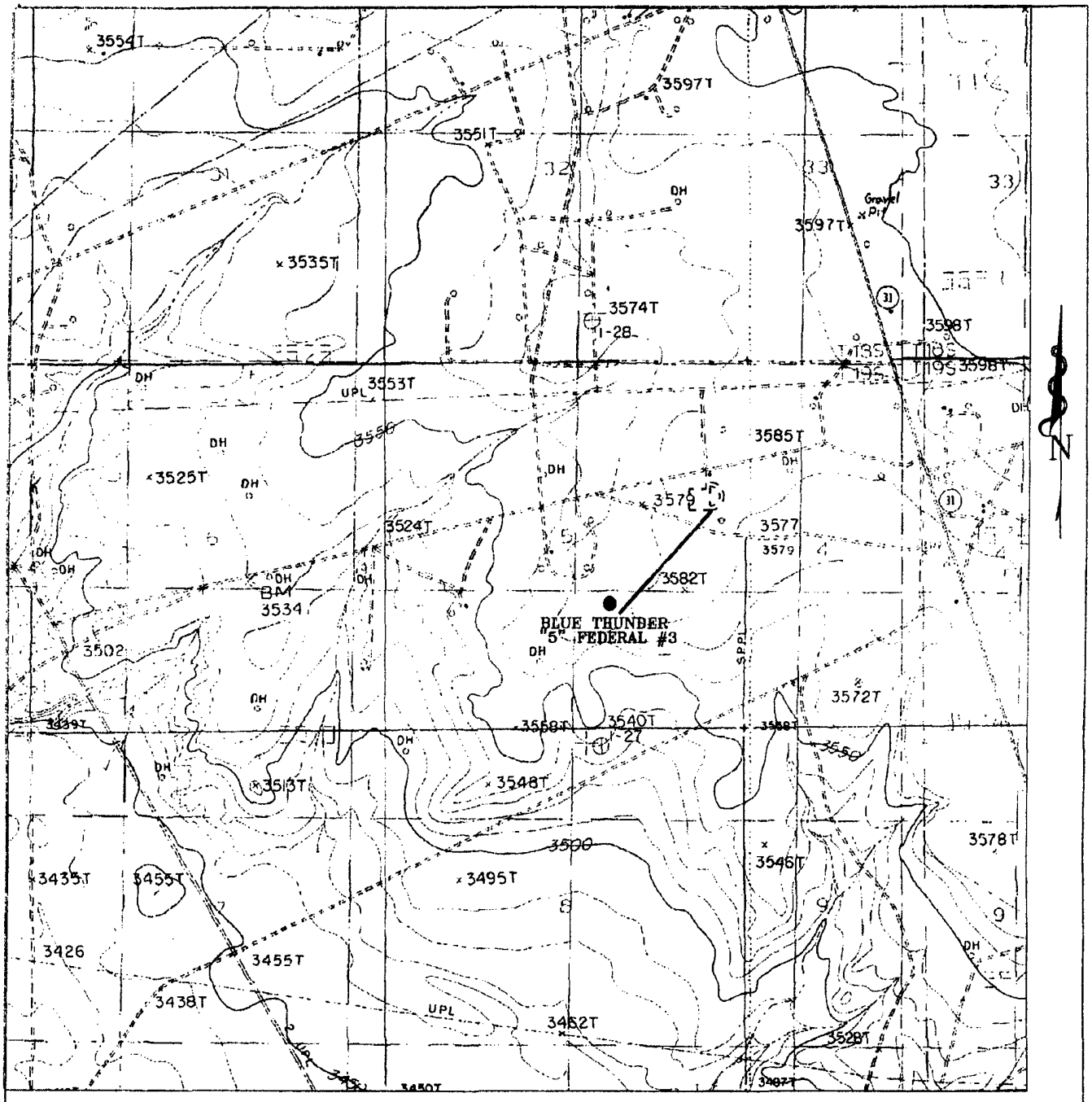
Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO2), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H2S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H2S may release the gas into the air.

BOILING POINT – (-76 degrees Fahrenheit)

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

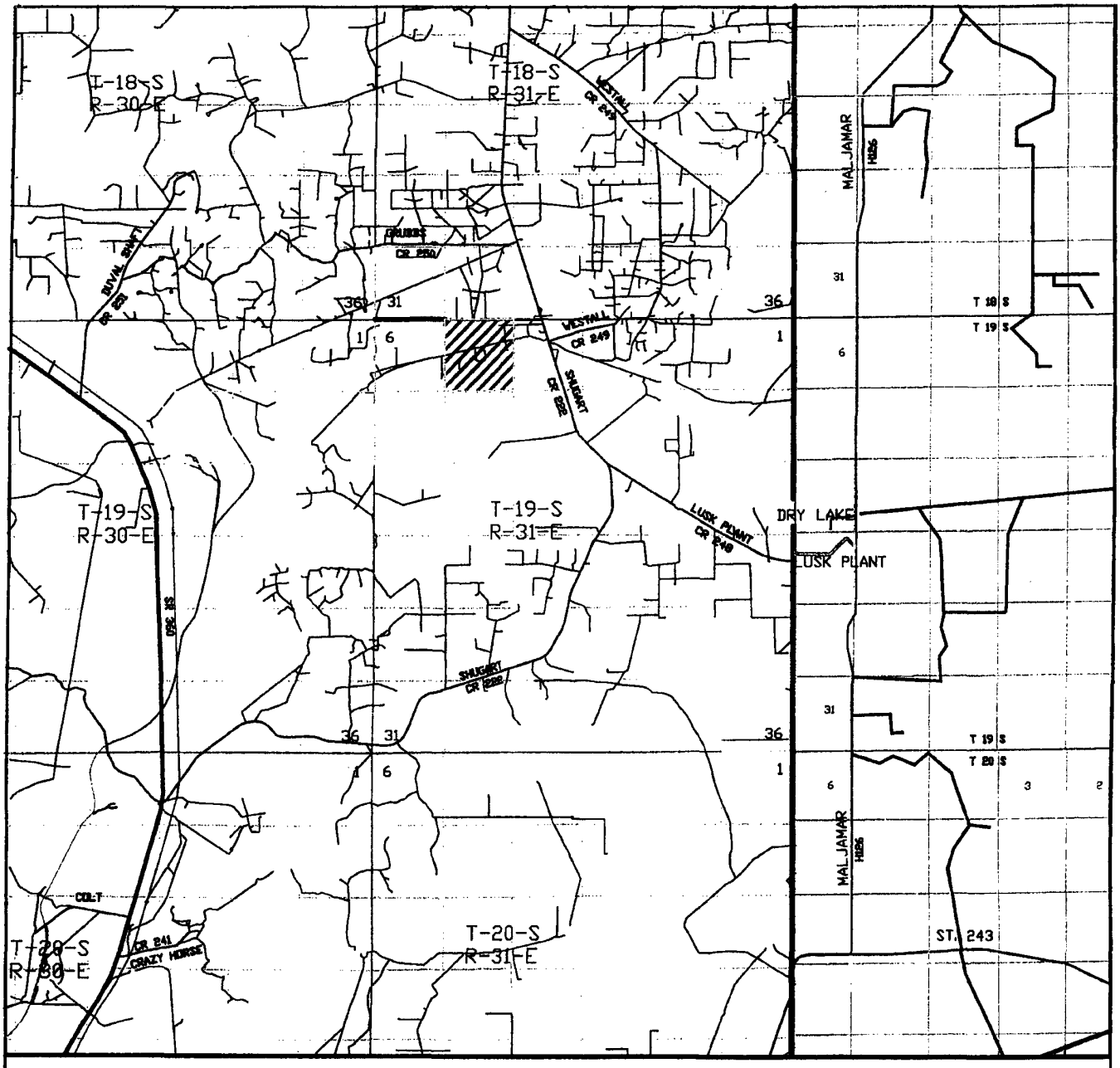


THE BLUE THUNDER "5" FEDERAL #3
Located at 1800' FSL and 1980 FEL
Section 5, Township 19 South, Range 31 East,
N.M.P.M., Eddy County, New Mexico.

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 17686T
Survey Date:	01-26-2007
Scale:	1" = 2000'
Date:	01-29-2007

C.O.G. OPERATING L.L.C.



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W.O. Number:	JMS 17686T
Survey Date:	01-26-2007
Scale:	1" = 2 MILES
Date:	01-29-2007

C.O.G. OPERATING L.L.C.

CONDITIONS OF APPROVAL - DRILLING

Operator's Name: COG Operating LLC
Well Name & No. Blue Thunder 5 Federal Com # 3
Location: 1800'FSL, 1980'FEL, SEC5, T19S, R31E, Eddy County, NM
Lease: LC-069033

I. DRILLING OPERATIONS REQUIREMENTS:

A. The Bureau of Land Management (BLM) is to be notified a minimum of 4 hours in advance, at the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822 - for wells in Eddy County; and the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (505) 393-3612 for wells in Lea County, in sufficient time for a representative to witness:

1. Spudding
2. Cementing casing: 13.375 inch 8.625 inch 5.5 inch
3. BOP tests

B. A Hydrogen Sulfide (H2S) Drilling Plan is N/A.

C. 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.

D. Gamma-Ray/Neutron logs shall be run from the base of the Salado Formation to the surface; cable speed not to exceed 30 feet per minute. (R-111-P area only)

E. If floor controls are required, (3M or Greater) 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.

II. CASING:

A. The 13.375 inch surface casing shall be set **above the salt, at least 25 feet into the Rustler Anhydrite @ approximately 600 feet** and cement circulated to the surface.

1. 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.
2. Wait on Cement (WOC) time for a primary cement job will be a minimum of 12 hours for a non-water basin, 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compression strength, which ever is greater. (This is to include the lead cement)
3. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds of compression strength, which ever is greater.
4. If cement falls back, Remedial cementing shall be completed prior to drilling out that string.

B. The minimum required fill of cement behind the 8.625 inch intermediate casing is **circulate cement to the surface.** If cement does not circulate see A.1 thru 4.

C. The minimum required fill of cement behind the 5.5 inch production casing is **cement shall extend upward a minimum of 200 feet above the base of the intermediate casing string.**

D. 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.

III. PRESSURE CONTROL:

A. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2.

B. Minimum working pressure of the blowout preventer and related equipment (BOPE) required for drilling the intermediate casing well bore shall be 2000 psi. Minimum working pressure of the blowout preventer and related equipment (BOPE) required for drilling below the **8.625** inch casing shall be **5000** psi.

C. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

1. The tests shall be done by an independent service company.
2. The results of the test shall be reported to the appropriate BLM office.
3. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of the independent service company test will be submitted to the appropriate BLM office.
4. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi in accordance with API RP 53. The test will be held for a minimum of 10 minutes if the test is done with a test plug and 30 minutes without a test plug.
5. BOP/BOPE must be tested by an independent service within 500 feet of the top of the **Wolfcamp** Formation. This test does not exclude the test prior to drilling out the casing shoe as per onshore order No. 2.
6. A variance to test the surface casing and BOP?BOPE to the reduced pressure of **70% of internal yield pressure of casing – approximately 1200** psi with the rig pumps is approved.
7. One of the 5M manifold chokes must be remotely operable and can not be replaced by an adjustable choke.

IV. DRILLING MUD:

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** Formation, and shall be used until production casing is run and cemented. Monitoring equipment shall consist of the following:

1. Recording pit level indicator to indicate volume gains and losses.
2. Mud measuring device for accurately determining the mud volumes necessary to fill the hole during trips.
3. Flow-sensor on the flow line to warn of abnormal mud returns from the well.

V. Hazards:

1. Our Geologist has indicated that there is potential for lost circulation in the Artesia group and the Capitan Reef, as well as for Karst type features.
2. Our Geologist has indicated that there is potential for abnormal pressures in the Wolfcamp, Strawn, Atoka and Morrow.

Engineering may be contacted at 505-706-2779 for variances if necessary.

FWright 2/27/07