

1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

Energy Minerals and Natural Resources

Form C-101
Revised March 17, 1999

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Submit to appropriate District Office
RECEIVED
State Lease - 6 Copies
Fee Lease - 5 Copies

MAR 11 2004

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, ~~PLUG BACK~~ ^{OCD-ARTESIA} OR ADD A ZONE

Operator Name and Address POGO PRODUCING COMPANY P.O. BOX 10340 MIDLAND, TEXAS 79702-7340		GRID Number 17891 API Number 30-013-33349
Property Code 26857	Property Name STATE "W"	Well No. 7

⁷ 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	3	23S	26E		780'	SOUTH	2310'	WEST	EDDY

⁸ Proposed 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
⁹ Proposed Pool 1 CARLSBAD MORROW SOUTH (73960)					¹⁰ Proposed Pool 2				

¹¹ Work Type Code N	¹² Well Type Code G	¹³ Cable/Rotary ROTARY	¹⁴ Lease Type Code S	¹⁵ Ground Level Elevation 3305'
¹⁶ Multiple NO	¹⁷ Proposed Depth 12,100'	¹⁸ Formation MORROW	¹⁹ Contractor UNKNOWN	²⁰ Spud Date WHEN APPROVED

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
25"	20"	CONDUCTOR	40'	Redi-mix	Surface
17½"	13 3/8"	48	500' to 650'	750 Sx.	Surface
12½"	9 5/8"	40.5	2500'	1200 Sx.	Surface
8½"	7"	26	9750'	1000 Sx	Est 2000' FS
6 1/8"	5"	18	12100-9550'	350 Sx.	Top of liner

²² Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone.
Describe the blowout prevention program, if any. Use additional sheets if necessary.

1. Drill 25" hole to 40'. Set 40' of 20" conductor and cement to surface with Redi-mix.
2. Drill 17½" hole to 500'. Run and set 500' of 13 3/8" 48# H-40 ST&C casing. Cement with 750 Sx. of Class "C" cement + ¼# Flocele/Sx. + 2% CaCl, circulate cement to surface.
3. Drill 12½" hole to 2500'. Run and set 2500' of 9 5/8" 40.5# J-55 ST&C casing. Cement with 1200 Sx. of Class "C" cement + 2% CaCl, + ¼# Flocele/Sx. circulate cement to surface.
4. Drill 8½" hole to 9750'. Run and set 9750' of 7" 26# N-80 LT&C casing. Cement with 1000 Sx. of Class "H" cement + additives, estimate top of cement 2000' from surface.
5. Drill 6 1/8" hole to 12,100'. Run and set a 2550' 5" 18# N-80 LT&C liner from 12,100' back to 9550'. Cement with 350 Sx. of Class "H" Premium Plus cement + additives, top of cement top of liner.

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature:

Printed name: Joe T. Janica

Title: Agent

Date: 03/10/04

Phone: 505-391-8503

OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date: MAR 30 2004 Expiration Date: MAR 30 2005

Conditions of Approval:

Attached ☐

P.O. Box 1980, Hobbs, NM 88241-1980

Energy, Minerals and Natural Resources Department

Revised February 10, 1994

State Lease - 4 Copies

Fee Lease - 3 Copies

P.O. Drawer DD, Artesia, NM 88211-0719

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

1000 Rio Brazos Rd., Aztec, NM 87410

P.O. BOX 2088, SANTA FE, N.M. 87504-2088

☐ AMENDED REPORT

API Number		Pool Code	Pool Name
		73960	CARLSBAD MORROW SOUTH
Property Code	Property Name		Well Number
26857	STATE "W"		7
OGRID No.	Operator Name		Elevation
17891	POGO PRODUCING COMPANY		3305'

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	3	23-S	26-E		780	SOUTH	2310	WEST	EDDY

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

LOT 4	LOT 3	LOT 2	LOT 1
<div style="position: relative; width: 100%; height: 100%;"> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); text-align: center;"> <p><u>GEODETIC COORDINATES</u></p> <p>NAD 27 NME</p> <p>Y = 483230.9 N</p> <p>X = 515946.0 E</p> <p>LAT. 32°19'42.63"N</p> <p>LONG. 104°16'54.15"W</p> </div> </div>			
<div style="position: relative; width: 100%; height: 100%;"> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); text-align: center;"> <p>2310'</p> <p>780'</p> </div> </div>			

OPERATOR CERTIFICATION

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.

Joer T. Janica

Signature _____

Joer T. Janica

Printed Name _____

Agent

Title _____

03/10/04

Date _____

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

March 08, 2004

Date Surveyed _____ A.W.B.

Signature & Seal of _____

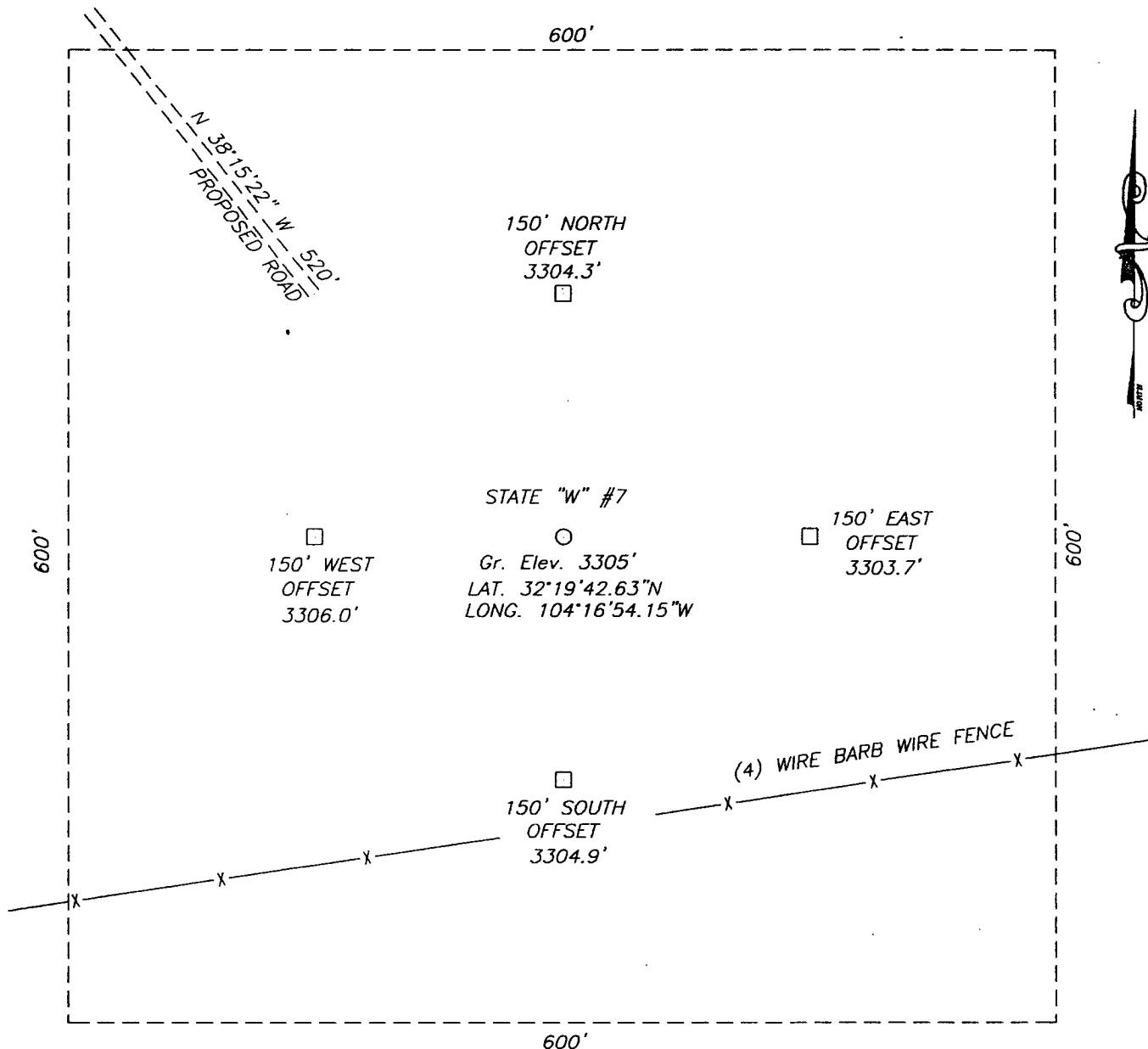
Professional Surveyor

GARY H. EIDSON 3/9/04

04.11.0277

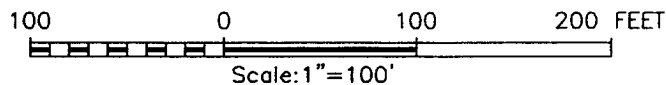
Certificate No. GARY EIDSON 12641

SECTION 3, TOWNSHIP 23 SOUTH, RANGE 26 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DRIVING DIRECTIONS

FROM THE INTERSECTION OF U.S. HWY 62-180 AND EDDY COUNTY ROAD #765 (GILLOCK RD.) GO NORTHWEST ON GILLOCK RD. FOR 1.5 MILES, TURN RIGHT BEFORE RANCH HOUSE NORTHEAST AND FOLLOW GOOD CALICHE ROAD FOR 0.7 MILES. TURN LEFT AT TEE WEST-SOUTHWEST AND GO 0.55 MILES TO PROPOSED ROAD SURVEY. FOLLOW PROPOSED ROAD SURVEY TO THIS LOCATION IS APPROX. 500' SOUTHEAST.



POGO PRODUCING COMPANY

STATE "W" #7 LOCATED 780' FROM THE SOUTH LINE AND 2310' FROM THE WEST LINE OF SECTION 3, TOWNSHIP 23 SOUTH, RANGE 26 EAST, EDDY COUNTY, NEW MEXICO

Survey Date: 03/08/04	Sheet 1 of 1 Sheets
W.O. Number: 04.11.0277	DRAWN BY: A.W.B
Date: 03/09/04	DISK: CD#10
04.11.0277	Scale: 1"=100'

JOHN WEST SURVEYING COMPANY
412 N. DAL PASO - HOBBS, NEW MEXICO - 505-393-3117



CONTOUR INTERVAL: 20'
KITCHEN COVE, N.M.
SUP. 10'

KITCHEN COVE, N.M.
SUP. 10'

SUP. 10'

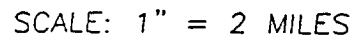
JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117

JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117

HOBBS, NEW MEXICO

(505) 393-3117

U.S.G.S. TOPOGRAPHIC MAP
KITCHEN COVE, N.M.

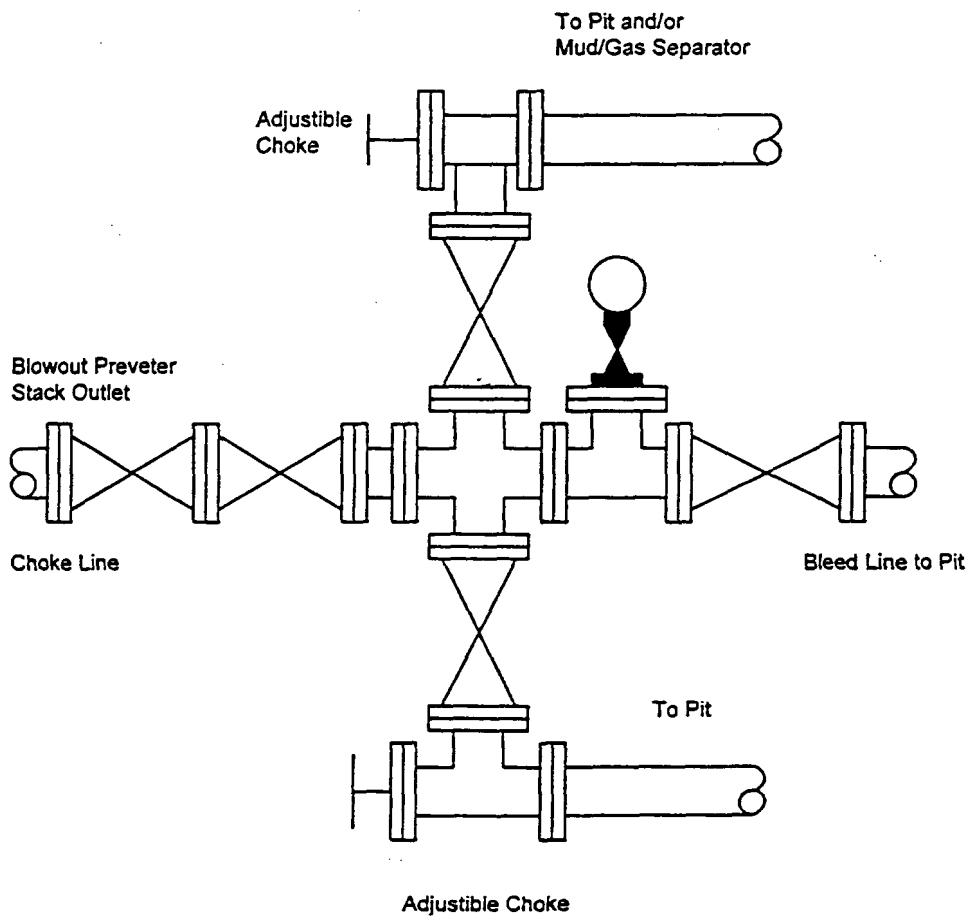


JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117

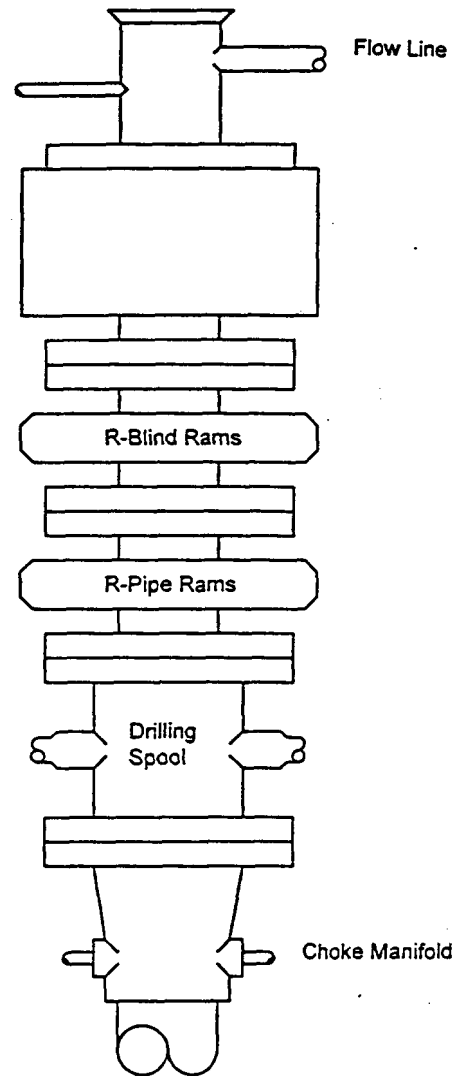
BLOWOUT PREVENTER SYSTEM

5000 PSI

Choke Manifold Assembly for 5M WP System



Fill Line



TYPE 1500 SERIES
5000 psi WP

March 24, 2004

**Pogo Producing Company
c/o James Bruce
P. O. Box 1056
Santa Fe, New Mexico 87504**

Administrative Order NSL-5023

Dear Mr. Bruce:

Reference is made to the following: (i) your application (***administrative application reference No. pMES0-408462921***) dated March 22, 2004 on behalf of the operator Pogo Producing Company ("Pogo"); and (ii) the records of the New Mexico Oil Conservation Division ("Division") in Santa Fe, including the files in Division Cases No. 11211 (which case resulted in the issuance of Division Order No. R-10328 on March 27, 1995), 12306 (which case resulted in the issuance of Division Order No. R-11315 on January 31, 2000), and 4694 (which case resulted in the issuance of Division Order No. R-1670-M on June 30, 1972, later overturned by a District Court decision): all concerning Pogo's request for an unorthodox gas well location in both the Strawn and Morrow formations for its proposed State "W" Well No. 7 to be drilled 780 feet from the South line and 2400 feet from the West line (Unit N) of Section 3, Township 23 South, Range 26 East, NMPM, Eddy County, New Mexico.

The S/2 of Section 3, being a standard 320-acre lay-down deep gas spacing unit pursuant to Division Rule 104.C (2) for either the Undesignated Frontier Hills-Strawn Gas Pool (**77190**) or Undesignated South Carlsbad-Strawn Gas Pool (**74120**), and the Undesignated South Carlsbad-Morrow Gas Pool (**73960**), is to be dedicated to this well.

Your application has been duly filed under the provisions of Division Rule 104.F.

It is the Division's understanding that this well is to be a replacement Morrow gas well within the existing 320-acre deep gas spacing unit in the South Carlsbad-Morrow Gas Pool comprising the S/2 of Section 3, which unit is currently dedicated to Pogo's State "W" Well No. 2 (**API No. 30-015-31432**), located at a standard Morrow gas well location 660 feet from the South and West lines (Unit M) of Section 3.

The geologic interpretation submitted indicates that a well drilled at this location will be at a more favorable geologic position within the Strawn formation underlying the subject 320-acre tract.

By the authority granted me under the provisions of Division Rule 104.F (2), the above-described unorthodox gas well location for Pogo's proposed State "W" Well No. 7 in both the Strawn and Morrow formations within the 320-acre deep gas spacing unit comprising the S/2 of Section 3 is hereby approved.

IT IS FURTHER ORDERED HOWEVER THAT, at the time the State "W" Well No. 7 is successfully completed within the South Carlsbad-Morrow Gas Pool; Pogo shall, in accordance with Division Rule 104.C (2) (b); permanently abandon the Morrow interval within its State "W" Well No. 2.

Jurisdiction of this cause is retained for the entry of such further orders as the Division deems necessary.

Sincerely,

Michael E. Stogner
Engineer/Hearing Officer

MES/ms

cc: New Mexico Oil Conservation Division – Artesia
New Mexico State Land Office – Santa Fe

POGO PRODUCING COMPANY
STATE "W" #7
UNIT "N" SECTION 3
T23S-R26E EDDY CO. NM

MUD PROGRAM

40'-500' Fresh water spud mud.

500-2500' Fresh water Gel using paper to control seepage and high viscosity sweeps to clean hole. *Drilling intermediate hole in Salado. Oper. choice to drill w/ Fresh water B67 3/30/04*

2500-12100' Fresh water Gel using high viscosity sweeps to clean hole. Using a polymer based system while drilling through the pay sections reducing water loss to limit damage to the formations.

**Pogo Producing Company
STATE "W" # 7**

**Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility**

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

This well and its anticipated facility are not expected to have Hydrogen Sulfide releases. However, there is known Hydrogen Sulfide production in the nearby area. Due to the subject well's proximity to Carlsbad, New Mexico and the Carlsbad Municipal Airport the following contingency plan has been orchestrated. Pogo Producing Company will have a Company Representative living on location through out the drilling of this well. An unmanned Safety trailer and monitoring equipment will also be station on location during the drilling operation below the shallow Intermediate Casing depth of ± 2500 ft. until the completion of the subject well at $\pm 12,000$ ft.

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

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Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

General H2S Emergency Actions:

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

At this point the company representative will evaluate the situation and 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 an upwind "safe area". Maintain strict security & safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies: City Police-City Street (s)
State Police- State Rd
County Sheriff – County Rd.
7. Call the NMOCD

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

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 have been contacted)

	<u>OFFICE</u>	<u>MOBILE</u>	<u>HOME</u>
POGO Producing Co.	432 685 8100		
Richard Wright	432 685 8140	432 556 7595	432 699 7108
Barrett Smith	432 685 8141	432 425 0149	432 520 7337
Rex Jasper	432 685 8143	432 631 0127	432 694 1839
Donny Davis	pgr 432 583 8944	432 556 5927	432 570 9555
Jerry Cooper	432 685 8101		432 697 4629

EMERGENCY RESPONSE NUMBERS:

State Police:	Eddy County		505 748 9718
State Police:	Lea County		505 392 5588
Sheriff	Eddy County		505 746 2701
Sheriff	Lea County		
Emergency Medical Ser	Eddy County		911 or 505 746 2701
(Ambulance)	Lea County	Eunice	911 or 505 394 3258
Emergency Response	Eddy County SERC		505 476 9620
	Lea County		
Artesia Police Dept			505 746 5001

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

Artesia Fire Dept		505 746 5001
Carlsbad Police Dept		505 885 2111
Carlsbad Fire Dept		505 885 3125
Loco Hills Police Dept		505 677 2349
Jal Police Dept		505 395 2501
Jal Fire Dept		505 395 2221
Jal ambulance		505 395 2221
Eunice Police Dept		505 394 0112
Eunice Fire Dept		505 394 3258
Eunice Ambulance		505 394 3258
Hobbs Police Dept		
NMOCD	District 1 (Lea, Roosevelt, Curry)	505 393 6161
	District 2 (Eddy Chavez)	505 748 1283
Lea County Information		505 393 8203
Callaway Safety	Lea/Eddy County	505 392 2973
BJ Services	Artesia	505 746 3140
	Hobbs	505 392 5556
Halliburton	Artesia	1 800 523 2482
	Hobbs	1 800 523 2482
Wild Well Control	Midland	432 550 6202
	Mobile	432 553 1166

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R28E, EDDY COUNTY, NEW MEXICO

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 which 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"

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

CALCULATION FOR THE 500 PPM ROE:

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

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 $X = [(1.589) (.00015) (100,000 \text{ cfd})] \text{ to the power of } (.6258)$
 $X = 7 \text{ ft}$

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

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

PUBLIC EVACUATION PLAN:

- 1. 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

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO
groups A,B,C &D, Division 1, hazardous locations. All monitor will have a
minimum capability of measuring H₂S, oxygen, and flammable values).

- 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:

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

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

REQUIRED EMERGENCY EQUIPMENT:

- **1. Breathing apparatus:**
 - Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
 - Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
 - Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.
- **2. Signage & Flagging:**
 - One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - A colored condition flag will be on display, reflecting the condition at the site at the time.
- **3. Briefing Area:** two perpendicular areas will be designated by signs and readily accessible.
- **4. Wind Socks:** Two wind socks will be placed in strategic locations, visible from all angles.
- **5. H₂S detectors and 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 @ 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

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

- 1-20# class ABC fire extinguisher
- Communication via cell phones on location and vehicles on location.

USING SELF CONTAINED BREATHING AIR EQUIPMENT (SCBA):

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

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

- Do not panic
- Remain Calm & think
- Get on the breathing apparatus

Pogo Producing Company
STATE "W" # 7
Hydrogen Sulfide Contingency Plan
For Drilling/Workover/Facility

780 FSL & 2310 FWL, SEC 3, T23S, R26E, EDDY COUNTY, NEW MEXICO

- Remove the victim to the safe breathing area as quickly as possible. Up wind an 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 TOXIC EFFECTS

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

Various Gases

COMMON NAME	CHEMICAL ABBREV.	SPECIFIC GRVTY.	THRESHOLD LIMITS	HAZARDOUS LIMITS	LETHAL CONCENTRATIONS
Hydrogen Sulfide	H ₂ S	1.19	10ppm 15 ppm	100 ppm/hr	600 ppm
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Sulfur Dioxide	SO ₂	2.21	2 ppm	N/A	1000 ppm
Chlorine	CL ₂	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO ₂	1.52	5000 ppm	5%	10%
Methane	CH ₄	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

Lethal

Concentrations: Concentrations that will cause death with short term exposure

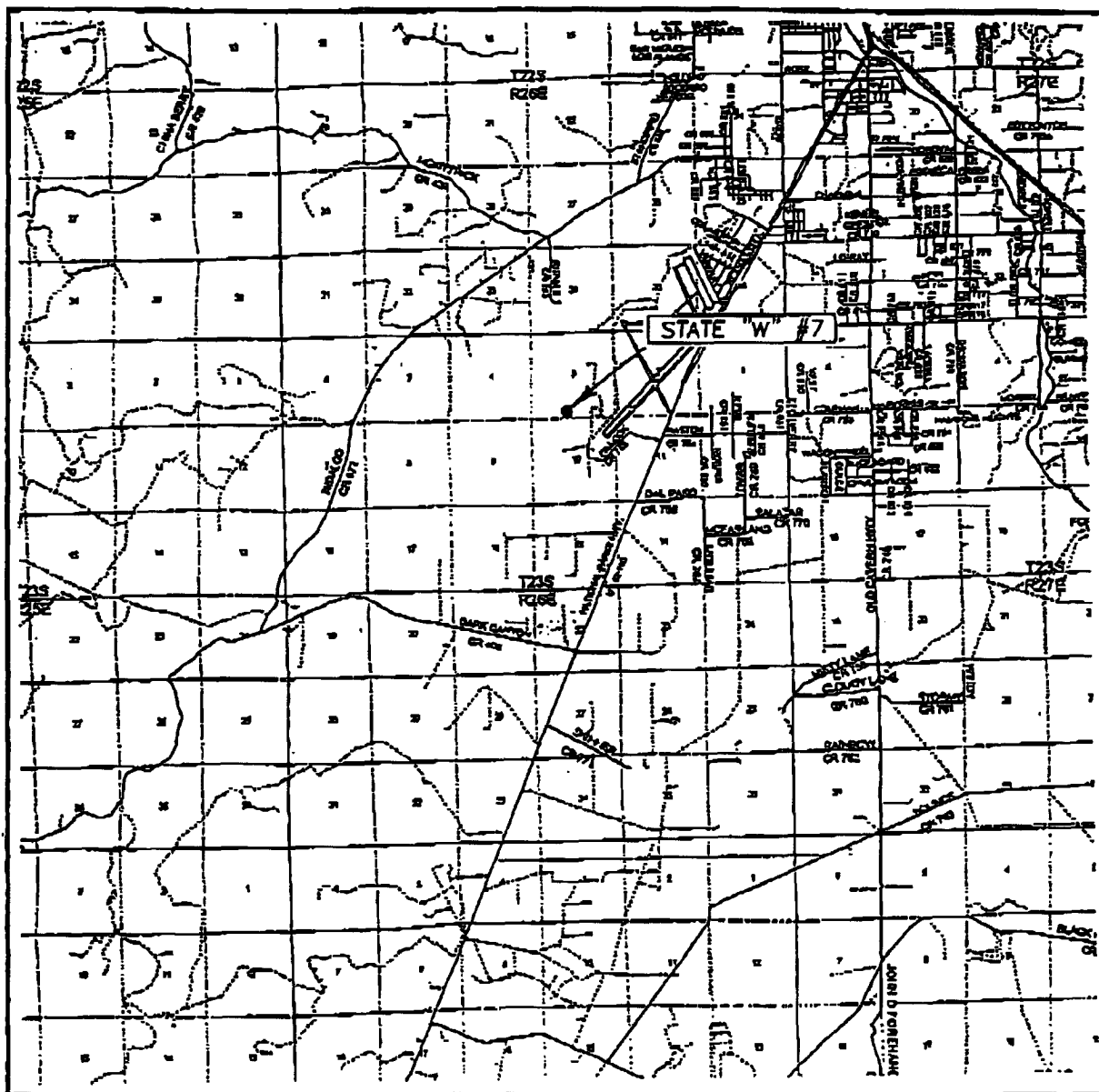
Threshold limit -

10 ppm: NIOSH guide to chemical hazards

PHYSICAL EFFECTS OF HYDROGEN SULFIDE:

CONCENTRATION	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 ppm	Kills the sense of smell rapidly. Severly irritates the eyes and throat. Severe flu like symptoms after 4 or more ours. May cause lung damage and or death.
.06% 600 ppm	Loss of consciousness quickly, death will result if not rescued promptly.

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 3 TWP. 23-S RGE. 26-ESURVEY N.M.P.M.COUNTY EDDYDESCRIPTION 780' FSL & 2310' FWLELEVATION 3305'OPERATOR POGO PRODUCING COMPANYLEASE STATE "W"

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