OCD-ARTESIA

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DEC 05 2012
NMOCD 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

5. Lease Serial No.: NM-100534

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

7. If Unit or CA Agreement, Name and No.: NMNM-119881X

1a. Type of Work: [X] DRILL [ ] REENTER

1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [X] Single Zone [ ] Multiple Zone

8. Lease Name and Well No.: Thurman Draw Unit #2

2. Name of Operator: Yates Petroleum Corporation 025575

9. API Well No.: 30-015-40873

3a. Address: 105 South Fourth Street, Artesia, NM 88210

3b. Phone No. *(include area code)*: 575-748-1471

10. Field and Pool, or Exploratory: Wildcat Wolfcamp

4. Location of well *(Report location clearly and In accordance with any State requirements.*)*
At surface: 330' FSL & 660' FEL, SESE, Sec 16-T26S-R23E
At proposed prod. zone: 660' FSL & 660' FEL, SESE, Sec 21-T26S-R23E

11. Sec., T., R., M., or Blk. And Survey or Area: Sec.16-T26S-R23E & Sec. 21-T26S-R23E

14. Distance in miles and direction from the nearest town or post office*: Approximately 20 miles south of Carlsbad, NM

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): 330

16. No. of acres in lease: 2540.38

17. Spacing Unit dedicated to this well: E2E2-Sec.21-26S-23E

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 4200'

19. Proposed Depth: Pilot Hole 7200', 6500' TVD, ~~12150'~~ 11,307' MD

20. BLM/ BIA Bond No. on file: NATIONWIDE BOND #NMB000434

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 4258 GL

22. Aproximate date work will start*: ASAP

23. Estimated duration: 60 Days

24. Attachments

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

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by 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	Printed Name	Date
	Travis Hahn	11/7/2011

Title: Land Regulatory Agent

Approved By *(Signature)*	Name *(Printed/ Typed)*	Date
		NOV 30 2012
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 cc 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 wilfully to make to any department or agency of the Unite States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

* *(Instructions on page 2)*

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos 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 and 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	Pool Code	Pool Name
30-015-40873	96794	Wildcat; Wolfcamp (OIL)

Property Code	Property Name	Well Number
36967	THURMAN DRAW UNIT	2H

OGRID No.	Operator Name	Elevation
025575	YATES PETROLEUM CORP.	4258'

Surface Location

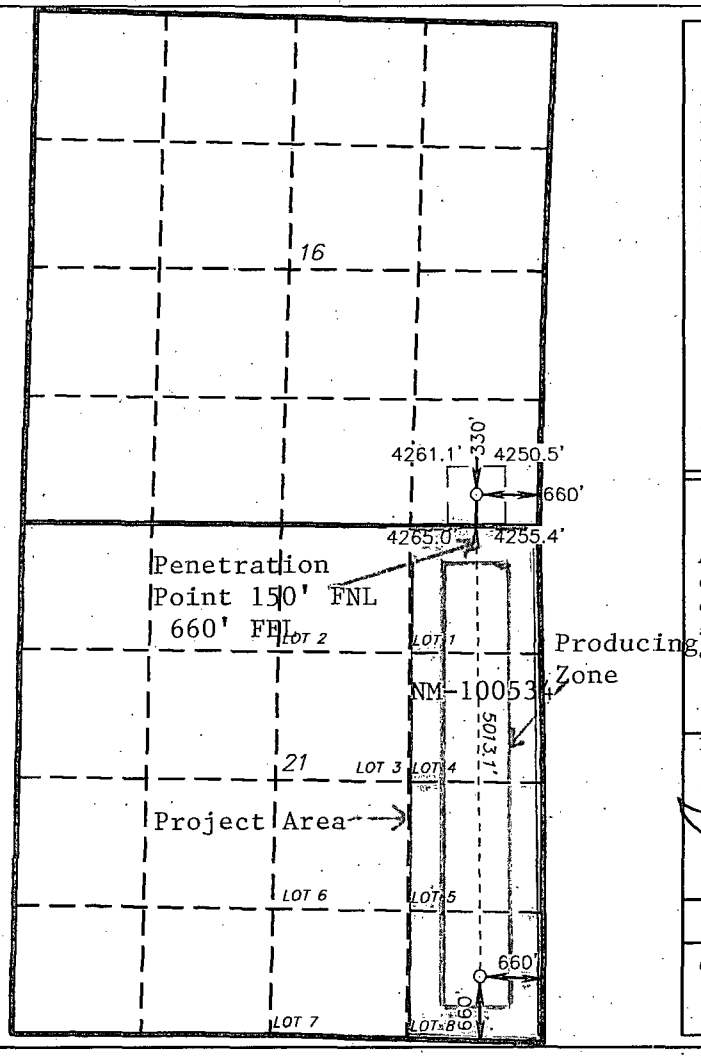
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	26 S	23 E		330	SOUTH	660	EAST	EDDY

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
LOT 8	21	26 S	23 E		660	SOUTH	660	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
170.20			

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



SURFACE LOCATION
Lat - N 32°01'58.12"
Long - W 104°36'03.27"
NMSPCE- N 375777.547
E 458422.050
(NAD-83)

PROPOSED BOTTOM HOLE LOCATION
Lat - N 32°01'08.52"
Long - W 104°36'02.50"
NMSPCE- N 370766.161
E 458475.711
(NAD-83)

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 a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 10/27/11 Date

Cy Cowan
Printed Name

cy@yatespetroleum.com
Email Address

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.

OCTOBER 24, 2011
Date Surveyed

Signature & Seal of Professional Surveyor

NEW MEXICO 7977 REGISTERED PROFESSIONAL SURVEYOR

NM Cert No. 25567

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 25567

CERTIFICATION
YATES PETROLEUM CORPORATION
Thurman Draw Unit #2H

I hereby certify that I or the company I represent, have inspected the drill site and access route proposed herein; that the company I represent is familiar with the conditions which currently exist; that 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 the company I represent is 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 28th day of October, 2011

Printed Name Cy Cowan

Signature

Position Title Land Regulatory Agent

Address 105 South Fourth Street, Artesia, NM 88210

Telephone 575-748-4372

E-mail (optional) cy@yatespetroleum.com

Field Representative (if not above signatory) Tim Bussell

Address (if different from above) Same

Telephone (if different from above) 575-748-4221

E-mail (optional)

CERTIFICATION
YATES PETROLEUM CORPORATION

Thurman Draw Unit #2H
330' FSL & 660' FEL, SHL, Sec. 16-26S-23E
660' FNL & 660' FEL, BHL, Sec. 21-26S-23E
Eddy County, New Mexico

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 the company I represent, is 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.

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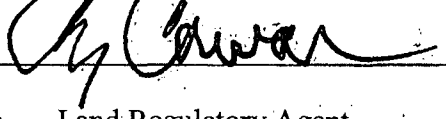
Signature 

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Telephone 575-748-4372

E-mail (optional) cy@ypcnm.com

Field Representative (if not above signatory) Tim Bussell

Address (if different from above) Same

Telephone (if different from above) 575-748-4221

YATES PETROLEUM CORPORATION
Thurman Draw Unit #2H
330' FSL and 660' FEL, Section 16-26S-23E, Surface Hole Location
660' FSL & 660' FEL, Section 21-26S-23E, Bottom Hole Location
Eddy County, New Mexico

1. The estimated tops of geologic markers are as follows:

	TVD		TVD	MD
Delaware	325'	2nd Bone Springs	4930'	
Bones Springs Lime	3425'	3rd Bone Springs	5770'	
Avalon Shale	3720'	KOP	6022'	
1st Bone Springs	4325'	Wolfcamp	6500'	11306' ✓
		Strawn	6860'	
		TD Pilot Hole	7200'	

2. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

Water: 160'
Oil and/or Gas: 4325', 4930', 5750' & 6500', 6860'.

3. * See COA Pressure Control Equipment: 5000 PSI BOPE with a 13.625" opening will be installed on the 13.3/8" casing and also on the 9 5/8" casing. Pressure tests to 5000 PSI and held for 30 minutes will be conducted before drilling out from under all casing strings, which are set and cemented in place. Blowout Preventer controls will be installed prior to drilling the surface plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order, and this inspection recorded on the daily drilling report. See Exhibit B.

4. Auxiliary Equipment: Kelly cock, pit level indicators, flow sensor equipment, and a sub with full opening valve to fit the drill pipe and collars will be available on the rig floor in the open position at all times for use when Kelly is not in use.

5. THE PROPOSED CASING AND CEMENTING PROGRAM:

changes per Operator Cy Cowan

A. Casing Program: All new casing to be used

Hole Size	Casing Size	Wt./Ft	Grade	Coupling	Interval	Length
17 1/2"	13 3/8"	48#	H-40	ST&C	0-500'	500'
12 1/4"	9 5/8"	36#	J-55	ST&C	0'-3480'	3480'
8 3/4"	5 1/2"	17#	L-80	LT&C	0'-11307'	11,307'

Minimum Casing Design Factors: Burst 1.0, Tensile Strength 1.8, Collapse 1.125

B. CEMENTING PROGRAM: * See COA

Surface casing: 525 sacks Class C + 2% CaCl2 (YLD 1.34 WT 12.50). Designed with 100% excess. TOC-Surface.

Intermediate Casing: Lead with 400 sacks C Lite + 2% CaCl2 (YLD 2.00 WT 12.50); tail in with 225 sacks Class C + 2% CaCl2 (YLD 1.34 WT. 14.80). Designed with 100% excess. TOC-Surface

Production Casing: Cement to be done in two stages with stage tool at approx. 5900'.

See COA

Stage 1 from 5900'-11,307'; Lead with 500 sacks 35:65;6PzC (YLD 2.08 WT 12.60); tail in with 800 sacks Pecos VlLt (YLD 1.83 WT. 13.00). 30%CaCO, 3.2% Expansion additive, 2% Antifoam, .8% Retarder, 15 Fluid loss. Designed with 35% excess. TOC-5900'

Stage 2 from 2980'-5900'; Lead with 350 sacks 35:65:6PzH (YLD 2.08 WT 12.60). Tail in 200 sacks Class C with 2% CaCl2 (YLD 1.35 Wt 14.80) TOC- 2980'. Designed with 35% excess.

See COA

6023

Pilot hole will be drilled with an 8 3/4" hole to 7200'. Well will be logged. A 200' isolation plug will be set on bottom with100 sacks Class H Neat (Yld .94 Wt 17.5) designed with 25% excess. Well will be plugged back to 5800'-6300' with 100 sacks class H (17.0 Oppg, Yld 1.0) with .7% Dispersant, .2% Defoamer, .2% Retarder & 6300-6800 with 250 sacks Class H (17.0 ppg, Yld 1.0) with .7% Dispersant, .2% Defoamer, .2% Retarder, and will be kicked off at 6022' and drill 12.0 degrees per 100' and landed at 6772' MD (6500' TVD) and drilled laterally to 11,307'. Penetration point of producing formation will be encountered at 150' FNL and 660' FEL in Section 21-26S-23E. Deepest TVD in the well will be in the pilot hole at 7200'. Deepest MD in the lateral will be 11,307' and TVD will be 6500'.

* Changes TMD per operator
Cy Cowan

6. MUD PROGRAM AND AUXILIARY EQUIPMENT:

Interval	Type	Weight	Viscosity	Fluid Loss
0-500'	Fresh Water Gel	8.60-9.20	32-34	N/C
500'-3460'	Cut Brine	9.80-10.10	28-28	N/C
3460'-7200'	Cut Brine(Pilot Hole)	8.50-8.80	28-28	N/C
6022'-11,307'	Cut Brine(Lateral Section)	8.50-8.90	28-32	<15

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blow out will be available at the well site during drilling operations. Rig personnel will check mud hourly.

7. EVALUATION PROGRAM: *See COA

Samples: Every 10' from intermediate casing to TD
Logging: Platform Express; CNL/LDT/NGT TD to intermediate casing, CNL/GR TD to surface, DLL-MSFL TD to surface casing, BHC-Sonic TD to surface casing, Horizontal-MWD-GR
Coring: None anticipated
DST's: None Anticipated
Mudlogging: Yes

8. ABNORMAL CONDITIONS, BOTTOM HOLE PRESSURE, AND POTENTIAL HAZARDS:

Maximum Anticipated BHP: *See COA

0'-500'	190 PSI
500'-3460'	1990 PSI
3460'-7200'	4100 PSI

See COA

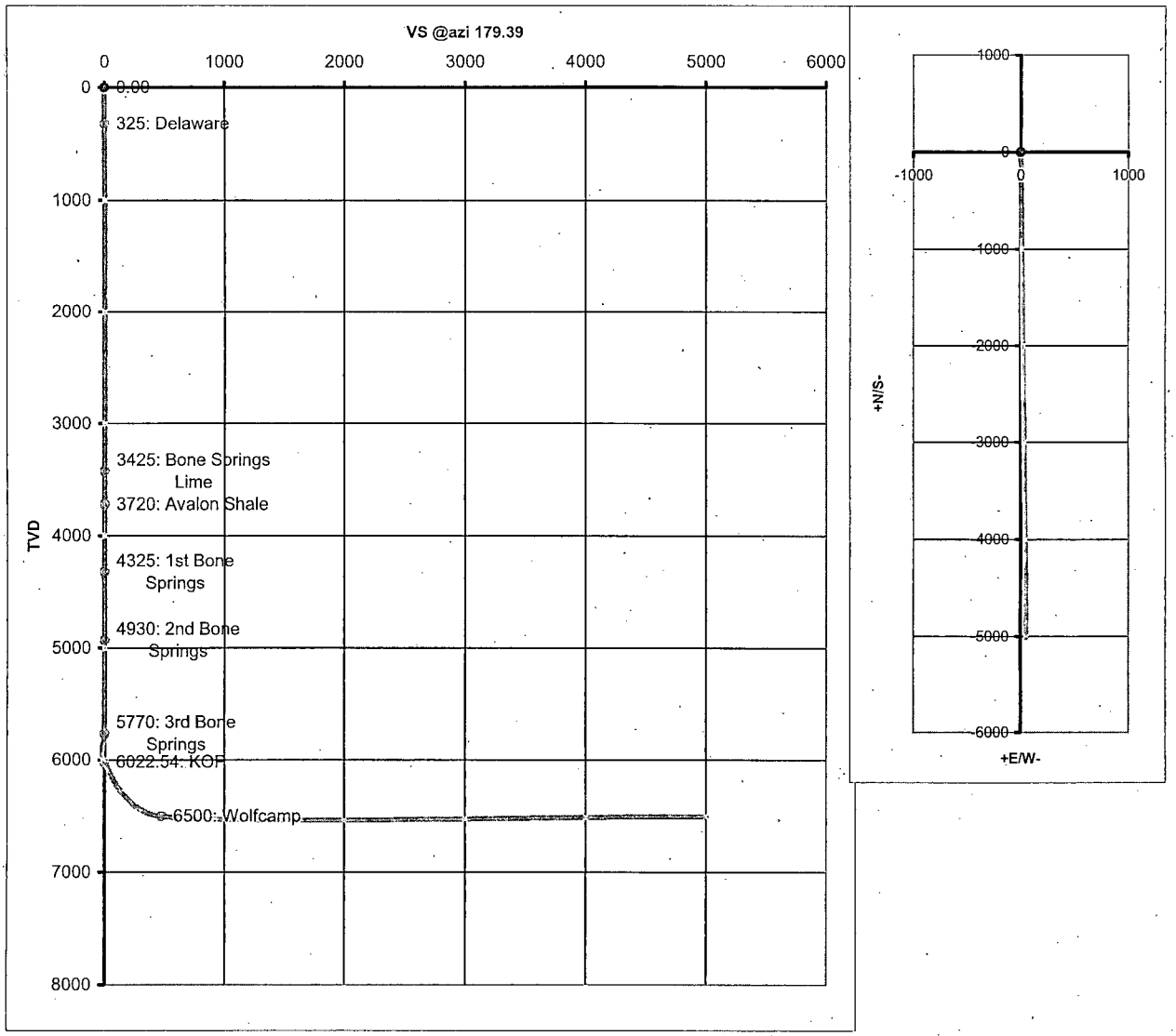
Abnormal Pressures Anticipated: None
Lost Circulation Zones Anticipated: None.
* H2S Zones Anticipated: May be present. - Closest offset Bone Spring 17,000 ppm H_2S
Maximum Bottom Hole Temperature: 150 F

9. ANTICIPATED STARTING DATE:

Plans are to drill this well as soon as possible after receiving approval. It should take approximately 60 days to drill the well with completion taking another 40 days.

Co: Yates Petroleum Corporation	**Units:** Feet, °, 100ft	**VS Az:** 179.39	**Tgt TVD:** 6500.00
Drillers: 0	**Elevation:**	**Tgt Radius:** 0.00	**Tgt MD:** 0.00
Well Name: Thurman Draw Unit # 2-H	**Northing:**	**Tgt N/S:** -5011.39	**Tgt Displ.:** 0.00
Location: 0	**Easting:**	**Tgt E/W:** 52.95	**Method:** Minimum Curvature

No.	MD	CL	Inc.	Azi.	TVD	VS	+N/S-	+E/W-	BR	WR	DLS	Comments
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1	325.00	325.00	0.00	0.00	325.00	0.00	0.00	0.00	0.00	0.00	0.00	Delaware
2	3425.00	3100.00	0.00	0.00	3425.00	0.00	0.00	0.00	0.00	0.00	0.00	Bone Springs Lime
3	3720.00	295.00	0.00	0.00	3720.00	0.00	0.00	0.00	0.00	0.00	0.00	Avalon Shale
4	4325.00	605.00	0.00	0.00	4325.00	0.00	0.00	0.00	0.00	0.00	0.00	1st Bone Springs
5	4930.00	605.00	0.00	0.00	4930.00	0.00	0.00	0.00	0.00	0.00	0.00	2nd Bone Springs
6	5770.00	840.00	0.00	0.00	5770.00	-0.01	0.01	0.00	0.00	0.00	0.00	3rd Bone Springs
7	6022.54	6022.54	0.00	179.39	6022.54	-0.01	0.01	0.00	0.00	2.98	0.00	KOP
8	6772.53	750.00	90.00	179.39	6500.00	477.46	-477.43	5.04	12.00	0.00	12.00	Wolfcamp
9	11306.74	4534.21	90.00	179.39	6500.01	5011.66	-5011.39	52.95	0.00	0.00	0.00	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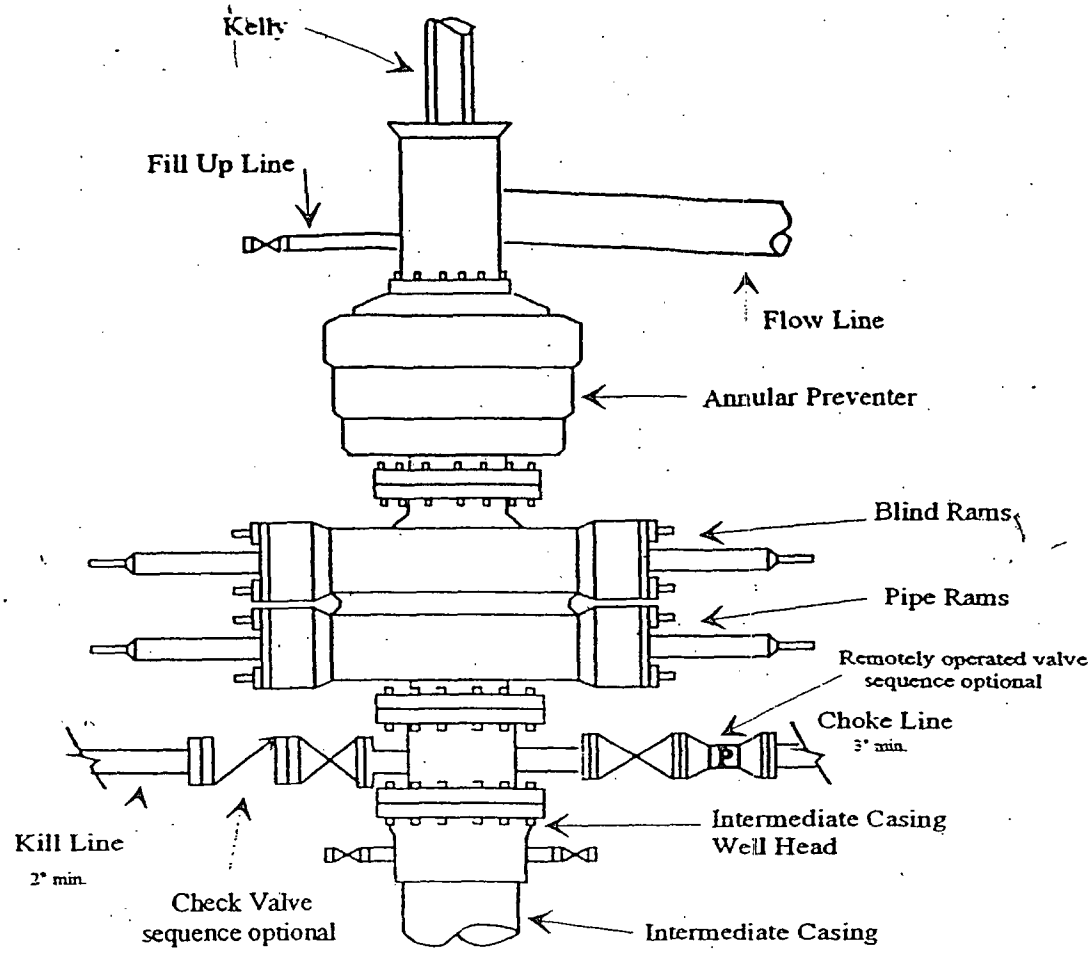
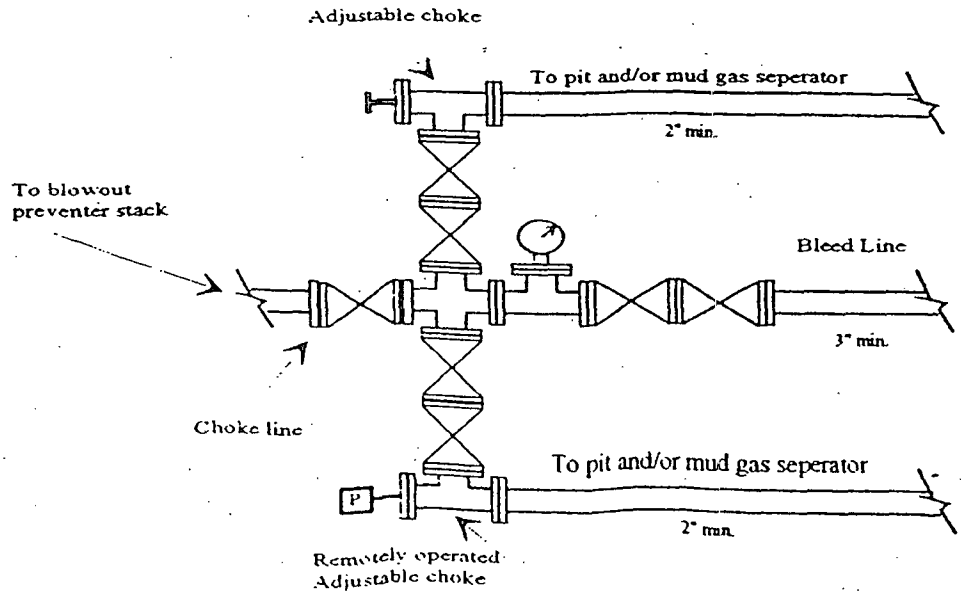
1000
2000
3000
4000
5000
6000
TVD
0.00
325: Delaware
3425: Bone Springs Lime
3720: Avalon Shale
4325: 1st Bone Springs
4930: 2nd Bone Springs
5770: 3rd Bone Springs
6022.54: KOP
6500: Wolfcamp
7000
8000
+N/S-
-1000
1000
+E/W-

Yates Petroleum Corporation

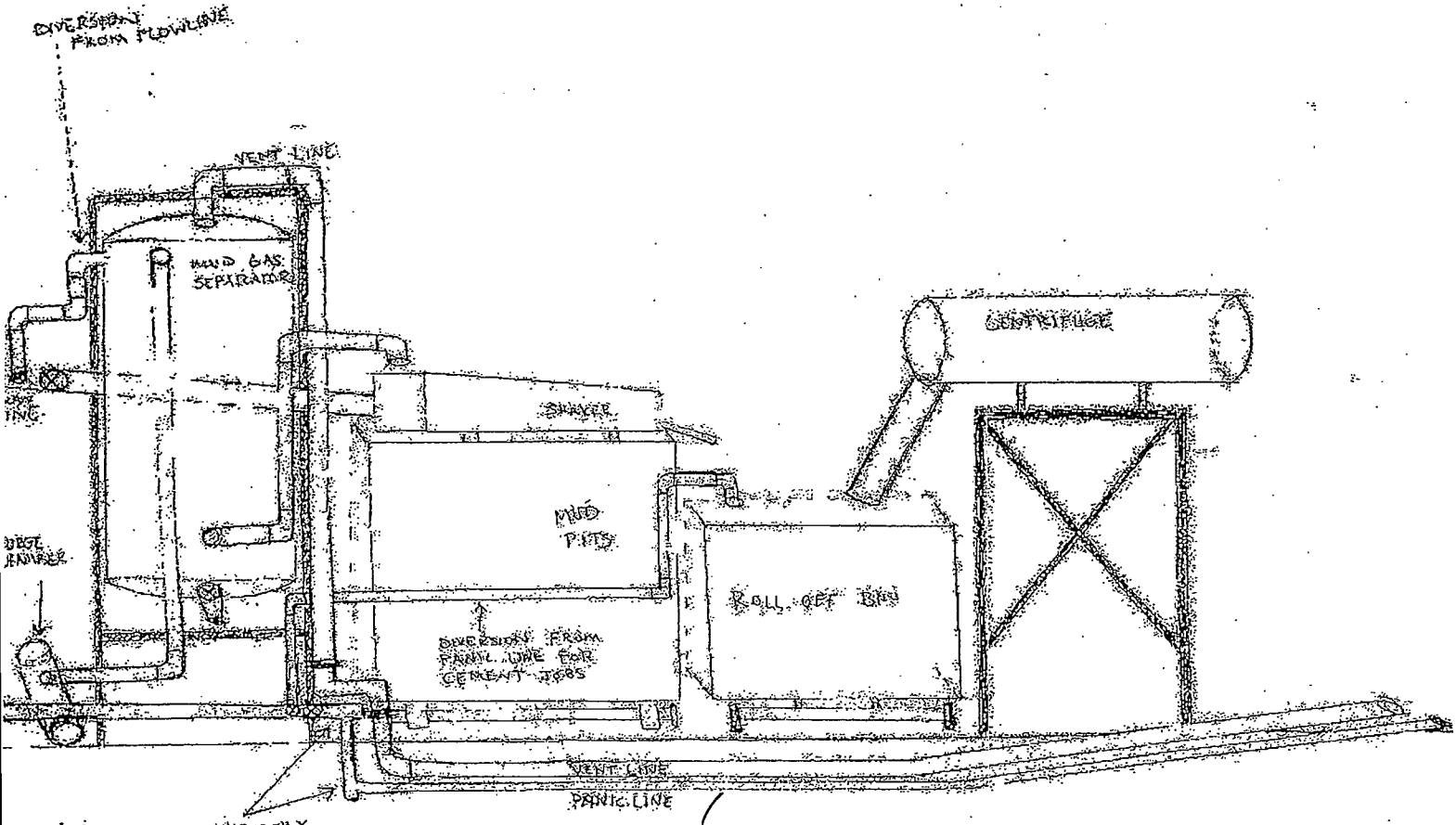
Typical 5,000 psi Pressure System
Schematic
Annular with Double Ram Preventer Stack



Typical 5,000 psi choke manifold assembly with at least these minimun features



YATES PETROLEUM CORPORATION
Piping from Choke Manifold
to the Closed-Loop Drilling Mud System



Yates Petroleum Corporation
Closed Loop System

Equipment Design Plan

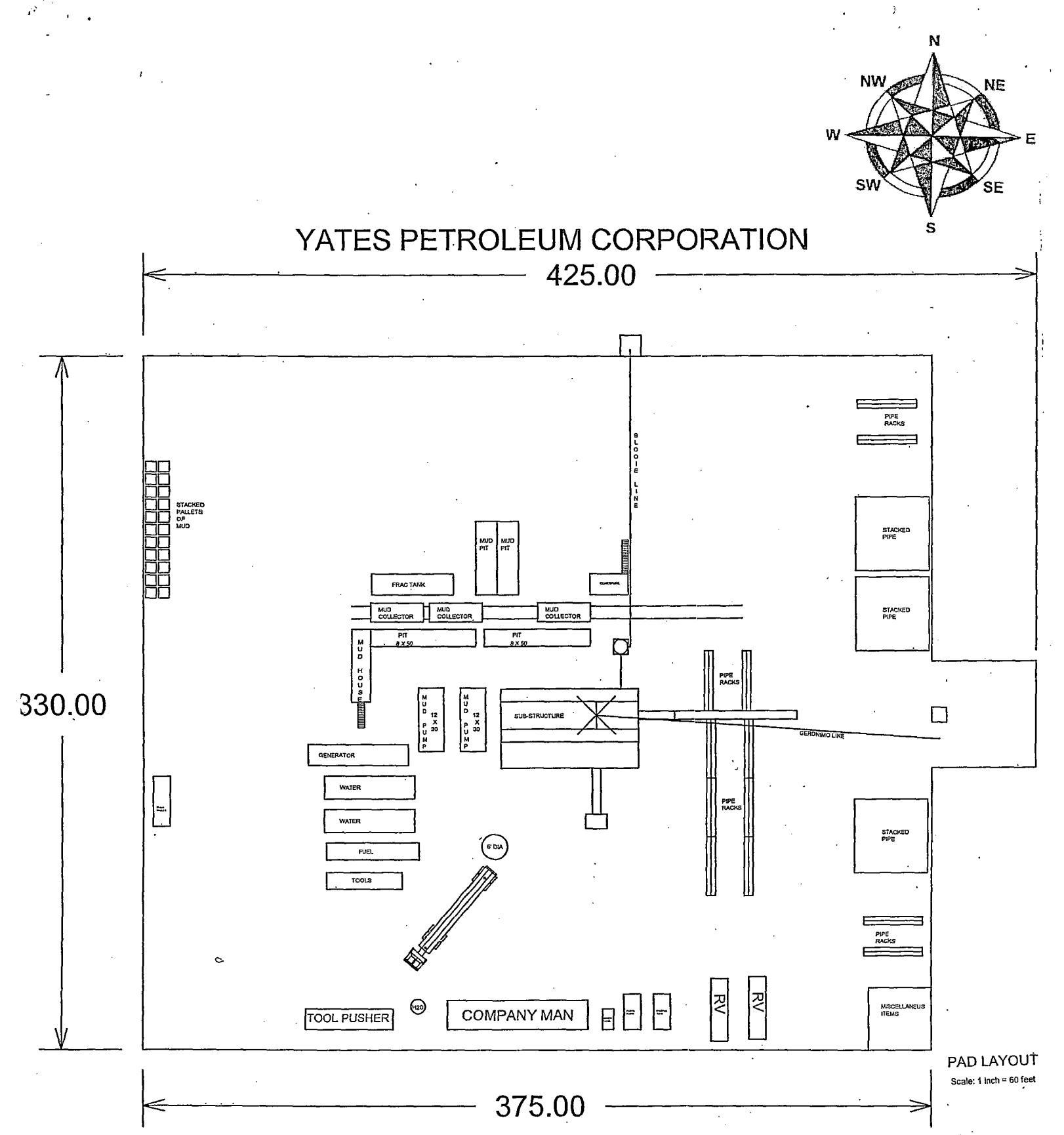
Closed Loop System will consist of:
1 – double panel shale shaker
1 – (minimum) Centrifuge, certain wells and flow rates may require 2 centrifuges
On certain wells, the Centrifuge will be replaced by a Clackco Settling Tank System
1 – minimum centrifugal pump to transfer fluids
2- 500 bbl. FW Tanks
1 – 500 bbl. BW Tank
1 – half round frac tank – 250 bbl. capacity as necessary to catch cement / excess mud returns generated during a cement job.
1 Set of rail cars / catch bins
Certain wells will use an ASC Auger Tank

Operation Plan

All equipment will be inspected at least hourly by rig personnel and daily by contractors' personnel.
Any spills / leaks will be reported to YPC, NMOCD, and cleaned up without delay.

Closure Plan

Drilling with Closed Loop System, haul off bins will be taken to Gandy Marley, Lea Land Farm, CRI or Sundance Services Inc.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YATES PETROLEUM CORPORATION
425.00
330.00
375.00
STACKED PALLETS OF MUD
FRAC TANK
MUD PIT
MUD PIT
MUD COLLECTOR
MUD COLLECTOR
MUD COLLECTOR
PIT 8 X 50
PIT 8 X 50
MUD HOUSE
MUD PUMP 12 X 30
MUD PUMP 12 X 30
GENERATOR
WATER
WATER
FUEL
TOOLS
6' DIA
SUB-STRUCTURE
BLOOIE LINE
GERONIMO LINE
PIPE RACKS
PIPE RACKS
PIPE RACKS
PIPE RACKS
STACKED PIPE
STACKED PIPE
STACKED PIPE
TOOL PUSHER
H20
COMPANY MAN
RV
RV
MISCELLANEUS ITEMS
PAD LAYOUT
Scale: 1 inch = 60 feet

Yates Petroleum Corporation
105 S. Fourth Street
Artesia, NM 88210

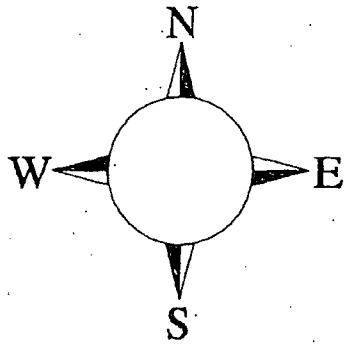
Hydrogen Sulfide (H_2S) Contingency Plan

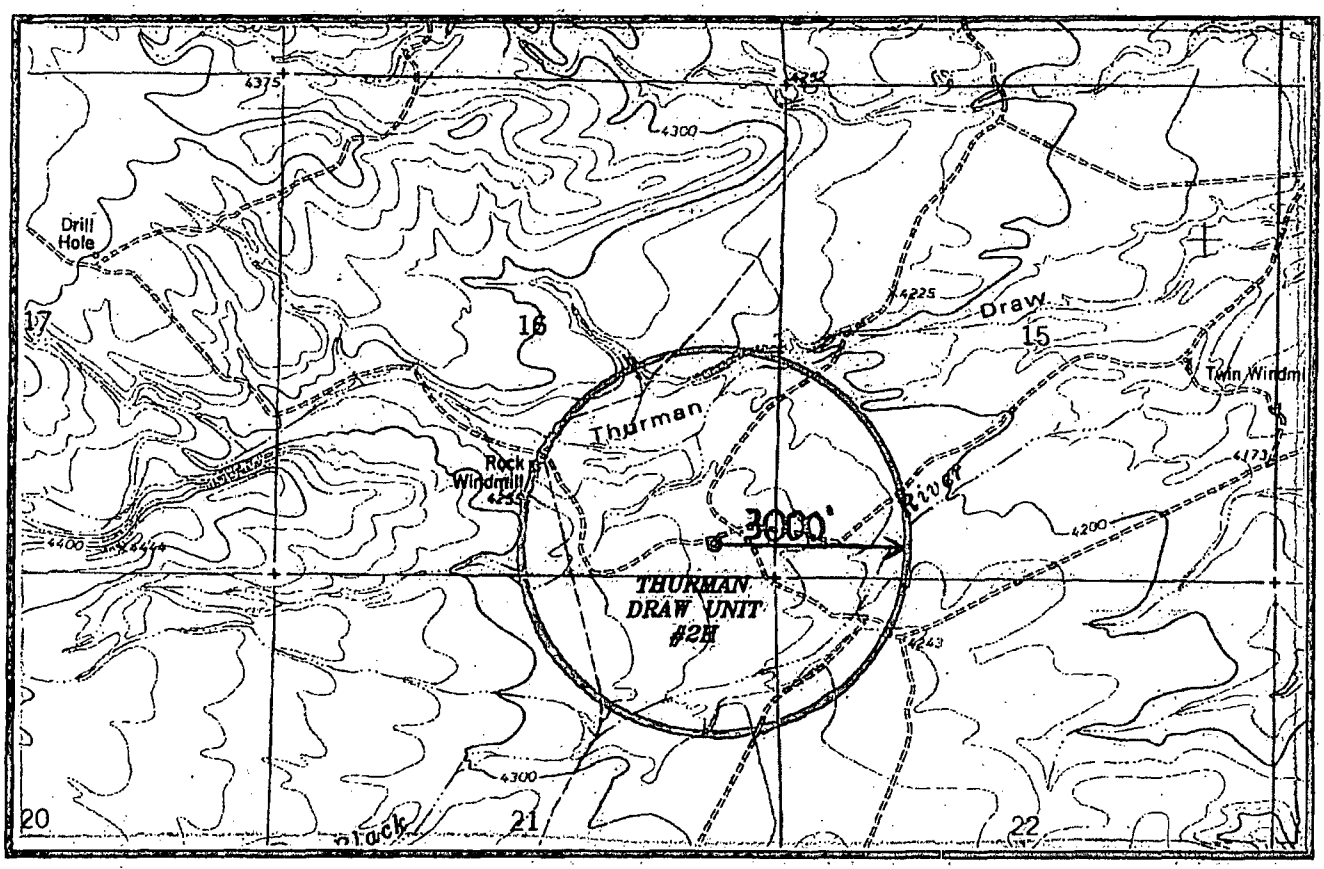
For

Thurman Draw Unit #2H
330' FSL & 660' FEL
Section 16, T26S-R23E
Eddy County NM

Thurman Draw Unit #2H

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H_2S, including warning signs, wind indicators and H_2S monitor.





Assumed 100 ppm ROE = 3000'

100 ppm H2S concentration shall trigger activation of this plan.

Emergency Procedures

In the case of a release of gas containing H_2S, the first responder(s) must isolate the area and prevent entry by other persons into the 100 ppm ROE. Additionally the first responder(s) must evacuate any public places encompassed by the 100 ppm ROE. First responder(s) must take care not to injure themselves during this operation. Company and/or local officials must be contacted to aid in this operation. Evacuation of the public should be beyond the 100 ppm ROE.

All responders must have training in the detection of H_2S, measures for protection against the gas, equipment used for protection and emergency response. Additionally, responders must be equipped with H_2S monitors and air packs in order to control the release. Use the "buddy system' to ensure no injuries during the response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentr-ation
Hydrogen Sulfide	**H_2S**	**1.189 Air = 1**	**10 ppm**	**100 ppm/hr**	**600 ppm**
Sulfur Dioxide	**SO_2**	**2.21 Air = 1**	**2 ppm**	**N/A**	**1000 ppm**

Contacting Authorities

YPC personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. YPC Company response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

Yates Petroleum Corporation Phone Numbers

YPC Office ..... (575) 748-1471
Wade Bennett/Prod Superintendent ..... (575) 748-4236
LeeRoy Richards/Assistant Prod Superintendent (575) 748-4228
Mike Larkin/Drilling ..... (575) 748-4222
Paul Hanes/Prod. Foreman/Roswell ..... (575) 624-2805
Tim Bussell/Drilling Superintendent ..... (575) 748-4221
Artesia Answering Service ..... (575) 748-4302
(During non-office hours)

Agency Call List

Eddy County (575)

Artesia

State Police 746-2703
City Police 746-2703
Sheriff's Office 746-9888
Ambulance 911
Fire Department 746-2701
LEPC (Local Emergency Planning Committee) 746-2122
NMOCD 748-1283

Carlsbad

State Police 885-3137
City Police 885-2111
Sheriff's Office 887-7551
Ambulance 911
Fire Department 885-2111
LEPC (Local Emergency Planning Committee) 887-3798
US Bureau of Land Management 887-6544
New Mexico Emergency Response Commission (Santa Fe) (505)476-9600
24 HR ..... (505) 827-9126
New Mexico State Emergency Operations Center ..... (505) 476-9635
National Emergency Response Center (Washington, DC) ...(800) 424-8802

Other

Boots & Coots IWC ..... 1-800-256-9688 or (281) 931-8884
Cudd Pressure Control ..... (915) 699-0139 or (915) 563-3356
Halliburton ..... (575) 746-2757
B. J. Services ..... (575) 746-3569

Flight For Life -4000 24th St, Lubbock, TX ..... (806) 743-9911
Aerocare -Rr 3 Box 49f, Lubbock, TX ..... (806) 747-8923
Med Flight Air Amb 2301 Yale Blvd SE #D3, Albuq, NM ..... (505) 842-4433
S B Air Med Svc 2505 Clark Carr Loop SE, Albuq, NM ..... (505) 842-4949

Yates Petroleum Corporation

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H2S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and H2S Contingency Plan.

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 Operation Plan and the H2S Contingency Plan. **The location of this well does not require a Public Protection Plan.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

NOTE: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S.

1. Well Control Equipment:

A. Flare line

B. Choke manifold

C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. Protective equipment for essential personnel:

A. Mark II Survive Air (or equivalent) 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

A. 3 portable H2S monitors positioned at: Shale Shaker, Bell Nipple, and Rig Floor. These units have warning lights and audible sirens when H2S levels of 10 PPM are reached.

4. Visual warning systems:

A. Wind direction indicators as shown on well site diagram (attached).

B. Caution/Danger signs (attached) shall be posted on roads providing direct access to location. Signs will be painted with high visibility yellow with black lettering of a sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

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, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

A. Cellular communications in company vehicles.

B. Land line (telephone) communication at the Office.

8. Well testing:

A. There will be no drill stem testing.

EXHIBIT

DANGER

POISONS GAS

HYDROGEN SULFIDE

☐ **NORMAL OPERATIONS**
(GREEN)

CAUTION POTENTIAL DANGER
(YELLOW)

☐ **DANGER POISONS GAS ENCOUNTERED**
(RED) **AUTHORIZED PERSONAL ONLY.**
LOCATION SECURED.
1-575-746-1096
1-877-879-8899

EDDY COUNTY EMERGENCY NUMBERS
ARTESIA FIRE DEPT. 575-746-5050
ARTESIA POLICE DEPT. 575-746-5000
EDDY CO. SHERIFF DEPT. 575-746-9888

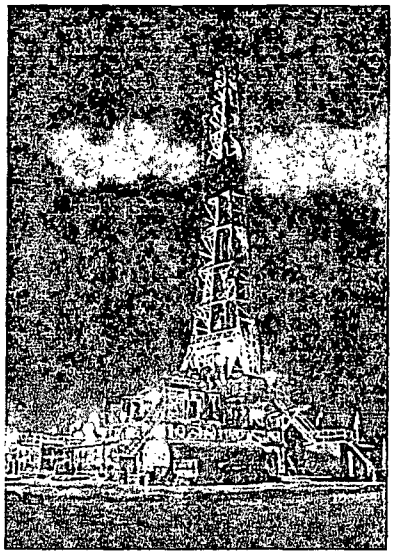
LEA COUNTY EMERGENCY NUMBERS
HOBBS FIRE DEPT. 575-397-9308
HOBBS POLICE DEPT. 575-397-9285
LEA CO. SHERIFF DEPT. 575-396-1196

AMERICAN SAFETY SERVICES INC

Yates Petroleum Corporation

Thurman Draw Unit #2H
330' FSL and 660' FEL
SECTION 16-T26S-23E
EDDY COUNTY, NEW MEXICO
Latitude: N 32.01'58.12" Longitude: W 104'36'03.27"

"CONTINGENCY PLAN"



8715 Andrews Hwy
Odessa, Texas
(432)552/7625 (432)363/0198 fax

WELL CONTROL EMERGENCY RESPONSE PLAN
YATES PETROLEUM CORPORATION
CUSTOMER COPY

Permit Number-	**Date issued-**	**District-**
API #-	**Form W-1 rec-**	**County**-Eddy
Type: New Drill	**ACRES-** Approximately 2.0	

Operator 025575 Yates Petroleum Corporation 105 S 4th St. Artesia, NM 88210	

Lease Name: Thurman Draw Unit
Well Number: 2H
Location:
Total Depth: 12,150
Section: 16, T26S, R23E
Abstract:
Surface Location: 330' South 660' East
Dist to Nearest Lease Line 330'
Dist to Nearest Well:
Directions: Approximately 12.5miles South and West of White City.
THIS PERMIT IS GRANTED PURSUANT TO STATEWIDE RULE 37 (H) (2) (B)
CASE NO. 0247845

Permit Plat:
Yates Petroleum Corporation
Thurman Draw Unit #2H
Location in Survey: 330' FSL and 660' FEL
SECTION 16-T26S-23E
EDDY COUNTY, NEW MEXICO

This is a Hydrogen Sulfide field and shall be drilled in accordance with SWR 36

*****Information in this section was provided to American Safety Services Inc by Yates Petroleum Corporation****

Yates Petroleum Corporation Emergency Contact List

Division & Title	Name	Office	Residence	Cellular
Drilling Operations				
Yates Petroleum Corporation		575-748-1471		
Drilling Superintendent	Tim Bussell	575-748-4221		
Operations Manager	Darrick Stallings	575-748-4198		
Drilling	Mike Larkin	575-748-4222		
Production Superintendent	Wade Bennett	575-748-4236		
Public Safety	**Facility**	**Contact**	**Direct**	**Cellular**
EDDY COUNTY:			**911**	
Fire Department	Malaga, NM		575-745-2311	
Sheriff Department	Artesia, NM		575-746-9888	
Fire Department	Artesia, NM		575-746-2701	
Ambulance	Artesia, NM		911	
State Police	Artesia, NM		575-746-2703	
City Police	Artesia, NM		575-746-2703	
Sheriff Department	Carlsbad, NM		575-887-7551	
Fire Department	Carlsbad, NM		575-885-2111	
Ambulance	Carlsbad, NM		911	
State Police	Carlsbad, NM		575-885-3137	
City Police	Carlsbad, NM		575-885-2111	
Hospital	Carlsbad, NM		575-887-4121	
Flight for Life	Lubbock, TX		806-743-9911	
Aerocare	Lubbock, TX		806-747-8923	
Med Flight	Albuquerque, NM		505-842-4433	
S B Air Med	Albuquerque, NM		505-842-4949	
Safety Contractor	**Name**	**Office**	**Residence**	**Cellular**
American Safety		432-552-7625		
Safety Supervisor NM	Coly Hokett	432-552-7625	575-746-2219	575-746-7350
Safety Manager	Travis K Simshauser			432-556-1759
Safety Supervisor TX	Shawn Todd	432-552-7625		432-556-1700
Owner	Kevin Hokett	432-552-7625	432-363-3911	432-208-4372

DIRECTIONS: FROM WHITES CITY, NEW MEXICO GO SOUTH ON NATIONAL PARKS HIGHWAY FOR 5 MILES TO WASHINGTON RANCH ROAD. TURN RIGHT ON WASHINGTON RANCH ROAD AND GO APPROXIMATELY 8.5 MILES. AT THIS POINT THERE WILL BE A ROAD COMING OFF WASHINGTON RANCH ROAD GOING SOUTHWEST, GO RIGHT HERE AND FOLLOW THE ROAD FOR APPROXIMATELY 4.5 MILES. AT THIS POINT THE ROAD WILL "Y", GO TO THE RIGHT FOR APPROXIMATELY 0.7 MILES. THE NEW LOCATION WILL BE ON THE SOUTH SIDE OF THE LEASE ROAD.

TABLE OF CONTENTS

Additional H2S information is included at the end of the plan.

Prepared by:
American Safety Services Inc
8715 Andrews HWY
Odessa TX 79765

Executive Summary

This plan is intended to document **Yates Petroleum Corporation** procedures for dealing with well control emergency situations. American Safety Services Inc encourages taking all preventative measures required to reduce the probability of a well control incident from occurring. If it does occur, however, this pre-developed strategic action plan can be implemented quickly and decisively in response to the emergency. It is intended to supplement the **Yates Petroleum Corporation** Emergency Procedure and other similar plans.

This Well Control Emergency Response Plan (WCERP) was formulated during low-stress, non-emergency conditions. It is our experience that those response actions hastily grasped during the event suffer from the panic, confusion and indecisiveness of persons not normally involved with high-stress situations.

In any emergency response plan the health and safety of people is the prime concern. Generally, persons not familiar with highly specialized oil well firefighting, capping and dealing with the high pressures and flow rates associated with blow-outs should not attempt to handle one of these events. Guidelines for early response procedures are included to mitigate risks, losses and damages, however.

There are three incident levels for which an emergency well control response is required. These levels are based on the severity and potential impacts of the incident. They are simply labeled Level 1, Level 2 and Level 3, with Level 1 being the least serious and Level 3 the worst. Level 3 denotes a complete loss of well control with no opportunity for regaining it using equipment and procedures available on-site. These correspond roughly to the Emergency Categories listed in the General Emergency Procedure.

In dealing with a well control emergency response, each person has duties and responsibilities. All critical tasks must be delegated to one person with minimal overlap. Thus, each responsibility is handled effectively without undue duplication.

The on-site organization is supervised and controlled by the Team Leader for the rig involved in the blow-out. The overall situation is controlled by the Manager over the area in which the blowout occurs who will serve as the Incident Commander. For most operations this will be the Manager (Drilling Operations) or the Manager (Exploration). These are individuals with long experience who are familiar with **Yates Petroleum Corporation's** drilling and work over operations, corporate internal structure, corporate culture, personnel; various support services, and the capabilities of all emergency response groups including American Safety Services Inc. Each commander is assisted by several deputies, each of whom deals with responsibilities in their areas of expertise. This provides the most efficient and effective method of dealing with the emergency, protecting human lives and health, mitigating damages, and protecting the environment.

Response Levels

This plan involves three types of incidents classified as Level 1, Level 2 and Level 3 depending on the seriousness of the incident. A **Level 1** incident involves an uncomplicated kick that requires only normal operating procedures by the **Yates Petroleum Corporation** Rig Supervisor (Company Man) and the drilling crew with notification to the Team Leader (TL) having supervisory authority over that rig. A **Level 2** incident involves a complication of some type that requires extraordinary measures to be taken by the Company Man, drilling contractor personnel, the TL, Snr. Drilling Engineer and, in some instances, American Safety Services Inc to successfully deal with the situation. A **Level 3** incident involves the complete loss of well control. Response to this type incident requires declaration of a Major Incident, activation of the Well Control Organization within **Yates Petroleum Corporation** and all the personnel listed below to provide On-Scene Command at the site, Headquarters Control, Support Services and Operations Engineering Support.

Level 1 Well Control Incidents

Characteristics

Definition

A Level 1 incident is defined as a well control problem that occurs during drilling or work over operations for which formal or informal standard operating procedures (SOPs) exist to control the event. There are no injuries or fires associated with this type incident and the situation can be brought under control using only the resources available on-site.

Action Requirement

These SOPs are executed by the rig crewmembers under the supervision of the tool pusher and **Yates Petroleum Corporation** Drilling Supervisor. The appropriate Team Leader is notified about the incident and the actions taken to control it. Support is rarely required from Drilling Services or from the well control services contractor unless the event escalates to a more serious level.

Examples

Drilling-related incidents

- An uncomplicated kick
- Complete loss of circulation (e.g., >500 bph) with hydrocarbon zone open
- Leak in casing with a permeable hydrocarbon zone open

Completion- or Work over-related incidents

- Unable to kill a well to start a work over
- Tripping with high loss rate (e.g., >250 bph)
- A kick taken after the well is killed
- Hole in surface/intermediate/production casing due to corrosion or damage
- Swabbing the well in during pipe tripping

Production-related incidents

- Pressure on production casing that cannot be bled down
- Small leak on master valve, swab valve of wing valve on tree
- Erosion and failure of the vent line to the pit, tank or test unit
- Master valve frozen or stem broken with valve in closed position

Simultaneous operations incidents

- Moving in rig or work over unit with wellhead damage due to collision
- Wellhead damage during heavy lift operations while installing BOPs, wire line lubricator, coiled tubing, etc.
- Close approach/near miss drilling past existing well(s) from same drilling pad while drilling new well

Additional incidents

- Chemical stocks for mixing kill weight mud fall below pre-determined adequate levels
- Kick tolerance falls below pre-determined level (e.g., 2 ppg or 24 bbls)
- Casing wear exceeds acceptable amount
- Failure of critical equipment (e.g., main power system on rig)
- Severe lost circulation and continued mud losses to the loss zone
- Impending severe weather
- Flow after cementing intermediate casing, production casing, or production liner

Response Actions

Responsible party Rig Supervisor

Process overview The following table provides an overview of the actions required during a Level 1 well control incident:

Step	Action
1	• Evaluate the situation • Determine that the incident is Level 1
2	Notify all personnel on location
3	Immediately execute initial response action based on standard operating procedures
4	Notify Team Leader
5	Continue using standard operating procedures until situation is resolved

Level 2 Well Control Incident

Characteristics

Definition

A Level 2 emergency can be defined as an abnormal well control event involving some sort of complication in which:

- Well control has **not** been lost at the surface
- Resources beyond the normal capabilities of the rig crew or production operations staff may be required such as unfamiliar or complex well control procedures
- Outside well control consultation, materials, special equipment or personnel may be required

There are no injuries or fires associated with this incident level since control has not been lost. The situation is not sufficiently threatening to declare a Major Emergency or to activate an Incident Command System to deal with the situation.

Action Required

Trained drilling staff should be able to handle a Level 2 emergency in the normal course of drilling or working over a well by:

- Removing the complication, thereby reducing the incident severity to Level 1 status, then using SOPs to circulate out the kick and resolve the problem
- Prepare a specialized procedure to control the incident with the complication remaining throughout the procedure

It is important that action be taken quickly to resolve the situation. Level 2 incidents are more serious than Level 1 incidents and they can escalate quickly to a complete loss of well control (i.e., a Level 3 incident). Even if control is not lost at the surface, an underground blowout or other similar event can occur if measures are not taken quickly.

Examples

Drilling-related incidents

- Kick with no pipe in the hole
- Kick with the bit off the bottom
- Drill collars or other BHA components across the pipe rams, well shut in on the annular preventer
- Kick while fishing, pipe off bottom, fish in hole
- Kick with the bit off bottom, pipe stuck
- Kick with very high intensity or large volume taken (high shut-in pressure)

	• Kick with simultaneous losses (above or below the bit) • Kick with bit or drill string plugged • Kick with critical equipment failure (e.g., pumps, electrical system, etc.) • Kick with hole in drill string • Kick without sufficient chemicals to weight up mud • Kick with wire line in the hole • Shallow gas kick with diversion • Low volume flow after cementing surface casing
Level 1 incidents escalating to a Level 2 while circulating out a kick	• Exceeding maximum allowable surface pressure while circulating kick out of the open hole section (before kick reaches the casing shoe) • *Suspected underground cross-flow requiring further diagnosis* • Small leak in BOP or wellhead • Leak in stab-in safety valve through ball seat and/or operating system seal • Gas hydrate (ice) plug in circulation system • Choke plugged or cut out • Washout in drill string or in surface equipment • Dropped drill string • Sheared drill pipe • *Loss of BOP control function*
Completion- or work over-related incidents	• Fishing operation performed under pressure • Potential underground cross flow • Leak in wire line BOP, lubricator and/or tree valves • Fishing or milling operation performed under pressure with coiled tubing or snubbing unit where loss of well control is imminent
Production-related incidents	• *Production casing leak with tubing leak* • Leak in master valve with failure of ESD valve control • Leak in tubing with casing valve leak • Tree component eroded to critical limit by sand • Surface safety valves do not effectively shut-off flow
Simultaneous operations incidents	• Drilling into existing well casing from new well • Casing leak develops during work over operations • Damage to tree, wellhead or casing near surface due to heavy dropped object • Motor vehicle collision resulting in severe damage to tree or wellhead • Inability to access casing annulus due to inoperative (stuck) side outlet valve on wellhead

Response Actions

Responsible party Rig Supervisor

Process overview The following table provides an overview of the actions required during a Level 2 well control incident:

Step	Action
1	Evaluate the situation; determine that the situation constitutes a Level 2 Incident classification and advise the Team Leader
2	Down man rig; remove all non-essential personnel and equipment from the site
3	Execute initial response actions to protect personnel, the rig, the well and the reservoir
4	Develop a procedure to remove the complication and deal with the situation using SOPs
5	If complication cannot be removed, prepare a non-standard procedure to deal with the incident
6	Consult with the appropriate Team Leader, Drilling Engineer and well control specialists, if needed
7	Obtain approval for execution of either action plan from the Team Leader
8	Execute approved procedure to resolve situation (may require the participation of well control specialists to assist)
9	Review outcome of procedure with the Team Leader

Level 3 Well Control Incidents

Characteristics

Definition

A Level 3 emergency denotes a **total loss of well control** with no opportunity to restore it using all the resources available on-site.

Action Required

Level 3 Incidents require the declaration of a Major Emergency and the activation of a fully-functional Incident Command System to effectively deal with the situation.

Discussion

A Level 3 Incident is, quite simply, a blowout. These incidents are equivalent to Category 2 or Category 3 Emergencies, depending on the severity and circumstances involved in the blowout. The Well Control Organization must be activated upon determining that the well is out of control and measures must immediately be taken to protect people, the environment and material assets in that order.

These emergencies, although serious at the outset, have the potential to escalate further during control procedures. Such escalation may cause serious structural damage or total loss of the rig, BOP stack and wellhead due to explosion, fire, or cratering. Other nearby wells may also be damaged due to underground cross flow and erosion caused by the blow-out. This could result in multiple, simultaneous well control problems on several wells. Clearly, prompt decisive action is needed to avoid this situation.

The response to a Level 3 Incident can be divided into stages for clarity. Different activities, personnel, equipment and safety issues exist at each stage. These are discussed more fully below:

Phase 1: Initial response

Phase 1 is the initial reaction to the well control emergency. It commences at the outset of the Level 3 Incident when it is clear that control is lost and cannot be regained. Actions such as evacuation, exclusion zone establishment and site isolation occur during this stage. Preliminary work to provide water for fire fighting and setting on-scene command facilities at the site are included. It ends when well control intervention operations site begin including fire extinguishment operations.

Phase 2: Well control operations

Phase 2 is the on-site operations phase of the well control emergency. This phase begins when actual well control actions are initiated at the site using surface intervention techniques. It ends when the well has been brought under control by any means. This phase is concluded when the Incident Commander officially declares the emergency resolved, and well salvage and recovery operations begin.

Phase 3: Relief well planning and drilling

Phase 3 is the relief well planning and drilling phase of the well control emergency. It begins when the Incident Commander approves a relief well as part of the well control project. It ends when the blow-out well is intersected and killed by pumping through the relief well or when the well is brought under control using surface intervention techniques and the Incident Commander declares the emergency resolved. Note that Phase 2 and Phase 3 operations can occur simultaneously depending on the circumstances of the blowout event.

Phase 4: Well recovery operations

Phase 4 is the recovery phase of operations on the now dead blow-out well. This phase begins when the well or blow-out is brought under control. It ends when normal drilling, work over or production operations resume or when well is plugged and abandoned.

Phase 5: Post-incident evaluation

Phase 5 involves evaluation of the incident following resolution of the emergency situation. This phase begins at or near the conclusion of well recovery operations. It ends with the submission of the final incident report to **Yates Petroleum Corporation** management.

Examples

Drilling-related Incidents

- Underground flow with BOP stack closed and gas, oil or water broaches to the surface
- Uncontrolled flow to surface through drill pipe with no means of shutting off the flow
- Gas or oil comes to surface through the drill pipe x casing annulus and the BOP cannot control the flow
- Uncontrolled flow from BOP stack with drill string out of the hole and unable to close blind rams
- Drilling rig on fire due to blowout
- Surface failure of choke line, kill line or choke manifold and well cannot be shut-in

Work over-related Incidents

- Loss of BOP function
- Uncontrolled flow to surface through tubing with no means of shutting off flow
- Gas or oil comes to surface through casing x tubing annulus and stack does not shut off flow

- Uncontrolled flow from BOP stack with no tubing in the hole and unable to close blind rams
- Completion rig on fire due to blowout
- Failure of existing wellhead component with no way to stop the flow
- Collision, irreparable damage to wellhead and leak during rig move in or move out

Production-related Incidents

- Collision between vehicle and wellhead resulting in major leak
- Wellhead/tree on fire with no way to shut off flow
- Mechanical failure of master valve, wing valve or flow line with no means to stop the flow

Simultaneous operations Incidents

- Falling object from rig damages wellhead or flow line resulting in catastrophic leak
- Gas cloud from major leak prevents access to wellhead or tree to shut-in well

Response Actions

Responsible party Rig Supervisor

Process overview The following table provides an overview of the actions required by the Rig Supervisor or Snr. **Yates Petroleum Corporation.** employee during a Level 3 well control incident:

Step	Action
1	Evaluate situation and determine that well control is lost with no means to restore control
2	Order all personnel at the site to a designated Safe Area
3	Account for all personnel on the site. If all personnel cannot be accounted for, organize a Search and Rescue Party and attempt to locate all personnel if it is safe for them to do so
4	Determine injuries, if any, and provide first aid. Assess the need for air ambulance evacuation of injured persons. Assign personnel to mark the landing site for helicopter in the Safe Area
5	Notify the Team Leader about the situation and request declaration of a Major Emergency
6	Establish Exclusion Zone around site and mark zone boundary using available supplies and materials
7	Post a watch to secure the rig and prevent unauthorized persons from entering the Exclusion Zone

8	Notify and evacuate nearby rigs, homes, businesses or other facilities if they are affected by the blow-out plume
9	Down man the rig and move non-essential personnel away from the area. **Note: Do not release the rig crew until they are interviewed regarding events leading up to the blowout incident.**
10	Request that the local Fire Station provide equipment and personnel to contain the fire and protect nearby assets with water spray, if it is safe to do so. **Note: Do not attempt to extinguish fire at rig; wait for well control specialists to enter the Exclusion Zone.**
11	Complete *Initial Status Report* and fax to American Safety Services Inc. 432-363-0198
12	Remain on the site and coordinate support services needed for initial well control efforts; await the arrival of the Team Leader (On-Scene Commander)
13	Contain pollution/oil spill, if possible and if safe to do so
14	Monitor well conditions, keep a log recording all observations and report any changes to Team Leader (if not yet on-site) by radio and to CWC via fax or phone
15	Brief American Safety Services Inc First Responder upon arrival at the site; assist First Responder in determining if boundaries of Exclusion Zone should be moved
16	Remain on-site to assist with well control operations

Duties and Responsibilities, Rig Supervisor

Reports to:	On-Scene Commander

Team Authority	Job Title
Team Member	Rig Supervisor (Company Man)

Pre-Spud

Responsibility
Daily duties on location include: • Conducts safety meetings • Designates two Safe Areas (Muster Areas) for emergencies • Maintains census of all personnel on site • Reviews his duties and the *Initial Response Checklist*
Maintains supply of *Communications Record* at the well site
Maintains a current copy of **Yates Petroleum Corporation** General Emergency Procedure at the site and in tool pusher's quarters
Provides training to rig personnel on required response steps in each type of incident including mustering at designated Safe Areas and evacuation, if required. Periodically runs Search and Rescue exercises to ensure team readiness.

Level 1

Well control incident

Responsibility
Determines that the incident is a Level 1 incident; responds quickly to the situation before it can escalate to a more serious level: • Obtains data necessary for response • Prepares a procedure for dealing with the incident • Follows standard operating procedures to deal with the situation • Notifies the Team Leader about the incident and steps taken to resolve it

Level 2

Well control incident

Responsibility
Determines that the situation is a Level 2 incident and defines the complication involved; responds to the situation to keep it from escalating to a more serious incident level: • Determines the best way to remove the complication, thus lowering the incident to Level 1

	• Contacts the Team Leader, Snr. Drilling Engineer and possibly American Safety Services Inc for consultation about the problem • Prepares a procedure to remove the complication, lower the severity level and deal with the incident using SOPs; alternatively, jointly prepares a procedure to deal with the situation without removing the complication • Reviews procedure with Team Leader and obtains approval to proceed • Advises Team Leader of the outcome

Level 3	Responsibility
Well control incident	Determines that the situation constitutes a complete loss of well control that cannot be regained using assets on-site

Level 3	Responsibility
Phase 1: Initial Response	Executes steps outlined in the *Initial Response Checklist* to deal quickly and decisively with the situation at the well site; maintains records of all contacts and communications using the *Communications Record,* if possible
	With the assistance of the Tool pusher: • Musters all personnel on the rig to one of the designated Safe Areas • Accounts for all personnel at each Safe Area by comparing personnel at the muster point to the current on-site personnel census • Determines the extent of any injuries, provides emergency first aid treatment and assesses the need for air evacuation of injured persons on an emergency basis • Locates a safe landing zone for emergency aircraft to evacuate injured personnel, if required, and marks it for med-evac helicopter • Notifies Team Leader about situation and recommends classification of event as Level 3 Incident; provides initial report on event and current activities • Notifies nearby rigs, facilities, residences, businesses and other persons that could be at risk from the blow-out • Once site is evacuated, establishes Exclusion Zone around the well/rig, marks with on-hand materials and posts a watch to keep everyone out of the Exclusion Zone **NOTE: Do not re-enter the Exclusion Zone for any reason until well control specialists arrive to assist.**

	• Meets with local security personnel and requests they secure and restrict access to the blow-out site • Requests assistance to evacuate nearby rigs, facilities, residences and businesses that may be affected by the blow-out • If site evacuation is not required, contains the fire and protect assets by eliminating possible ignition sources and using a protective water spray by local fire department, if available **Note: Do not attempt to extinguish the fire.** • Completes *Initial Status Report* and faxes to: American Safety Services Inc - Fax 432-363-0198 • Contains pollution and/or spill, if possible without exposing personnel to danger or contamination • Monitors well conditions and maintains a log. Reports any significant changes in blow-out behavior to Team Leader • Briefs the American Safety Services Inc First Responder upon his arrival at the site • Relinquishes control of the well site to the On-Scene Commander (Team Leader) upon his arrival • Remains at the site and assists in well control efforts, as needed

Level 3	**Responsibility**
Phase 2: Well control	Assists with well control operations and support, as needed
	Prepares a detailed report of incidents immediately preceding the blow-out and provides to the On-Scene Incident Commander; reviews the report's content with the American Safety Services Inc Team Leader

Level 3	**Responsibility**
Phase 3 Relief well	Assists in well control planning, as needed, from his/her knowledge of the local area
	Visually surveys prospective relief well sites and roads for obstructions such as high lines, pipelines, unsatisfactory topography and other problems; provides details on each site to the Relief Well Design Team
	Provides information to the Rig Supervisor on the relief well rig and others supporting relief well drilling operations regarding local drilling conditions and any expected problems while drilling relief well and making intercept

	Assists On-Scene Commander to co-ordinate activities during relief well drilling

Level 3	Responsibility
Phase 4: Well recovery	Assists in planning well recovery work as directed by the On-Scene Commander
	Assists in developing recommendation to cease recovery operations, abandon blow-out well and substitute relief well after sidetracking
	Supervises well recovery work on the blow-out well if feasible, or abandonment if not

Level 3	Responsibility
Phase 5: Post-incident evaluation	Assists On-Scene Commander in preparing post-incident report and evaluation from field standpoint; includes his summary of events leading up to the incident and review of initial response efforts

Initial Risk Assessment

The Rig Supervisor will be the first to assess risks and determine the boundaries of the Exclusion Zone. The Exclusion Zone determines the minimum safe distance away from the blown-out well. It is based primarily on the concentration of combustible gas and/or toxic gas in the atmosphere. In general, the Exclusion Zone should be positioned according to the following:

Hazard	Maximum Limit
Combustible gas	10% of LEL*
Hydrogen Sulfide	10 ppm
Flammable liquid	10 bbls
Noise	85 dB

*Lower Explosive Limit

Other hazards such as proximity to vehicular traffic, sources of ignition, threats to production facilities and other risks must be evaluated and steps taken to ensure that the Exclusion Zone boundary is set far enough away from the blow-out site to reduce risks to all personnel to an acceptable level.

Once the Exclusion Zone Boundaries are set, no person should enter the area without special training, equipment and companion personnel. Often in such situations, persons not familiar with the potential of sudden catastrophic failures inside the Exclusion Zone venture too close to the blow-out in search of fellow workers, valuables left behind during the evacuation or curiosity. Sometimes, these mistaken few become victims if a failure, such as a spontaneous ignition of the plume, occurs while they are inside the Exclusion Zone.

Boundaries of the Exclusion Zone are not firm, and may need to be moved from time to time depending on several conditions such as:

- Flow rate from the well (increasing or decreasing)
- Zone of flow (increased H_2S concentration in the plume)
- Changes in atmospheric conditions (reduced air temperature, wind velocity, wind direction, atmospheric inversion, etc.)
- Hydrocarbon runoff with collection offsite
- Ignition of the plume
- Self-extinguishment of a fire
- Changes in boundary threshold limits

Risk management in the early stages of a blowout is accomplished primarily by prohibiting access to the site. Separation of potential victims from potential hazards is a very effective method of mitigating risks. In the case of Exclusion Zone boundary establishment, personnel are simply kept away from all hazards.

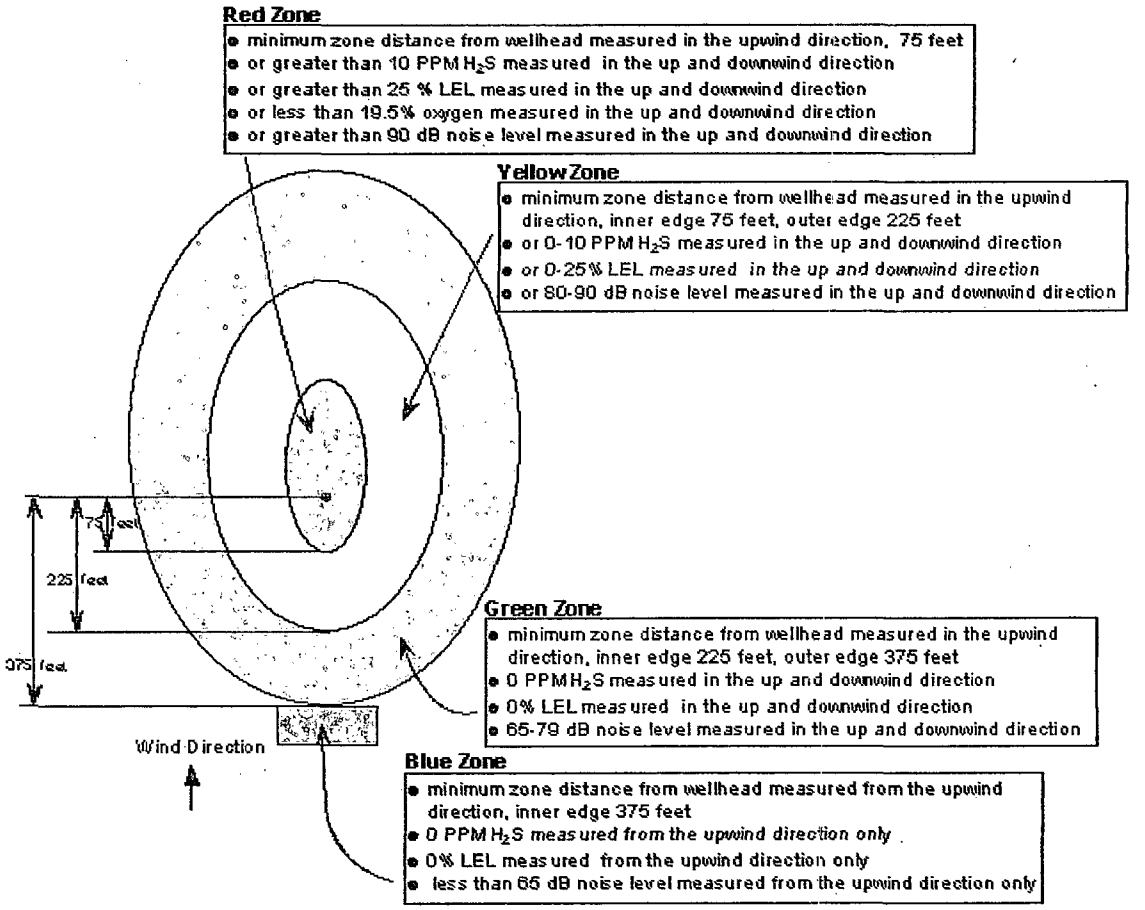
Situation Awareness

This is an area of human factors involving perceptions of people involved in high stress situations. Basically, it is the assessment of the person's concepts and thought processes when multiple data inputs are involved in an emergency. The best example of this area of study involves jet fighter pilots in combat situations.

In high stress situations the human mind can go into sensory overload easily. Alarms are sounding, warning lights are flashing, and there is normally panic, shouting and rapid movements. All of these render many persons incapable of determining what information is valid and should be honored, and what inputs are redundant or meaningless and should be ignored.

Work zones have been established to control access to areas in which well control specialists and certain support personnel can function safely. Others that do not fully understand the risks involved are simply not allowed to enter these areas. This has been successful in limiting exposure and consequential injuries to those people with poorly developed situation awareness during well control operations.

Example of Work Zones



Appendix

Appendix A	Initial Response Checklist
Appendix B	Initial Status Report
Appendix C	Communications Record

Appendix A

Initial Response Checklist

Has pressure containment and flow control been completely lost and cannot be regained?	Yes ☐	No ☐

If "yes" this is a Level 3 Well Control Incident

Date:	Time:	Well Name & No.:
Drilling Contractor:		Rig Number:
Yates Petroleum Corporation DRL Supervisor:		**Yates Petroleum Corporation.** Snr. Supervisor:

ACTIONS (Check off as performed)

☐	Evacuate all personnel to designated muster area
☐	Check names at muster area against Check-In Sheet; account for all personnel
☐	If all personnel are **not** at muster area, determine how many personnel are missing, where they were last seen and visually check the area, if possible, to see if they are safe
☐	Activate Search and Rescue Team to recover missing personnel, if required
☐	Provide emergency first aid for any injuries
☐	Determine if emergency medical services and ambulance transport are needed; locate landing site for med-evac helicopter and mark site
☐	Notify nearby rigs or production facilities about potential danger from blow-out
☐	Notify Team Leader about incident; recommend Major Emergency declaration
☐	Establish "Exclusion Zone" around location and mark with available supplies
☐	Secure the area and do not let unauthorized persons inside Exclusion Zone
☐	Contain pollution, if possible
☐	Remain on site pending arrival of Team Leader
☐	Monitor well conditions and report any changes to Team Leader
☐	Brief First Responder upon arrival at location
☐	Assist with well control operations, as needed
☐	

*Do not re-enter the Exclusion Zone unless absolutely necessary until qualified help arrives

**If well is on fire, do not attempt to put the fire out; if well is not on fire, try to keep it from catching on fire

DO	DON'T
Act quickly and decisively	Wait on instructions
Evacuate the rig or well site, if necessary	Hang around the rig
Wait in the Muster Area	Leave the well site
Answer questions asked by **Yates Petroleum Corporation** Team Leader and well control specialist truthfully	Talk to the press or the public without clearance; don't speculate about the cause of the incident; don't exaggerate
	Be a hero

Appendix B

Initial Status Report

Preliminary Information:

Operator: _____ Well Name & Number: _____

Rig: _____ Company Man: _____

Rig Phone: _____ Cell Phone: _____

Office Phone: _____ Office FAX: _____

Directions to site: _____

Blow-out Information:

Time of blow-out: _____ Well on fire? _____

Operation at time of blow- _____

Point of Escape: _____ Est. Flow rate: _____

Type of Fluid: _____ H_2S? Yes ☐ No ☐ CO_2? Yes ☐ No ☐

Height of plume before it ignites? _____ ft Total Height of flame: _____ ft

Mud Weight: _____ ppg MD: _____ ft TVD: _____ ft Last shoe test: EMW @ _____ depth

Rig Condition: _____

BOP Condition: _____ Closing Unit OK? _____

Condition of drill string: _____ TIW valve installed? Yes ☐ No ☐

Response:

Personnel Evacuated?	Yes ☐ No ☐	Number Missing:	
Exclusion Zone set up?	Yes ☐ No ☐	Injuries?	
Nearby rigs notified?	Yes ☐ No ☐	Air Ambulance needed/called?	Yes ☐ No ☐
Location Secured?	Yes ☐ No ☐	Regulatory Agencies notified?	Yes ☐ No ☐
Residents evacuated?	Yes ☐ No ☐	Pollution contained?	Yes ☐ No ☐

Drawing of Location:

Hydrogen Sulfide (H2S) Specific

Hydrogen Sulfide (H2S) Properties and Effects

H2S is an **Extremely Toxic**, Flammable, Explosive and Corrosive Gas. It is heavier than air, paralyses you of smell. Causes breathing to stop and death will result.

At low concentration H2S has the odor of rotten eggs. The smell is very offensive. At slightly high concentration H2S will cause sense of smell to disappear and you are slowly poisoning yourself. At even slightly higher concentrations DEATH will result.

Properties of Hydrogen Sulfide (H2S)

Extremely deadly toxic gas
Colorless
Heavier than air
Burns with a blue flame
Produces Sulphur Dioxide (SO2) when burned (another toxic gas)
Highly corrosive
Irritant skin and eyes
Soluble in water and other liquids
Extremely flammable and explosive.

Hydrogen Sulfide (H2S) Toxicity Chart

Concentrations	Effects
Less than 1 PPM	Odor
1-PPM	May cause stress or health symptoms in sensitive people
10-PPM	Permissible Exposure Limit (PEL) allowed 8 hours exposure without breathing apparatus.
15-PPM	Short Term Exposure Limit (STEL) 15-minute exposure 4 times a day allowed without breathing apparatus.
100-PPM	Immediately Dangerous to Life and Health (IDLH) No exposure allowed without breathing apparatus.
150 – 250 PPM	Loss of smell will result within a few minutes, burning of eyes, throat and coughing.
500-PPM	Destroys sense of reasoning and balance, causes respiratory within minutes and death will result.
600-PPM	Unconscious quickly, followed by loss of lung function, heart failure and death if not rescued and treated.
1000-PPM	Immediately loss of body function including the lungs. Heart will arrest, DEATH within minutes if not rescued immediately and treated.

10,000 PPM is 1 %

Objective of H2S plan

1. To prevent accidents and atmospheric releases involving H2S
2. Outline evacuation and rescue procedures in the event of an H2S release
3. Outline proper and timely medical procedures in the event of an H2S release, emergency or injury.
4. To have this plan fully implemented and in place prior reaching the Production Casing Point.

Emergency Procedures

1. In the event that there is an H2S release that reaches above the permissible working range of 10 PPM, the following procedure will be followed:
   - **A.** All personnel on the location will muster up wind from the source of H2S at a prearranged briefing area
   - **B.** A head count to ensure all personnel will be completed
   - **C.** At the direction of a company representative, a minimum of a two person team will be assigned to don proper breathing air equipment to asses the release and the H2S levels to see what steps need to be taken for normal drilling operations.
2. If it is determined that the release is uncontrollable, the following procedure will be followed:
   - **A.** Ensure all personnel are at a safe gathering point in case of unseen changes in weather, wind, fire, explosion, etc...
   - **B.** Secure all access to location, ensuring no unauthorized entry to location.
   - **C.** Notify Public Safety Personnel and the Bureau of Land Management of the situation and of the safe staging area of personnel and members of the public.
   - **D.** Begin evacuation of the public from any residences, open range or roads that could possible be affected by the release. (especially down wind)
   - **E.** At the direction of the company representative begin the planning and implementation of corrective action to regain control of the well.

Responsibility

1. During the implementation of this plan, a person will be identified as the person in charge during an emergency, implementation and conformity to this plan. It will also be decided who shall assume these responsibilities as a "back Up" should the first be unavailable.
2. All personnel should follow the directions of this persons command of an emergency incident.

Emergency procedures of personnel upon alarm of an H2S release

1. Rig personnel (non supervisors)
   - **A.** Don escape unit upon being notified of H2S alarm.
   - **B.** Leave rig and report directly to upwind staging area
   - **C.** Confirm all rig personnel is present and accounted for
   - **D.** Remain at briefing area and await further orders
2. Driller
   - **A.** Don escape unit upon being notified of H2S alarm
   - **B.** Glance at H2S monitor for which sensor is throwing the H2S alarm
   - **C.** Leave rig and report directly to upwind staging area
   - **D.** Confirm all rig personnel are present and accounted for at the briefing area
   - **E.** Confirm that Tool Pusher and Company Representative are aware of the release.
   - **F.** Assume command of the situation until Tool Pusher and Company Representative arrive at briefing area.
3. Tool Pusher

A. Report directly to the upwind briefing area.
B. Begin head count of all personnel on the location.
C. Reassess if briefing area where personnel are mustering is the safest location to be.
D. Compare information with Driller to determine if rescue is necessary and assign personnel accordingly
E. Get release information that has been obtained and begin making plans to control the well and the release.

4. Company Representative
   A. Report to briefing area
   B. Assume command of incident
   C. Ensure all personnel on the location are accounted for
   D. Ensure rescue is being performed
   E. Ensure all emergency entities have been notified
   F. Take safe actions and or call the appropriate personnel to regain control of the well
5. Other personnel
   A. Mud Engineer will report to briefing area until instructed to check PH and H2S levels in the mud.
   B. Safety personnel if on location will don breathing rescue equipment and report to briefing area until it has been decided if a rescue is necessary or not. If no rescue is needed, safety personnel will stand by for instruction from the Company representative. If determined by the Company Representative, safety personnel can be used to find the point of release and the atmospheric testing of the release.
6. If during an H2S emergency there is a need of running casing, plugging, open-hole logging or in the event of taking a kick, all personnel will follow standard B.O.P. procedures and the floor will be cleared of all unnecessary personnel while the use of specialized means and equipment are used to regain normal drilling operations.

Well ignition procedures

1. Ignition of the well is the Company Representatives responsibility. If the Company Representative is incapacitated and unable to physically make the decision then the responsibility will follow with the Tool Pusher who is defined above as next in command. The exception to this would be if a secondary Company Representative was identified at the implementation of this plan as the "back up" person in charge.
2. The decision to "ignite the well" shall only be made as a last resort where it is clear that there is immediate danger to human life and property and all hope is lost in controlling the blow out of the well with other conventional means. Attempts to notify the district office should be attempted if the situation allows enough time to do so before human life is in immediate danger.
3. Begin evacuation procedures
4. Four personnel are required for the actual igniting of the well. Two personnel (preferably the Tool Pusher or Safety Tech and the Company Representative) will be using Self Contained Breathing Apparatus and body harnesses with safety ropes attached to them. The two other personnel will each be responsible for holding the safety lines in case of rescue. Depending on atmospheric conditions, these two may also have to be donned in SCBA's.

5. The Safety Tech or Tool Pusher will have the responsibility of checking the atmospheric conditions to ensure that the flare can safely be fired from their location. The Company Representative will be responsible for the actual igniting of the well. A 25mm Flare Gun with a range of approximately 500 feet will be the primary method used to ignite the well.
6. Ignition shall be done up wind and at the greatest distance possible to ensure safety as well as effectiveness. When selecting a location to ignite from, consideration must be taken where the team will have the most protection and the easiest escape path to safety.
7. **DURING THE IGNITION OF THE WELL, ALL OTHER PERSONNEL WILL BE OFF LOCATION AND REMAIN OFF LOCATION.**
8. After well has been ignited and is burning assignments will be given by the Company Representative. All personnel will wait off location until advised differently by the Company Representative. **Burning H2S creates S02 Sulfur Dioxide which in its self is a highly toxic gas. Do not assume all is safe until the location has been checked and determined all is safe.**

H2S Training Requirements

1. All personnel on the location will have H2S training that meet the following minimum requirements and have a card or certificate present with them showing they have successfully completed the training.
   - **A.** Characteristics and hazards of H2S
   - **B.** Physical effects of H2S on the human body
   - **C.** H2S and Sulfur Dioxide toxicity
   - **D.** Detection of H2S
   - **E.** Respiratory protection against H2S
   - **F.** Emergency rescue, first aid and CPR of an H2S victim
   - **G.** Location awareness and safety
   - **H.** Effects of H2S on metals and in water
2. Service companies and visitors shall ensure that their personnel will have the required training and equipment prior to arriving on the location. They will ensure all personnel attend a well site briefing and are aware of any working zones that contain H2S.

H2S equipment requirements

1. Signs
   - **A.** One sign at the entrance to the location that advises H2S could be present. This sign with be capable of holding one of the three condition flags to advise people of the H2S danger present during that time.
     - **I.** **Green-** H2S not present (normal atmospheric conditions)
     - **II.** **Yellow** – H2S present could be present but under danger levels (use caution)
     - **III.** **Red** – H2S present at dangerous levels **(Do not enter without authorization)**
   - **B.** Two briefing area signs – one will be on the side of the location and one will be near the Company Representative's trailer. Prevailing wind conditions dictates this to some extent.

2. Windsocks – the location will have a minimum of two windsocks. Usually one will be placed on the rig floor next to stair way by Dog House and the other will be erected on the pits or in the immediate area.

3. H2S Monitors, Detectors, Sensors and Alarms
    A. An H2S package consisting of at least one monitor, one alarm and three sensors will be "rigged up" on the drilling rig. Usually the monitor will be placed in the Dog House with the alarm on the rig floor. The alarm will have an audible alarm and a visual blinking (flashing) light. One sensor will be placed at the bell nipple, one at the flow line and one will be on the rig floor. The alarms will be set for "low alarm" at 10 PPM. Low alarm will be visual and set of the blinking (or flashing) red light. The "high alarm" will be set at 15 PPM and will consist of both the visual and audible alarms going off simultaneously while in alarm mode.
    B. Personal Monitors are small H2S detection devices made to be worn by individuals in a potential H2S environment. Personal Monitors shall be worn by all personnel while on the location. These personal monitors shall be worn in the breathing zone of each individual. **Breathing zone is considered to be 18 inches in any direction from ones mouth. Preferably these should be worn on the chest area of each individual.**
    C. Hand held H2S detection devices or pumps and tubes can be used for certain circumstances where the above mentioned devices are not applicable or sufficient.
4. Breathing air equipment
    A. Two Self Contained Breathing Apparatus (SCBA) – an SCBA will be placed with each briefing area sign
    B. Five escape packs – these will be placed in the dog house of the drilling rig.
5. Inspections – a weekly inspection shall be done on the H2S package and all breathing air equipment. Personal monitors shall be inspected and self tested by the wearer before each shift and should be calibrated monthly by a qualified person. All fire extinguishers on location should be checked daily.

Public Protection

1. Public not having public access to this location and the nearest residence being approximately over 1 mile away, immediate danger to the public is unlikely. However in case of a blow out that release H2S or in the case of a wild land fire, evacuation steps should be taken to protect any public in the area. In case of an emergency access to the area should be secured immediately and anyone of the public in the area should be notified as reasonably as possible of the situation and potential threats. Law Enforcement and Emergency Services will be called and ultimately have the authority to evacuate those not wanting to leave during an emergency and the blocking of any public thorough fare.
2. Constant contact will be maintained with emergency responders to prevent them from entering a dangerous area. Once the emergency has been deemed safe for re-entry by safety personnel, this will be communicated to all entities and persons prior to re-entry of personnel and the public.

OCD Rule 118

Pasquill-Gifford Equation for Calculating Radius o

Enter H2S in PPM

Enter Gas flow in mcf/day (maximum worst case conditions)

Constant for 500 ppm ROE
Constant for 300 ppm ROE
Constant for 100 ppm ROE
Mult factor for 500 ppm ROE
Mult factor for 300 ppm ROE
Mult factor for 100 ppm ROE

Flow Rate of Pure H2S in Gas Stream (Actual Volume Fraction)
H2S Concentration Volume Fraction
H2S Concentration Volume Fraction in percent %

500 ppm radius of exposure (public road)

300 ppm radius of exposure

100 ppm radius of exposure (public area)

Conversions:

To convert H2S in percent to parts per million (ppm)
Put H2S in % in blue shaded area; read answer to the right
in the yellow shaded area in ppm

To convert H2S from parts per million (ppm) to perecent
Put H2S in ppm in blue shaded area; read answer to the right
in the yellow shaded area in percent

To convert gas flow in cubic feet per day to mcf per day
put cubic feet per day in blue shaded area; read answer
to the right in the yellow shaded area in MCF

To convert gas flow from MCF per day to cubic feet per day
put MCF per day in blue shaded area; read answer

# of Exposure (ROE) of Hydrogen Sulfide (H2S)

17000	***enter Data in green shaded areas***	
1000		
0.4546	constant	
0.77	constant	
1.589	constant	
7728.2	formula	
13090	formula	
27013	formula	
17	mcf/day	
0.017	decimal equivalent	
1.70%	percent	
271	feet	***ANSWER***
377	feet	***ANSWER***
593	feet	***ANSWER***

Input H2S in % below	ppm	
1.7	17000	***ANSWER***
Input H2S in ppm below	%	
17000	1.7000%	***ANSWER***
Input cubic feet per day below	mcf/day	
1700000	1700	***ANSWER***
Input MCF day below	Cubic feet per day	
1700	1700000	***ANSWER***

to the right in the yellow shaded area in Cubic feet per day

EXAMPLE CALCULATIONS and DEFINITIONS:

Problem: **Calculate the 100 PPM ROE for a gas well that contains 10,000 p**

cf = cubic feet = ft^3

P-G Eq. $X\ (feet) = [1.589 \times H2S\ Concentration \times Q\ ]^{.6258}$

H2S concentration is found by taking 10000 ppm / 1,000,000 ppm = .

Q is gas flow rate in ft^3/day can be found by 1000 mcf/day x 1000 ft^3/r

$x(ft) = [1.589 \times .01 \times 1{,}000{,}000]^{.6258}$

$x(ft) = [1.589 \times \underline{\textit{10,000}}\ ]^{.6258}$

100 ROE = 426 feet

Note: The actual H2S Volume fraction (pure H2S) in this case w obtained by the product of H2S concentration x Q (.01 x 1,000,

pm of H2S and the absolute open gas flow rate is calculated to be 1000 mcf/day

01 (Decimal equivalent)

ncf = 1,000,000 (ft^3/day)

ould be 10,000 cf/day
)00 cf/day) = 10,000 cf/day

Sulfur Dioxide (SO2) Toxicity Chart

Concentration	Effects
1-PPM	Odor
2-PPM	Permissible Exposure Limit (PEL) Safe for 8 hours without breathing apparatus.
5-PPM	Short Term Exposure Limit (STEL) Safe for 15 Minutes – four time a day without breathing apparatus.
12-PPM	Burning of eyes, breathing irritation. Causes damage to the wall lining of the lungs.
100-PPM	Immediately Dangerous to Life and Health (IDLH) Causes serious decaying of skin tissue of respiratory system.
150-PPM	Extreme irritation, tolerated only for a few minutes.
500-PPM	Sense of suffocation with first breath requires medical aid.
1000-PPM	Death will result unless rescued and medical aid is provided.

SO2 is known to be a cancer-causing agent.

H2S Emergency Levels:

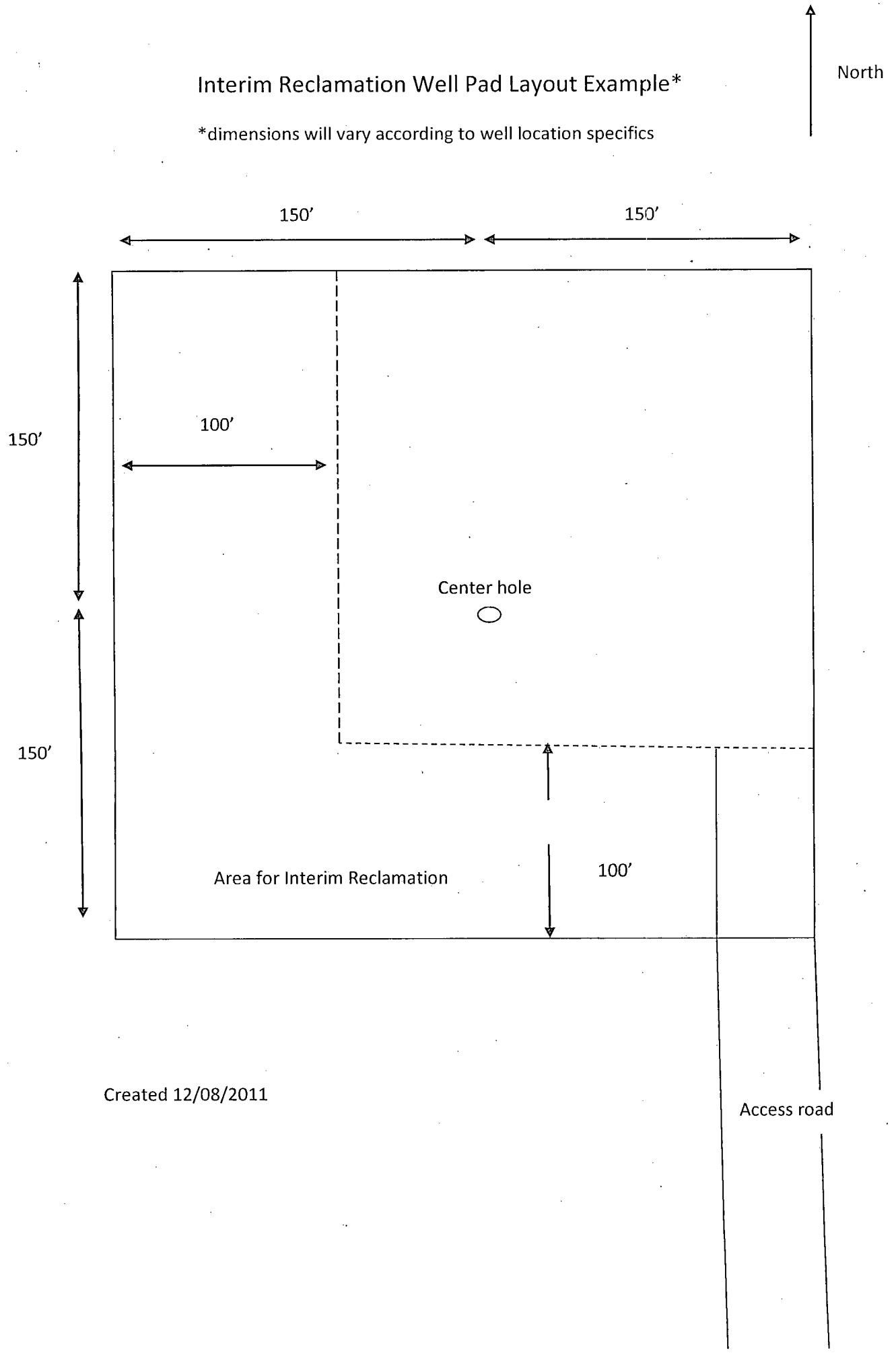
	Level I Low Impact Unconfirmed	Level II Significant Impact Potential	Level III Major Impact Hazard to People
Drilling	Problems During Drilling in a sour gas zone and the well has significant losses or gas-cut mud or kick	Equipment malfunction while circulating a kick or unable to maintain circulating volumes	Uncontrolled flow of sour gas (ignited or unignited) from the wellbore
Testing	Sour gas zone is open and an event occurs that has the potential to lead to a well control problem (leak at surface setup) Limited release.	An equipment malfunction restricts the ability to manage any level I emergency.	Uncontrollable flow of sour gas (ignited or unignited) from the wellbore.

Rig Crew Emergency Action

Position	Report to	Duties
Rig Manager	Drilling Supervisor	Activate the H2S Alarm. Supervise evacuation to Safe Briefing Area. Return to Drill Floor and Account for Essential personnel. Report to CO MAN for further Instructions.
Driller on Duty	Rig Manager	Prepare to Secure Well. Check Drill Crew personnel for H2S Safety Equipment Readiness. In Case of Emergency Remove Non-Essential Personnel from Rig Floor
Drill Crew	Driller	Check their H2S Breathing Equipment for Readiness and Follow Instruction of the Driller.
H2S Safety Supervisor	Report to Rig Floor	Ensure that all Personnel are Using Required Breathing Apparatus. Report to CO MAN Monitor all Operations and Monitor all Personnel Under Air.
Service Company Personnel Visitors	Safe Briefing Area	Report to Safe Area and Await Further Instructions.
All Non Essential Personnel	Safe Briefing Area	Await further Instructions

Interim Reclamation Well Pad Layout Example*

*dimensions will vary according to well location specifics



Created 12/08/2011

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	YATES PETROLEUM CORP.
LEASE NO.:	NM100543
WELL NAME & NO.:	2H THURMAN DRAW UNIT
SURFACE HOLE FOOTAGE:	330' FSL & 660' FEL (Sec. 16)
BOTTOM HOLE FOOTAGE	660' FSL & 660' FEL (Sec. 21)
LOCATION:	Section 16, T.26 S., R.23 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.

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Commercial Well Determination
A commercial well determination will need to be submitted after production has been established for at least six months.

100 Year Flood Plain
In order to reduce the chance of a spill within the 100 year flood plain, all production facilities must be moved or utilized at or to the Thurman Draw Unit # 1 existing well pad. All pipelines needed for production will need to be buried along the existing access road and taken to necessary tank battery located at the Thurman Draw Unit # 1 existing well pad location. All buried pipelines will also need to have a leak detection system installed as well as a automatic shut off system. This is needed to prevent a large leak from occurring which could potentially impact the resources located within the 100 year flood plain.

In order to prevent further erosion and loss of soils within the 100 year flood plain, the existing access road will need to have a earthen water bar place at approximately a 45 degree angle at the intercept of the northeast corner of the proposed location and the existing lease road. This will allow all water that is flowing in the bar ditch along the south side of the existing lease road to be diverted to the north side of the access road and proposed well pad location. This will prevent water from flowing onto the proposed location and prevent the loss of soils within the proposed project area.

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. **Leak detection plan will be submitted to BLM PRIOR TO CONSTRUCTION for approval.**

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Visual Resource Management

The proposed construction will be limited to the approved pad size.

Upon completion of the well the pad will be reclaimed back to a size necessary for production operations only. The edges will be recontoured and the extra caliche and pad material will be hauled off-site. The BLM may require additional reclamation depending upon vegetation recovery.

The reclaimed area will be recontoured and reseeded according to vegetation and soil type.

PIPELINES

The company will need to work with the Carlsbad Field Office to identify a route to place a buried pipeline to take production to the Thurman Draw Unit #1 existing well pad facility.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-6235 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 4-6 inches in depth. The topsoil will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

F. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty (20) feet.

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

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

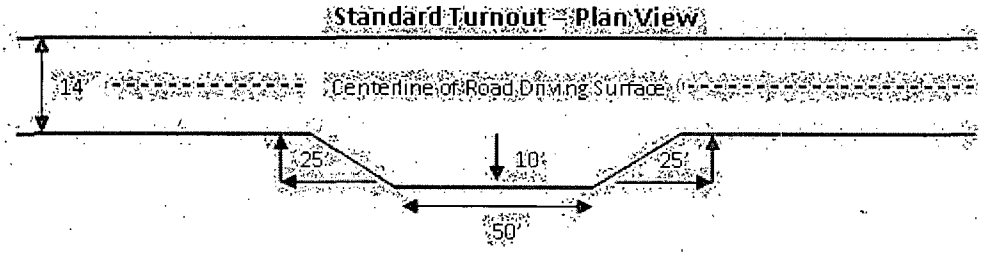
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

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

Ditching

Ditching shall be required on both sides of the road.

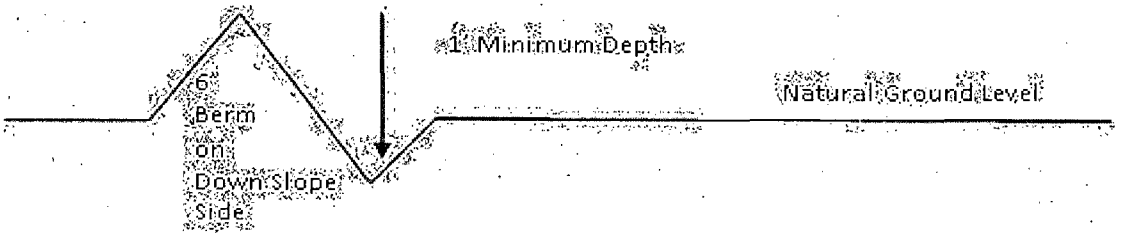
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Culvert Installations

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

Cattleguards

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

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

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

Fence Requirement

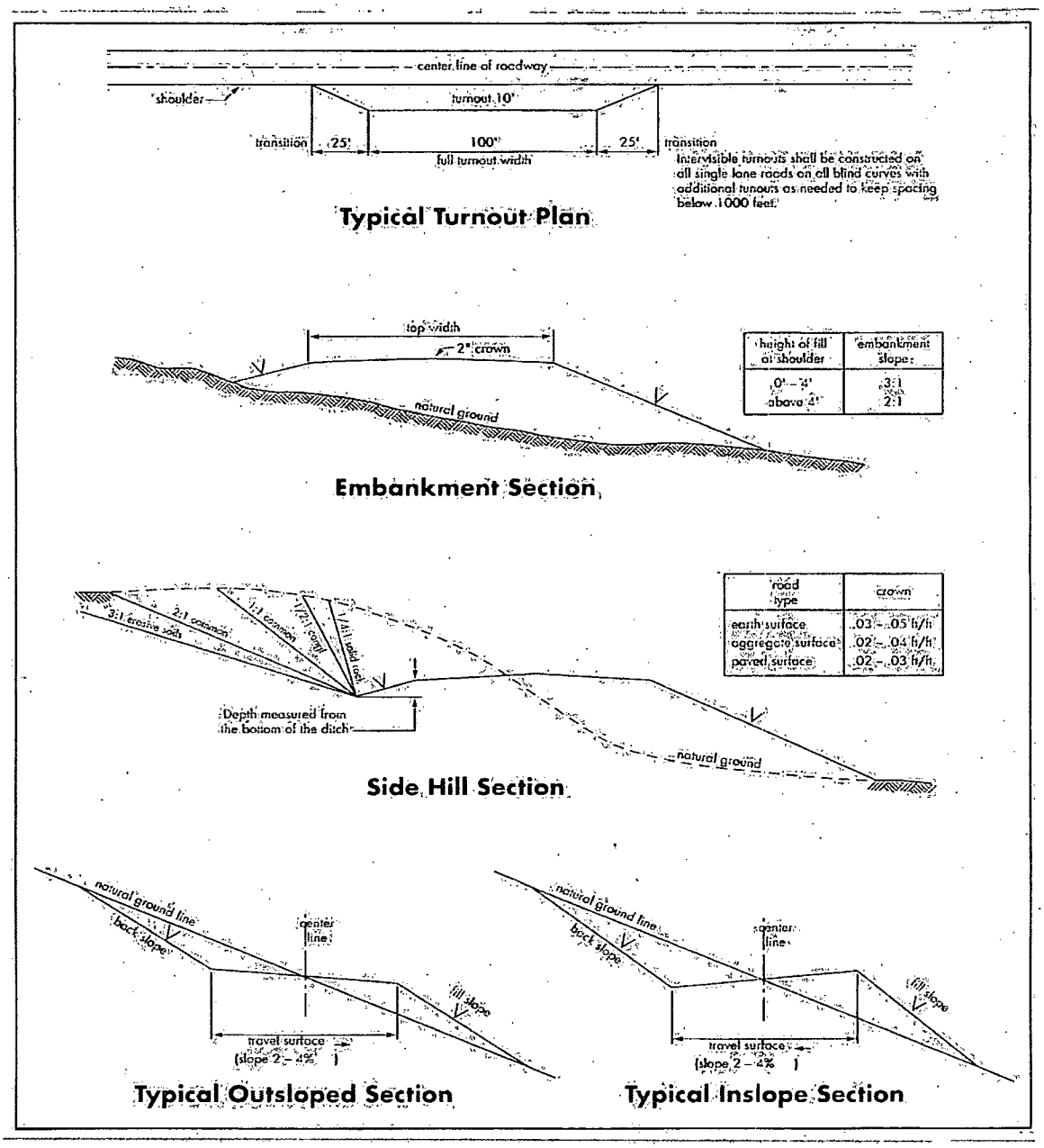
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated **500 feet** prior to drilling into the **Bone Spring** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

3. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

HIGH CAVE/KARST –A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED.

Possible loss of circulation in the Delaware and Bone Spring.
Possibility of sulfur water flows in the Castile formation
Possibility of high pressure gas burst within the Wolfcamp.

1. The **13-3/8** inch surface casing shall be set at approximately 500 feet in a competent bed below expected cave depth, into the Delaware and above any possible hydrocarbon zones and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13-3/8" surface shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the next borehole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst. Additional cement will be required, as excess cement calculates -3%.**

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the pilot hole. Report results to BLM office.

Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which shall be Class H and a minimum of 200' in length. Operator can set one Class H plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug.

Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

Operator has proposed DV tool at depth of 5900', DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

   a. First stage to DV tool:

   ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

   b. Second stage above DV tool:

   ☒ Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

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

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

    c. The results of the test shall be reported to the appropriate BLM office.

    d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

f. BOP/BOPE must be tested by an independent service company within **500** feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. 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.

Proposed mud weight may not be adequate for drilling through Wolfcamp.

E. DRILL STEM TEST

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

F. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

VRM Facility Requirement
Low-profile tanks not greater than eight-feet-high shall be used.

B. PIPELINES

The company will need to work with the Carlsbad Field Office to identify a route to place a buried pipeline to take production to the Thurman Draw Unit #1 existing well pad facility.

IX. INTERIM RECLAMATION

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

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and

loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

	Species lb/acre
Plains Bristlegrass (*Setaria magrostachya*)	1.0
Green Spangletop (*Leptochloa dubia*)	2.0
Side oats Grama (*Bouteloua curtipendula)*	5.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

(Insert Seed Mixture Here)