

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN
(See other instructions on
reverse side)

Form approved.

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐ Artesia, NM 10-2834

b. TYPE OF WELL:

OIL WELL ☒ GAS WELL ☐ Other ☐ SINGLE ZONE ☐ MULTIPLE ZONE ☐

2. NAME OF OPERATOR

DEVON ENERGY CORPORATION (NEVADA)

3. ADDRESS AND TELEPHONE NO.

20 N. BROADWAY, SUITE 1500, OKC, OK 73102 (405) 235-3611

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*

At surface 1980' FNL & 1980' FEL, Unit G, Section 22-T23S-R31E, Eddy Cnty, NM

At top proposed prod. zone (SAME)

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

35 miles WNW of Jal, New Mexico

15. DISTANCE FROM PROPOSED

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT. 1980'

(Also to nearest drlg. unit line if any)

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT. N/A

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

GL 3420'

16. NO. OF ACRES IN LEASE

1240

19. PROPOSED DEPTH

8800'

5. LEASE DESIGNATION AND SERIAL NO.

NM-NM0405444A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

N/A

7. UNIT AGREEMENT NAME

N/A

8. FARM OR LEASE NAME, WELL NO.

Todd "22G" Federal #7

9. API WELL NO.

30-015- 32881

10. FIELD AND POOL, OR WILDCAT

Ingle Wells (Delaware)

11. SEC. T., R., M., OR BLOCK AND SURVEY OR AREA

Unit G

Section 22-T23S-R31E

12. COUNTY OR PARISH

Eddy

13. STATE

New Mexico

17. NO. OF ACRES ASSIGNED
TO THIS WELL

40

20. ROTARY OR CABLE TOOLS*

Rotary

22. APPROX. DATE WORK WILL START*

fourth quarter, 1998

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8" H-40	48#	850'	500 sx 35/65 Poz + 200 sx Class "C"
11"	8 5/8" J-55	32#	4350'	1600 sx 35/65 Poz + 200 sx Class "C"
7 7/8"	5 1/2" J-55	15.5# & 17#	8800'	1st Stage 525 sx Silica Lite Class "H"
			DV Tool +/- 5500'	2nd Stage 225 sx 35/65 Poz + 400 sx Class "H"

Devon Energy proposes to drill to approximately 8800' to test the Delaware for commercial quantities of oil. If the Delaware is deemed non-commercial, the wellbore will be plugged and abandoned as per Federal regulations. Programs to adhere to onshore oil and gas regulations are outlined in the following exhibits and attachments.

Drilling Program, Surface Use and Operating Plan

Exhibits #1 = Blowout Prevention Equipment

Exhibit #2 = Location and Elevation Plat

Exhibits #3 = Road Map and Topo Map

Exhibit #4 = Wells Within 1 Mile Radius

Exhibits #5 = Production Facilities Plat

Exhibit #6 = Rotary Rig Layout

Exhibit #7 = Casing Design

H₂S Operating Plan

Archaeological Survey

The undersigned accepts all applicable terms, conditions, stipulations and restrictions concerning operations conducted on the leased land or portions thereof, as described below.

Lease #: NM-NM0405444A

Legal Description: Section 22-T23S-R31E

Bond Coverage: Nationwide

BLM Bond #: CO-1104

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS ATTACHED

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

Candace R. Graham

Candace R. Graham

TITLE

Engineering Technician

DATE

June 16, 1998

*(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY

R. Richard A. Whitley

TITLE

Acting

STATE DIRECTOR

DATE

7-3-03

See Instructions On Reverse Side

APPROVED FOR 1 YEAR

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

DRILLING PROGRAM

Attached to Form 3160-3
Devon Energy Corporation (Nevada)
TODD "22G" FEDERAL #7
1980' FNL & 1980' FEL
Section 22-T23S-R31E, Unit G
Eddy County, New Mexico

1. Geologic Name of Surface Formation

Permian

2. Estimated Tops of Important Geologic Markers

Rustler	800'
Top of Salt	1100'
Base of Salt	3900'
Bell Canyon	4400'
Cherry Canyon	5600'
Brushy Canyon	7000'
Bone Spring Lime	8300'
Total Depth	8800'

3. Estimated Depths of Possible Fresh Water-, Oil-, or Gas-Bearing Formations

Upper Permian Sands	above 800'	fresh water
Delaware (Bell Canyon)	4400'	oil
Delaware (Cherry Canyon)	6000'	oil
Delaware (Brushy Canyon)	8000'	oil

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 850' and circulating cement back to surface. The Potash and Salt intervals will be protected by setting 8 5/8" casing at 4350' and circulating cement to surface. The Delaware intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 8 5/8" casing.

4. Casing Program

Hole Size	Interval	Casing OD	Weight	Grade	Type
30"	0-40'	20"		Conductor	0.30" wall
17 1/2"	0-850'	13 3/8"	48#	H-40	ST&C, new R-3
11"	0-4350'	8 5/8"	32#	J-55	ST&C, new R-3
7 7/8"	0'-TD (8800'±)	5 1/2"	15.5# & 17#	J-55	LT&C, new R-3

Cementing Program

20" Conductor Casing	Cement with Ready-mix to surface.
13 3/8" Surface Casing	Cement to surface using 500 sx Poz (35% Poz, 65% Class C, 6% gel) with 2% CaCl ₂ and 1/4 lb/sx Cellophane flakes + 200 sx Class C with 2% CaCl ₂ and 1/4 lb/sx Cellophane flakes.
8 5/8" Intermediate Casing	Cement to surface using 1600 sx Poz (35% Poz, 65% Class C, 6% gel, 15% salt) with 1/4 lb/sx Cellophane flakes + 200 sx Class C with 2% CaCl ₂ , 1/4 lb/sx Cellophane flakes
5 1/2" Production Casing	Cement 1st stage with 525 sx Silica Lite (Class H) with 3% salt, 0.6% FL additive, 1/4 lb/sx Cellophane flakes
with DV tool at ±5500'	Cement 2nd stage with 225 sx Poz (35% Poz, 65% Class H, 6% gel) with 1/4 lb/sx Cellophane flakes + 400 sx Class H with 4% gel, 5% salt, 1/4 lb/sx Cellophane flakes.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach 450'± above the 8 5/8" casing seat at 4350'.

5. Minimum Specifications for Pressure Control

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a (3M system) double ram type (2000 psi WP) preventer and a bag-type (Hydril) preventer (2000 psi WP). Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and 4 1/2" drill pipe rams on bottom. Both BOP's will be installed on the 13 3/8" surface casing and utilized continuously until total depth is reached. All BOP's and associated equipment will be tested to 1200 psi

before drilling out the 13 3/8" casing shoe (70% of 48# H-40 casing). Prior to drilling out the 8 5/8" casing shoe, the BOP's and Hydril will be function tested as per BLM drilling Operations Order #2.

Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a kelly cock, floor safety valve, choke lines and choke manifold having 3000 psi WP rating.

6. Types and Characteristics of the Proposed Mud System

The well will be drilled to total depth using brine, cut brine and polymer mud systems. Depths of systems are as follows.

Depth	Type	Weight (ppg)	Viscosity (1/sec)	Water Loss (cc/30 mins)
0-850'	Fresh water	8.8	34-36	No control
850-4350'	Brine water	10.0	28	No control
4350'-TD	Fresh water polymer	8.8	32-36	10-20

The necessary mud products for weight addition and fluid loss control will be on location at all times.

7. Auxiliary Well Control and Monitoring Equipment

- A. A kelly cock will be in the drill string at all times.
- B. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- C. Hydrogen Sulfide detection equipment (Compliance Package) will be in operation when drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented.

8. Logging, Testing and Coring Program

- A. Drill stem tests will be based on geological sample shows.
- B. The open hole wireline logging program will be as follows.

TD to intermediate casing: Induction / Gamma Ray / Neutron / Density Log.

TD to surface: Neutron with Gamma Ray.

- C. Rotary sidewall cores are planned.
- D. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

9. Abnormal Pressures, Temperatures and Potential Hazards

No abnormal pressures or temperatures are foreseen. The anticipated bottom hole temperature at total depth is approximately 130 degrees and maximum bottom hole pressure is approximately 2900 psig. No hydrogen sulfide gas has been reported or is known to exist at these depths in this area. No major lost circulation intervals have been encountered in adjacent wells.

10. Anticipated Starting Date and Duration of Operations

A Cultural Resources Examination will be completed by Don Clifton Archaeological Consultant, and submitted to the BLM. Road and location preparation will not be undertaken until approval has been received from the BLM. If approved, the anticipated spud date for the well will be in the fourth quarter, 1998. The drilling operation should require approximately 21 days. If the well is deemed productive, completion operations will require, at minimum, an additional 30 days of testing to ascertain whether permanent production facilities will be constructed.

MINIMUM BLOWOUT PREVENTER REQUIREMENTS

3,000 psi Working Pressure

EXHIBIT # 1

3 MWP

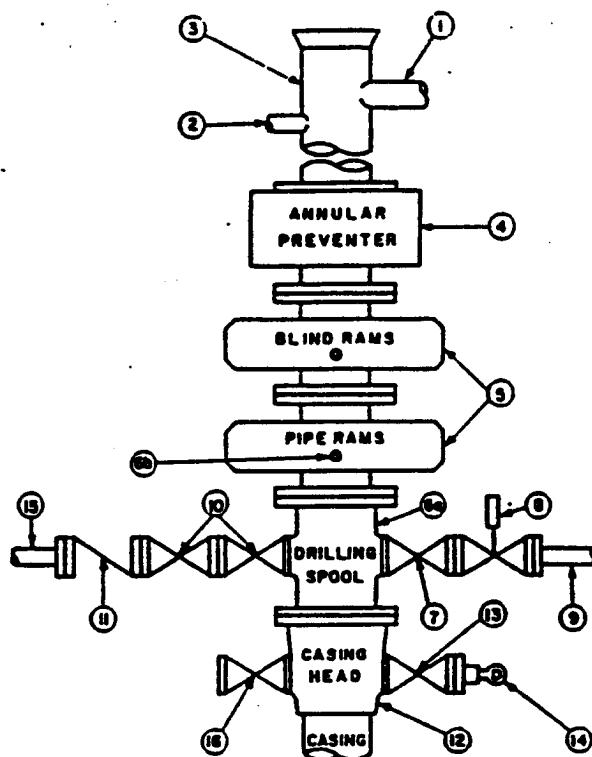
STACK REQUIREMENTS

No.	Item	Min. I.D.	Min. Nominal
1	Flowline		
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above.)		
7	Valve Gate <input type="checkbox"/> Plug <input type="checkbox"/>	3-1/8"	
8	Gate valve—power operated	3-1/8"	
9	Line to choke manifold		3"
10	Valves Gate <input type="checkbox"/> Plug <input type="checkbox"/>	2-1/16"	
11	Check valve	2-1/16"	
12	Casing head		
13	Valve Gate <input type="checkbox"/> Plug <input type="checkbox"/>	1-13/16"	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"

OPTIONAL

16	Flanged valve	1-13/16"	
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CONFIGURATION A



CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 3,000 psi. minimum.
2. Automatic accumulator (80 gallon, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.

MEC TO FURNISH:

1. Bradenhead or casinghead and side valves.
2. Wear bushing, if required.

GENERAL NOTES:

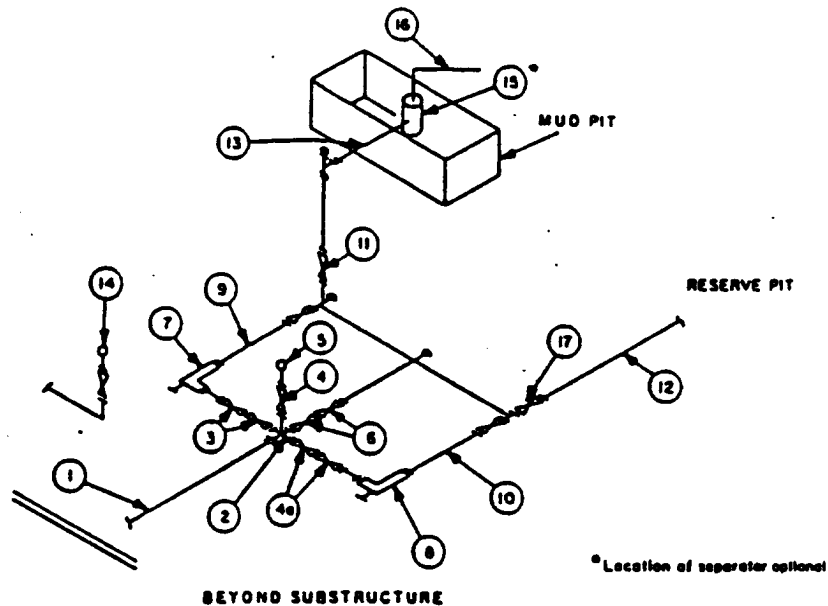
1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke. Valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position.
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, other bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with handwheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.

7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (3000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Do not use kill line for routine fill-up operations.

**MINIMUM CHOKE MANIFOLD
3,000, 5,000 and 10,000 PSI Working Pressure**

EXHIBIT # 1

3 MWP - 5 MWP - 10 MWP



MINIMUM REQUIREMENTS										
No.		3,000 MWP			5,000 MWP			10,000 MWP		
		I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING
1	Line from drilling spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3"x3"x3"x2"			3,000			5,000			
	Cross 3"x3"x3"x3"									10,000
3	Valves(1) Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
4	Valve Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	1-13/16"		3,000	1-13/16"		5,000	1-13/16"		10,000
4a	Valves(1)	2-1/16"		3,000	2-1/16"		5,000	3-1/8"		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valves Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
7	Adjustable Choke(3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		3"	10,000
11	Valves Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
12	Lines		3"	1,000		3"	1,000		3"	2,000
13	Lines		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound standpipe pressure gauge			3,000			5,000			10,000
15	Gas Separator		2'x5'			2'x5'			2'x5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valves Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000

(1) Only one required in Class 3M.

(2) Gate valves only shall be used for Class 10M.

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS

- All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
- All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
- All lines shall be securely anchored.
- Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
- Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes. As an alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
- Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90° bends using bull plugged tees.
- Discharge lines from chokes, choke bypass and from top of gas separator should vent as far as practical from the well.

Exhibit #1A
NOTES REGARDING BLOWOUT PREVENTERS
Devon Energy Corporation (Nevada)
TODD "22G" FEDERAL #7
1980' FNL & 1980' FEL
Section 22-T23S-R31E, Unit G
Eddy County, New Mexico

1. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
2. Wear ring will be properly installed in head.
3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 3000 psi working pressure.
4. All fittings will be flanged.
5. A full bore safety valve tested to a minimum 3000 psi WP with proper thread connections will be available on the rotary rig floor at all times.
6. All choke lines will be anchored to prevent movement.
7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
8. Will maintain a kelly cock attached to the kelly.
9. Hand wheels and wrenches will be properly installed and tested for safe operation.
10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.
11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

State of New Mexico
Energy, Minerals, and Natural Resources Department

OIL CONSERVATION DIVISION
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

Submit to the Appropriate District Office
State Lease - 4 copies
Fee Lease - 3 copies

DISTRICT III
1000 Rio Brazos Rd.
Aztec, NM 87410

DISTRICT IV
P. O. Box 2088
Santa Fe, NM 87507-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number		2 Pool Code 33745		3 Pool Name Ingle Wells (Delaware)	
4 Property Code		5 Property Name TODD 22 G FEDERAL			6 Well Number 7
7 OGRID No. 6137		8 Operator Name DEVON ENERGY CORPORATION (NEVADA)			9 Elevation 3420'

¹⁰ SURFACE LOCATION

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
G	22	23 SOUTH	31 EAST, N.M.P.M.		1980'	NORTH	1980'	EAST	EDDY

" BOTTOM HOLE LOCATION IF DIFFERENT FROM SURFACE

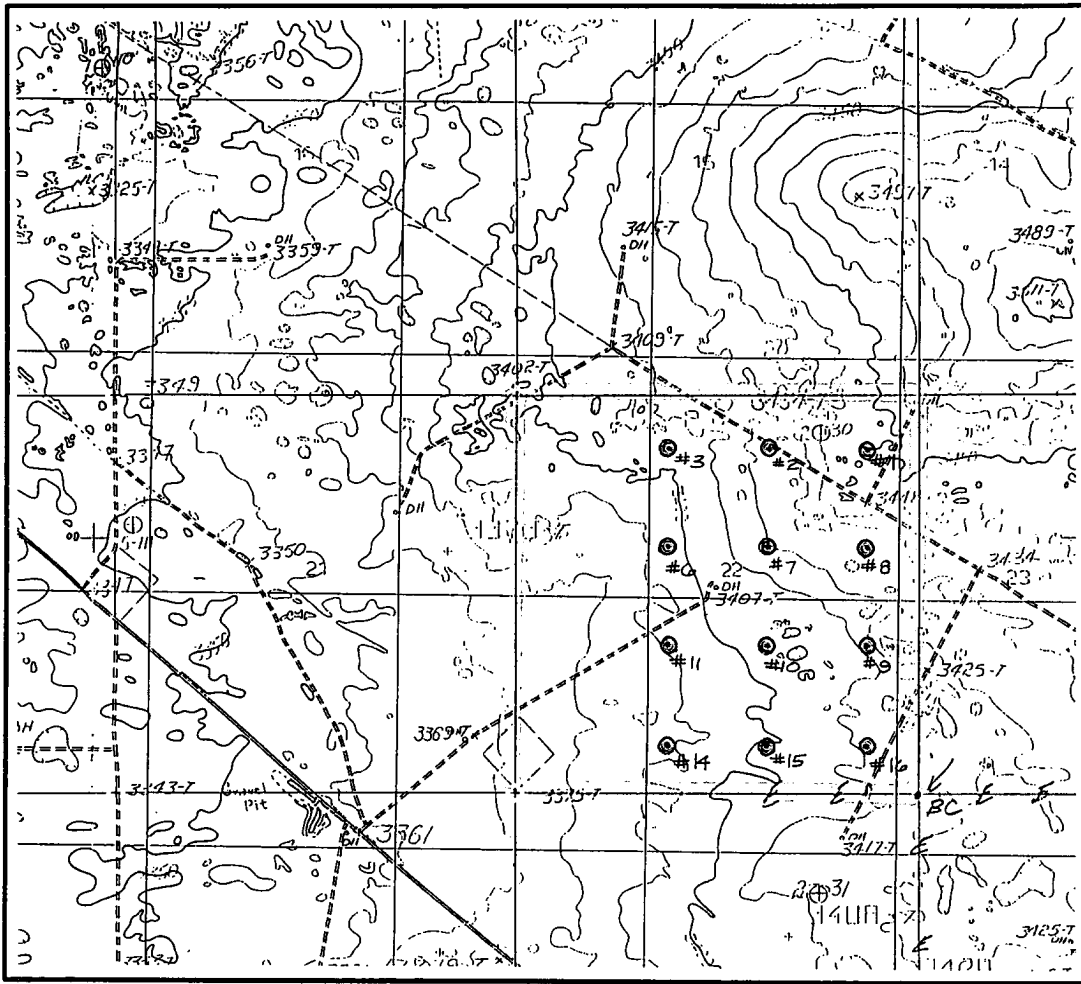
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
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¹² Dedicated Acres 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	OPERATOR CERTIFICATION <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</i>
	Signature <i>Candace R. Graham</i>
	Printed Name Candace R Graham
	Title Engineering Technician
	Date <i>June 2, 1998</i>
	SURVEYOR CERTIFICATION <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</i>
	Date of Survey
	Signature <i>Roger M. Robbins</i>
	Professional Surveyor
	Certificate No. ROGER M. ROBBINS P.S. #12128

JOB #58467 / 48 SE / JSJ



SCALE : 1" = 2000'

CONTOUR INTERVAL 10'

SECTION 22 TWP 23-S RGE 31-E

SURVEY NEW MEXICO PRINCIPAL MERIDIAN

COUNTY EDDY STATE NM

OPERATOR DEVON ENERGY CORP.

U.S.G.S. TOPOGRAPHIC MAP

LOS MEDANOS

NAME	LOCATION	ELEVATION	LAT.	LONG.
TODD 22 A 1	660' FNL & 660' FEL	3449'	N 32°17'43.0"	W 103°45'31.6"
TODD 22 B 2	660' FNL & 1980' FEL	3426'	N 32°17'43.0"	W 103°45'47.0"
TODD 22 C 3	660' FNL & 1980' FWL	3410'	N 32°17'43.0"	W 103°46'02.4"
TODD 22 F 6	1980' FNL & 1980' FWL	3405'	N 32°17'29.9"	W 103°46'02.4"
TODD 22 G 7	1980' FNL & 1980' FEL	3420'	N 32°17'29.9"	W 103°45'47.0"
TODD 22 H 8	1980' FNL & 660' FEL	3428'	N 32°17'29.9"	W 103°45'31.6"
TODD 22 I 9	1980' FSL & 660' FEL	3421'	N 32°17'16.8"	W 103°45'31.6"
TODD 22 J 10	1980' FSL & 1980' FEL	3409'	N 32°17'16.8"	W 103°45'47.0"
TODD 22 K 11	1980' FSL & 1980' FWL	3396'	N 32°17'16.8"	W 103°46'02.4"
TODD 22 N 14	660' FSL & 1980' FWL	3391'	N 32°17'03.7"	W 103°46'02.4"
TODD 22 O 15	660' FSL & 1980' FEL	3403'	N 32°17'03.7"	W 103°45'47.0"
TODD 22 P 16	660' FSL & 660' FEL	3418'	N 32°17'03.7"	W 103°45'31.6"

These locations have been very carefully staked on the ground according to the best official survey records, maps, and other data available to us.

Review this plat and notify us immediately of any possible discrepancy.

TOPOGRAPHIC LAND SURVEYORS

Surveying & Mapping for the Oil & Gas Industry

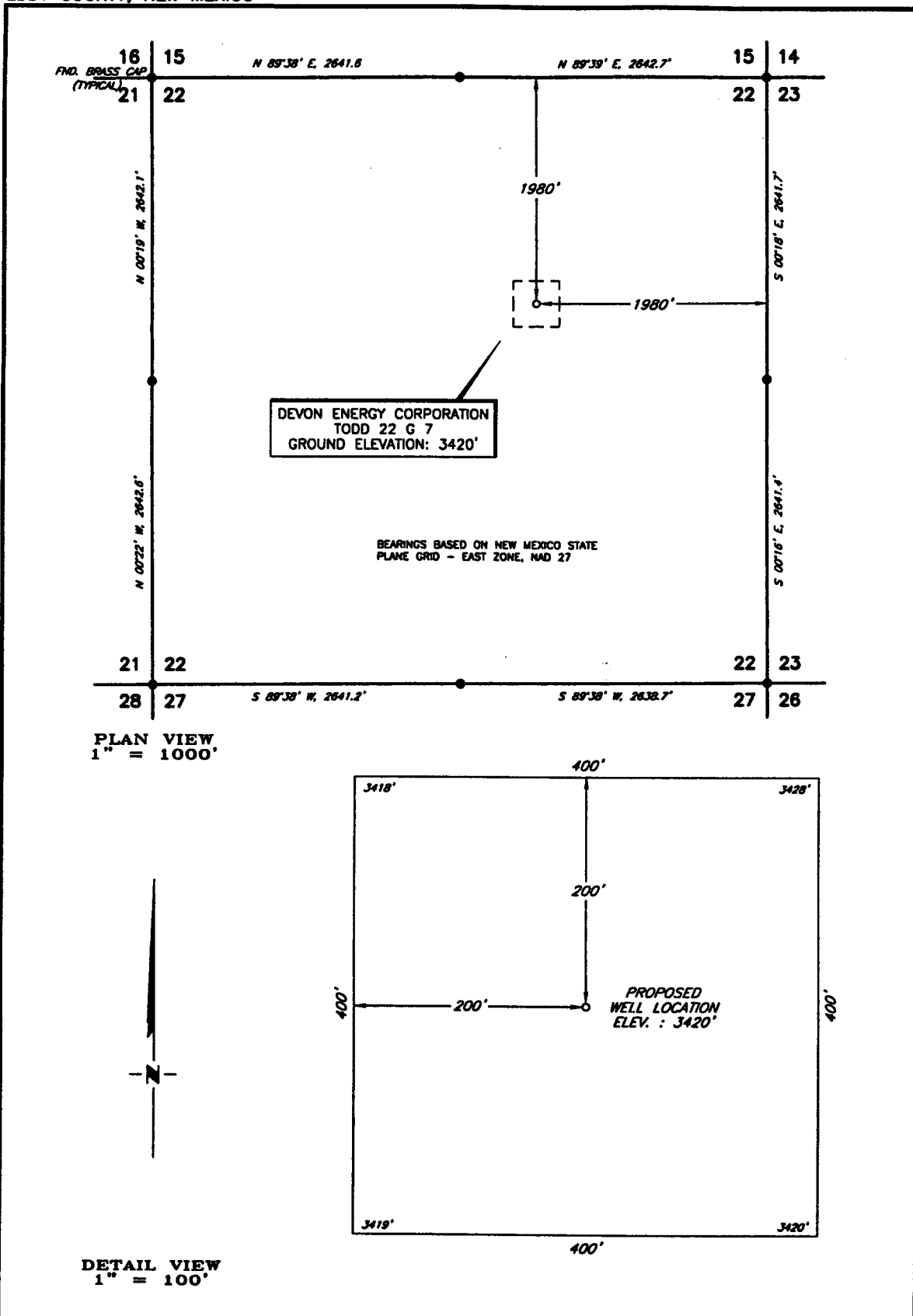
1307 N. HOBART
PAMPA, TX. 79065
(800) 550-5700

6709 N. CLASSEN BLVD.
OKLAHOMA CITY, OK. 73116
(800) 550-5700

2903 N. BIG SPRING
MIDLAND, TX. 79705
(800) 550-5700

PLAT SHOWING PROPOSED
WELL LOCATION IN
SECTION 22, T-23-S, R-31-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

EXHIBIT # 3



				DEVON ENERGY CORPORATION		SCALE: AS SHOWN
NO.	REVISION	DATE	BY			DATE: MAY 20, 1998
SURVEYED BY: B.R.B.						JOB NO.: 58467-F
DRAWN BY: JSJ						QUAD NO.: 48 SE
APPROVED BY: R.M.R.						SHEET : 1 OF 1
				SURVEYING AND MAPPING BY TOPOGRAPHIC LAND SURVEYORS MIDLAND, TEXAS		

DEVON ENERGY

Operator: DEVON ENERGY CORP	Well Name: TODD FEDERAL AREA
Project ID:	Location: T23S-R31E

Design Parameters:

Mud weight (9.00 ppg) : 0.448 psi/ft
 Shut in surface pressure : 765 psi
 Internal gradient (burst) : 0.100 psi/ft
 Annular gradient (burst) : 0.000 psi/ft
 Tensile load is determined using air weight
 Service rating is "Sweet"

Design Factors:

Collapse : 1.125
 Burst : 1.00
 S Round : 1.80 (J)
 Buttress : 1.60 (J)
 Body Yield : 1.50 (B)
 Overpull : 0 lbs.

Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost		
1	850	13-3/8	48.00	H-40	ST&C	850	12.559		
	Collapse			Burst Load (psi)	Min Int Strgth (psi)	Yield S.F.	Tension		
	Load (psi)	Strgth (psi)	S.F.				Load (kips)	Strgth (kips)	S.F.
1	397	740	1.864	850	1730	2.04	40.80	322	7.89

Prepared by : CHUCK HORSMAN, Oklahoma City, OK
 Date : 06-04-1993
 Remarks :

Minimum segment length for the 850 foot well is 800 feet.
 Surface string:

Next string will set at 4,400 ft. with 10.00 ppg mud (pore pressure of 2,286 psi.) The frac gradient of 1.000 at the casing seat results in an injection pressure of 850 psi. Effective BHP (for burst) is 850 psi.

NOTE: The design factors used in this casing string design are as shown above. As a general guide-line, Lone Star Steel recommends using minimum design factors of 1.125 - Collapse (with evacuated casing), 1.0 - Burst, 1.8 - S Round Tension, 1.6 - Buttress Tension, and 1.5 - Body Yield. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kamler curve. Engineering responsibility for use of this design will be that of the purchaser. Costs for this design are based on a 1990 pricing model. (Version 1.0G)

DEVON ENERGY

Operator: DEVON ENERGY CORP	Well Name: TODD FEDERAL AREA
Project ID:	Location: T23S-R31E

Design Parameters:

Mud weight (9.80 ppg) : 0.509 psi/ft
 Shut in surface pressure : 3457 psi
 Internal gradient (burst) : 0.100 psi/ft
 Annular gradient (burst) : 0.000 psi/ft
 Tensile load is determined using air weight
 Service rating is "Sweet"

Design Factors:

Collapse : 1.125
 Burst : 1.00
 8 Round : 1.30 (J)
 Buttress : 9.89 (J)
 Body Yield : 1.50 (B)
 Overpull : 0 lbs.

Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost		
1	4,400	8-5/8"	32.00	J-55	ST&C	4,400	7.875		
	Load (psi)	Collapse Strgth (psi)	S.F.	Burst Load (psi)	Min Int Strgth (psi)	Yield S.F.	Tension Load (kips)	Strgth (kips)	S.F.
1	2240	2530	1.129	3527	3930	1.11	140.80	372	2.64

Prepared by : CHUCK HORSMAN, Oklahoma City, OK
 Date : 06-04-1993
 Remarks :

Minimum segment length for the 4,400 foot well is 800 feet.

Surface/Intermediate string:

Next string will set at 8,400 ft. with 9.00 ppg mud (pore pressure of 3,927 psi.) The frac gradient of 1.000 at the casing seat results in an injection pressure of 4,400 psi. Effective SNP (for burst) is 3,527 psi.

NOTE: The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - Collapse (with evacuated casing), 1.0 - Burst, 1.3 - 8 Round Tension, 1.6 - Buttress Tension, and 1.5 - Body Yield. Collapse strength under axial tension was calculated based on the Westcott, Dunlap and Zamier curve. Engineering responsibility for use of this design will be that of the purchaser. Costs for this design are based on a 1990 pricing model. (Version 1.06)

DEVON ENERGY

Operator: DEVON ENERGY CORP	Well Name: TODD FEDERAL AREA
Project ID:	Location: T23S-R31E

Design Parameters:

Mud weight (9.00 ppg) : 0.448 psi/ft
 Shut in surface pressure : 3316 psi
 Internal gradient (Burst) : 0.100 psi/ft
 Annular gradient (Burst) : 0.000 psi/ft
 Tensile load is determined using air weight
 Service rating is "Sweet"

Design Factors:

Collapse : 1.125
 Burst : 1.00
 8 Round : 1.80 (J)
 Buttress : 1.89 (J)
 Body Yield : 1.50 (B)
 Overpull : 0 lbs.

*** WARNING *** Design factor for joint strength exceeded in design!

	Length (feet)	Size (in.)	Weight (lb/ft)	Grade	Joint	Depth (feet)	Drift (in.)	Cost
1	1,200	5-1/2"	17.00	J-55	LT&C	1,200	4.767	
2	6,200	5-1/2"	15.50	J-55	LT&C	7,400	4.825	
3	1,350	5-1/2"	17.00	J-55	LT&C	8,750	4.767	

	Load (psi)	Collapse Strgth (psi)	S.F.	Burst Load (psi)	Min Int Strgth (psi)	Yield S.F.	Load (kips)	Tension Strgth (kips)	S.F.
1	561	3897	6.947	3336	5320	1.59	139.45	247	1.77 J
2	3460	3927	1.135	3956	4810	1.22	119.05	217	1.82 J
3	4091	4910	1.200	4091	5320	1.30	22.95	247	10.76 J

Prepared by : TOM PEPPER, Oklahoma City, OK
 Date : 07-10-1995
 Remarks :

Minimum segment length for the 8,750 foot well is 300 feet.

The mud gradient and bottom hole pressures (for burst) are 0.448 psi/ft and 4.091 psi, respectively.

NOTE: The design factors used in this casing string design are as shown above. As a general guideline, Lone Star Steel recommends using minimum design factors of 1.125 - Collapse (with evacuated casing), 1.0 - Burst, 1.8 - 8 Round Tension, 1.6 - Buttress Tension, and 1.5 - Body Yield. Collapse strength under axial tension was calculated based on the Westcott, Dunlop and Kessler curve. Engineering responsibility for use of this design will be that of the purchaser. Costs for this design are based on a 1990 pricing model. (Version 1.00)

DEVON ENERGY CORPORATION

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

A. Hydrogen Sulfide Training

All rig crews and company personnel will receive training from a qualified instructor in the following areas prior to penetrating any hydrogen sulfide bearing formations during drilling operations:

1. The hazards and characteristics of hydrogen sulfide (H₂S).
2. The proper use and maintenance of the H₂S safety equipment and of personal protective equipment to be utilized at the location such as H₂S detection monitors, alarms and warning systems, and breathing equipment. Briefing areas and evacuation procedures will also be discussed and established.
3. Proper rescue techniques and procedures will be discussed and established.

In addition to the above, supervisory personnel will be trained in the prevention of oil and gas well blowouts in accordance with Minerals Management Service Standards Subpart - 0 - 250 - 212.

Prior to penetrating any known H₂S bearing formation, H₂S training will be required at the rig sight for all rig crews and company personnel that have not previously received such training. This instruction will be provided by a qualified instructor with each individual being required to pass a 20 question test regarding H₂S safety procedures. All contract personnel employed on an unscheduled basis will be required to have received appropriate H₂S training.

This Hydrogen Sulfide Drilling And Operations Plan shall be available at the wellsite during drilling operations.

B. H₂S Safety Equipment And Systems

All H₂S safety equipment and systems will be installed, tested, and operational when drilling operations reach a depth approximately 500' above any known or probable H₂S bearing formation. The safety systems to be utilized during drilling operations are as follows:

1. Well Control Equipment

- (a) Double ram BOP with a properly sized closing unit and pipe rams to accommodate all pipe sizes in use.
- (b) A choke manifold with a minimum of one remote choke.

2. H2S Detection And Monitoring Equipment

- (a) Three (3) H2S detection monitors will be placed in service at the location. One monitor will be placed near the bell nipple on the rig floor; one will be placed at the rig substructure; and, one will be at the working mud pits or shale shaker. This monitoring system will have warning lights and audible alarms that will alert personnel when H2S levels reach 10 ppm.
- (b) One (1) Sensidyne Pump with the appropriate detection tubes will also be available to perform spot checks for H2S concentrations in any remote or isolated areas.

3. Protective Equipment For Essential Personnel

Protective equipment will consist of the following:

- (a) Four (4) - five minute escape packs located at strategic points around the rig.
- (b) Two (2) - thirty minute rescue packs to be located at the designated briefing areas.

4. Visual Warning System

Visual warning system will consist of the following:

- (a) Two wind direction indicators.
- (b) One condition / warning sign which will be posted on the road providing direct access to the location. The sign will contain lettering of sufficient size to be readable at a reasonable distance from the immediate location. The sign will inform the public that a hydrogen sulfide gas environment could be encountered at the location.

5. Mud Program

The mud program has been designed to minimize the volume of H₂S circulated to surface. Proper mud weight and safe drilling practices (for example, keeping the hole filled during trips) will minimize hazards when drilling in H₂S bearing formations.

6. Metallurgy

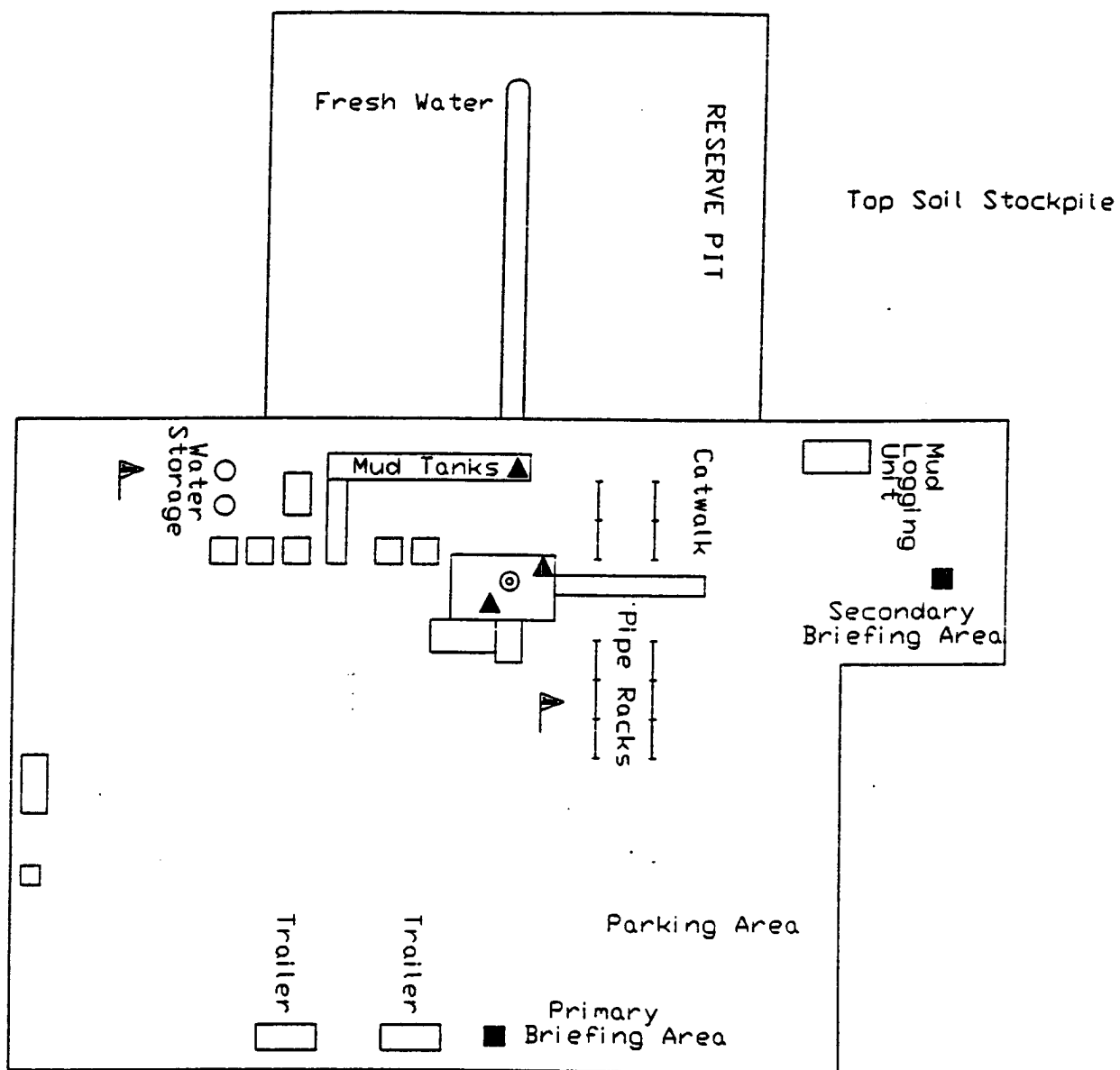
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spools, kill lines, choke manifold and lines and valves shall be suitable for H₂S service.

7. Communication

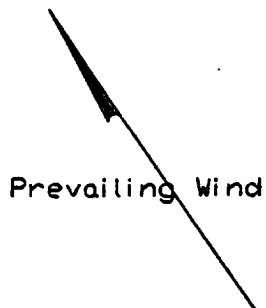
Cellular telephone communication will be available in company vehicles.

C. Diagram of Drilling Location

Attached is a diagram representing a typical location layout as well as the location of H₂S monitors, briefing areas and wind direction indicators.



- ▲ H2S MONITORS WITH ALARMS AT THE BELL NIPPLE, SUBSTRUCTURE, AND SHALE SHAKER
- ▲ WIND DIRECTION INDICATORS
- SAFE BRIEFING AREAS WITH CAUTION SIGNS AND PROTECTIVE BREATHING EQUIPMENT



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