

Form 3160-3
(April 2004)

N.M. Oil Cons. DIV-Dist. 2
1301 W. Grand Avenue
Artesia, NM 88210

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER

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

2. Name of Operator
ST. MARY LAND & EXPLORATION COMPANY 154903

3a. Address 580 WESTLAKE PARK BLVD., SUITE 600
HOUSTON, TX 77079

3b. Phone No. (include area code)
281/677-2800

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

At surface (O), 1270' FSL & 1980' FEL

At proposed prod. zone " "

Secretary's Potash

14. Distance in miles and direction from nearest town or post office*
17 MILES NE OF CARLSBAD

12. County or Parish
EDDY

13. State
NM

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any) 1270'

16. No. of acres in lease
920

17. Spacing Unit dedicated to this well
20

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft. 150'

19. Proposed Depth
4600'

20. BLM/BIA Bond No. on file
6041872

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3329.0'

22. Approximate date work will start*
10/01/2005

23. Estimated duration
15 DAYS

24. Attachments

Canitan Controlled Water Basin

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 shall be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see
Item 20 above).

5. Operator certification

6. Such other site specific information and/or plans as may be required by the
authorized officer.

25. Signature

Tiffany Grant

Name (Printed/Typed)

TIFFANY GRANT

Date

08/23/2005

Title

REGULATORY AGENT

Approved by (Signature)

151 DENNIS R. STENGER

Name (Printed/Typed)

151 DENNIS R. STENGER

Date

OCT 19 2005

Title

STATE DIRECTOR

Office

NM STATE OFFICE

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

Conditions of approval, if any, are attached.

APPROVAL FOR 1 YEAR

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

*(Instructions on page 2)

Salt
95.5

Witness Surface &
Intermediate Casing

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised JUNE 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name PARKWAY DELAWARE UNIT	Well Number 515
GRID No.	Operator Name ST. MARY LAND & EXPLORATION COMPANY	Elevation 3329'

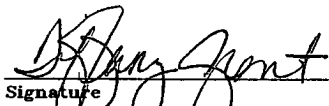
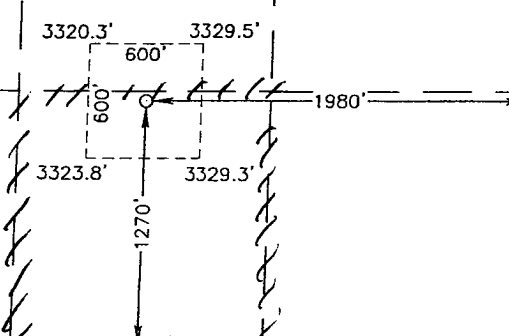

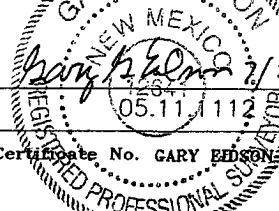
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	35	19-S	29-E		1270	SOUTH	1980	EAST	EDDY

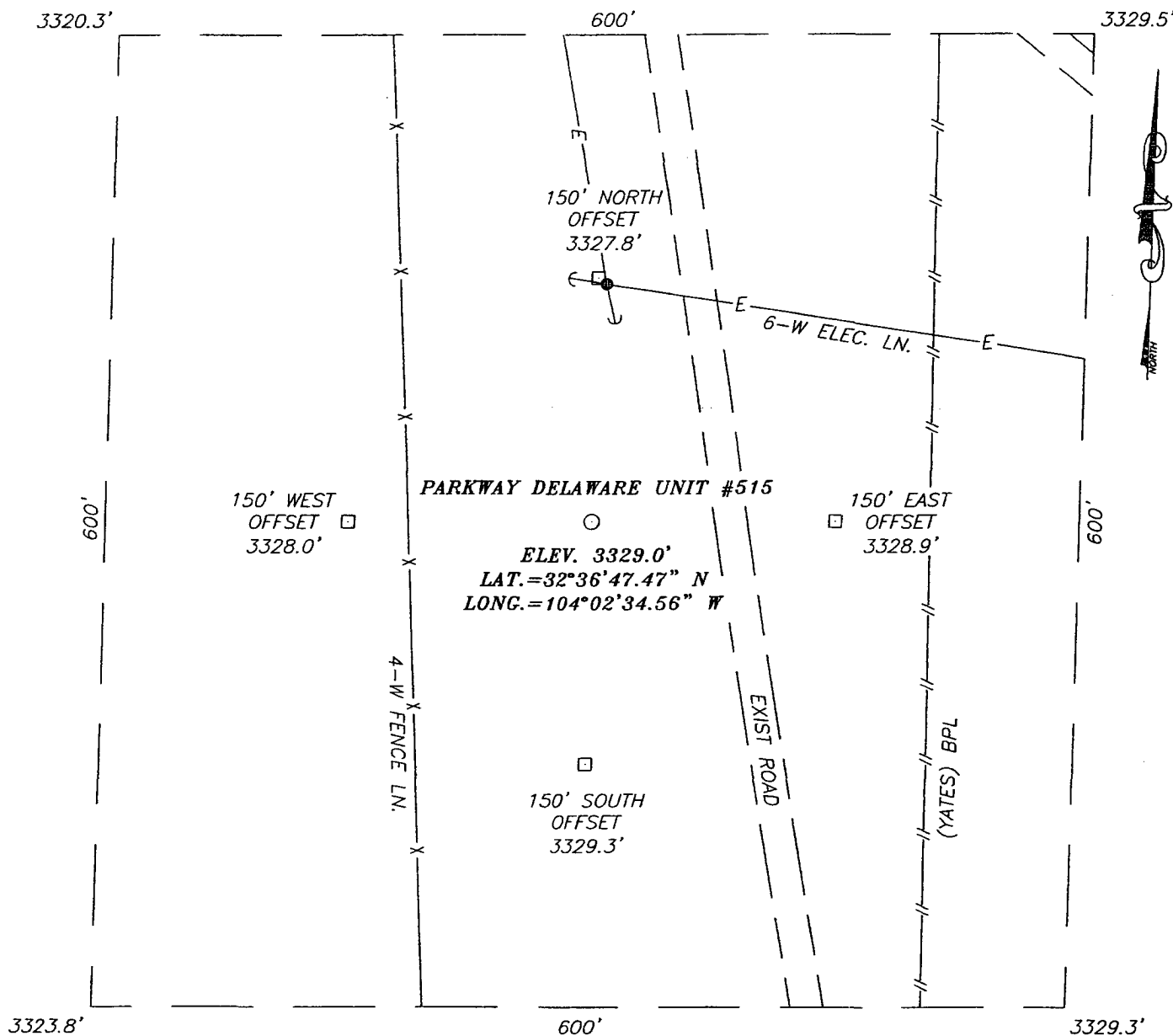
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.						

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

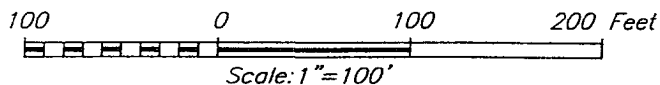
<p>GEODETIC COORDINATES NAD 27 NME</p> <p>Y=586911.2 N X=589418.5 E</p> <p>LAT.=32°36'47.47" N LONG.=104°02'34.56" W</p>	<p>OPERATOR CERTIFICATION</p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p> Signature</p> <p>TIFFANY GRANT Printed Name</p> <p>REGULATORY TECH Title</p> <p>08-02-05 Date</p>
	<p>SURVEYOR CERTIFICATION</p> <p>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.</p> <p>JULY 20, 2005</p> <p>Date Surveyed JR</p> <p> Signature & Seal of Professional Surveyor</p> <p></p> <p>Certificate No. GARY EDISON 12641</p>

SECTION 35, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

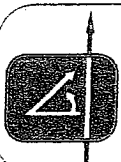
FROM THE INTERSECTION OF U.S HWY. 62-180
 AND CO. RD. #238 (BURTON FLAT) GO NORTH ON
 CO. RD. #238 FOR APPROX. 6.0 MILES. TURN
 RIGHT (EAST) AND GO APPROX. 1.0 MILES. TURN
 RIGHT (SOUTH) AND GO APPROX. 0.1 MILES. THIS
 LOCATION IS APPROX. 100' WEST.



ST. MARY LAND & EXPLORATION COMPANY

PARKWAY DELAWARE UNIT #515 WELL
 LOCATED 1270 FEET FROM THE SOUTH LINE
 AND 1980 FEET FROM THE EAST LINE OF SECTION 35,
 TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO.

Survey Date: 07/20/05	Sheet 1 of 1 Sheets
W.O. Number: 05.11.1112	Dr By: J.R. Rev 1:N/A
Date: 07/22/05	Disk: CD#5 05111112 Scale: 1"=100'

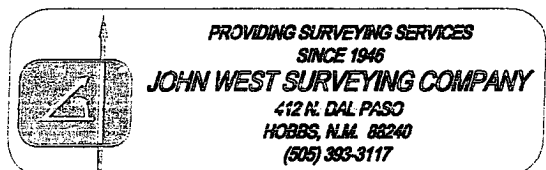


PROVIDING SURVEYING SERVICES
 SINCE 1946
JOHN WEST SURVEYING COMPANY
 412 N. DAL PASO
 HOBBS, N.M. 88240
 (505) 393-3117



CONTOUR INTERVAL:
ILLINOIS CAMP SE, N.M. - 10'

ILLINOIS CAMP SE, N.M.



BOONE ARCHAEOLOGICAL SERVICES, LLC



22 August 2005

St Mary Land & Exploration Company
P.O. Box 272
Midland, Texas 79702

Re: Parkway Delaware Unit No 515
BAS 07-05-65

Mr. Alan Means;

Research of records at the Bureau of Land Management, Carlsbad Field Office reveals the project for the Parkway Delaware Unit No 515 located at 1270 feet from the north line, 1986 feet from the east line of Section 35, T 19S, R 29E, NMPM Eddy County, New Mexico With the exception of 167 feet along the north side it overlaps the survey boundaries of BLM Project No. 05-357, which is the PDU well No. 402 located at 1437 feet from the north line, 1986 feet from the east line. Also there are several older survey projects in the immediate vicinity. Gary Navarre, Archaeologist with the Carlsbad BLM was consulted about the project and no fieldwork is required. Archaeological clearance as staked is recommended. A copy of this report will be forwarded to the Carlsbad Bureau of Land Management Archaeologist.

Map Reference: USGS 7.5' Series; ILLINOIS CAMP SE, NM (Prov. Ed. 1985) 32104-E1

Respectively,

A handwritten signature in black ink that reads "Danny Boone". The signature is written in a cursive, flowing style.

Danny Boone
Boone Archaeological Services, LLC
Principal Investigator / Field Supervisor

Attachments: Survey plat and project map

Nine Point Drilling Plan
(Supplement to BLM 3160-3)

St. Mary Land and Exploration Co.

PDU #515

1270' FSL, 1980' FEL; Sec 35, T19S, R29E

Parkway Delaware Unit

Parkway (Delaware) Field

Eddy Co., NM

NM-24160

1. Name and estimated tops of geologic horizons

Rustler	146'
Slado	351'
Tansill	1261'
Yates	1513'
Capitan Reef	1695'
Delaware	2698'

2. Protection of possible useable water will be achieved by setting 13.375" surface casing @ 380'+/- and cementing it to surface. Isolation of the productive Delaware-Brushy Canyon will be achieved by setting 5.5" casing @ 4600' +/-, and cementing back to surface.
3. The well control equipment to be employed during the drilling of this well is illustrated on attached EXHIBIT A. This equipment includes a two ram BOP, annular BOP and choke manifold of comparable pressure rating. Equipment will be rated for 3000 PSI and will be tested to 80% of that pressure prior to drilling out of the 13 3/8" surface casing. A hydraulic closing unit will be a part of this equipment and will be function tested daily.
4. The casing strings will consist of the following:

Surface:	13 3/8" OD, 48#/ft, H40, STC, new pipe @ 300 – 400' in 17 1/2" hole.	WITNESS
Intermediate:	8.625" OD, 24 & 32#/ft, J55, STC, new pipe @ 3200'+/- in 12.25" hole.	WITNESS
Production:	5.50" OD, 15.5#/ft, J55, LTC, new pipe @ 4600'+/- in 7.875" hole	

5. Cementing programs for the above casing strings are:

Surface: 360 sx Premium Plus w/ 2% CaC12, .25#/sk celloflake mixed at 14.8 ppg, and having a yield of 1.34 cu ft/sk

The above volume represents 100% excess over calculated hole volume, and will be adjusted to actual setting depth of casing. The slurries will be preceded by a fresh water spacer, and displaced with brine water.

Intermediate: Stage 1

- (a) 500 sx 50/50 Poz: Class C mixed @ 11.6 PPG and having a yield of 2.47 cuft/sx. Additives will be 5% D44(salt), 10% D20(gel), 0.25#/sx D29 (celloflake) and 0.2% D46(antifoamer).
- (b) 200 sx Class C neat mixed @ 14.8 PPG w/ a yield of 1.32 cuft/sx

Stage 2(w/Stage Tool @ 1500+/-)

- (a) 350 sx 50/50 Poz: Class C cement w/ 5% D44, 10% D20, 0.2% D46 and 0.25#/sx D29 mixed @ 11.6 PPG, and having a yield of 2.47 cuft/sx
- (b) 55 sx Class C neat mixed @ 14.8 PPG and having a yield of 1.32 cuft/sx.

The above are Schlumberger products with 50% excess volume - actual volumes will be adjusted to the open hole caliper of this wellbore. The cement slurries will be preceded by 12 bbls cement wash for mud removal and displaced with fresh water. Equivalent products from another vendor may be substituted for Schlumberger depending on price/availability.

- Production:**
- (a) 345 sx 35/65 Poz: Class H w/ 5% D44 +6% D20 +0.25#/D29 + 0.2% D46 mixed @ 12.4 PPG and having a yield of 2.03 cuft/sx .
 - (b) 160 sx 50/50 Poz: Class H w/55 D44 + 2% D20 + 0.25#/sx D29 + 0.2%D46 mixed @ 14.2 PPG and having a yield of 1.33 cuft/sx.

The above are Schlumberger products with 25% excess volume - actual volumes will be adjusted to the open hole caliper of this wellbore. Equivalent products from another vendor may be substituted for Schlumberger depending on price/availability.

6. It is anticipated that this well will be drilled to TD utilizing the fluids shown below:

0-400': Gel/Lime "spud mud" 8.6-9.0 PPG. Utilize native solids to maintain sufficient viscosity to clean hole. Mix paper as required to control seepage loss.

300-1800': Brine 9.9 - 10.0 PPG. Circulate thru reserve pit for gravitational solids removal. Add paper as required to control seepage loss while

maintaining pH at 10.0 – 10.5 using Lime. Brine water will minimize hole wash out in the salt.

1800-3200': Fresh Water 8.3 - 8.5 PPG Loss of circulation is anticipated in the Capitan Reef which will require switching to fresh water and dry drilling to casing point.

3200-3800': Cut Brine 8.5 – 8.9 PPG Pump high-vis sweeps to clean hole.

3800-4600': Cut Brine/Starch 8.7 – 8.9 PPG Maintain water loss @ 10-15 cc. Sweep with high-vis pill to clean hole for logging operations.

7. Auxiliary equipment will include an upper kelly cock valve, safety valve to fit drill pipe and pressure gauges.
8. No drill stem testing, mud logging or coring is planned for this wellbore. A Platform Express Triple Combo electric log suite will be run at TD.
9. The estimated BHP at TD is not expected to exceed 1500 psi, and a BHT of 105 F is anticipated. There is no H₂S present in the hydrocarbons being produced from the other wells in this section. Should such unexpected circumstances be encountered the operator and drilling contractor are prepared to take necessary steps to ensure safety of all personnel, and environment. Lost circulation could occur but is not expected to be a serious problem in this area, and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid.

It is estimated that this well will be drilled and cased in 10-11 days. Drilling will commence as soon after approval is received and services can be contracted.

Thirteen Point Plan for Surface Use
(Additional data for form 3160-3)

St. Mary Land and Exploration Company

PDU #515

1270' FSL, 1980' FEL; Sec 35, T19S, R29E

Parkway Delaware Unit

Parkway (Delaware)

Eddy Co., NM

NM-24160

1. **EXISTING ROADS** - A "VICINITY MAP" and a "LOCATION VERIFICATION MAP" by John West Surveying are attached which show the location of existing roads and the area topography.
The road log to the location is as follows:
 - a) From the intersection of U.S. Hwy62- 180 and Co. Rd. #238 (Burton Flat).
 - b) Go north on Co. Rd. #238 for approx 6 miles.
 - c) Turn right (east) and go approx 1.0 miles.
 - d) Turn right (South) and go approx .1 miles.
 - e) This location is approx 100' west.
2. **PLANNED ACCESS ROAD** —Approximately 100' of new E-W access road will be built from the existing N-S main caliche road to the east.
3. **LOCATION OF EXISTING WELLS** - EXHIBIT B shows the location of other wells within a mile radius of the proposed location.
4. **LOCATION OF EXISTING OR PROPOSED FACILITIES** – This production well will be tied into existing PDU facilities.
5. **LOCATION AND TYPE OF WATER SUPPLY** - All water (fresh or otherwise) needed for the drilling and completion of this well will be purchased from a commercial source and trucked to the location via the existing and proposed access road. No water source wells will be drilled, and no surface water will be utilized.
6. **SOURCE OF CONSTRUCTION MATERIALS** - Construction material (caliche) required for the preparation of the drill site is available from a local source 3 ½ miles away. It is not anticipated that a significant amount of material will be required as the terrain is relatively flat. Transportation will be over the existing roads.

7. **METHODS FOR HANDLING WASTE DISPOSAL -**
- Drill cuttings will be disposed into drilling pits after fluids have evaporated.
 - The drilling pits will be lined with a biodegradable plastic liner, and buried as per regulatory requirements. The pits will be located on the #512 drill site.
 - Receptacles for solid wastes (paper, plastic, etc) will be provided and equipped to prevent scattering by wind, animals, etc. This waste will be hauled to an approved landfill site.
 - Any other waste generated by the drilling, completion, testing of this well will be removed from the site within 30 days of the completion of drilling or testing operations.
 - A Porta-John will be provided for the crews. This will be properly maintained during the drilling operations and removed upon completion of the well.
8. **ANCILLARY FACILITIES -** The drilling, completion, and/or testing of this well will require no ancillary facilities.
9. **WELLSITE LAYOUT -** Attached, as EXHIBITS C & D are plats showing the anticipated orientation of the drilling rig and the pad. A similar rig may have to be substituted for United Drilling Rig #24 if it is no longer available when approval is granted for this application. Material moved to create the drilling pits will be utilized in the dike around the pits so as to facilitate restoration of the area when operations are completed.
10. **PLANS FOR SURFACE RESTORATION -** Reclamation of the surface location will be in accordance with the requirements set forth by the BLM. As stated earlier all waste generated by this operation will be disposed of in an approved manner, and the site restored as closely as possible to its pre-operation appearance. Due to the topography of the area no problems are anticipated in achieving this status and no erosion or other detrimental effects are expected as a result of this operation.
11. **OTHER INFORMATION -** The surface ownership of the drill site and the access routes are under the control/ownership of:
- Bureau of Land Management
P. O. Box 1778
Carlsbad, New Mexico 88221-1778
505-234-5972
- The BLM representative for this area is Barry Hunt who can be reached at the above number, or 505-361-4078.
- The site was archaeologically surveyed in July 2004. Danny Boone, the registered archeological surveyor, should forward a copy of that report to the BLM.

12. OPERATORS REPRESENTATIVE - St. Mary Land and Exploration is covered by Nationwide Bond No. 6041872. St. Mary Land and Exploration is represented by:

Charles M. Jones, Operations Manager

Dennis Goins, Operations Engineer

580 Westlake Park Blvd., Suite 600

Houston, Texas 77079

281-677-2800 Office

281-677-2774 Direct

918-408-8025 Cell

Jackie Herron, Contract Pumper
Hagerman, NM

505-746-7601 Cell

505-752-2701 Home

13. OPERATORS CERTIFICATION


I hereby certify that I, Dennis L. Goins-Operations Engineer, have inspected the proposed drill site and access route and that I am familiar with the conditions that currently exist; that the statements made in the APD package are to the best of my knowledge true and correct; and that the work associated with operations herein will be performed by ST. MARY LAND & EXPLORATION COMPANY and it's contractors and subcontractors in conformity with the terms and conditions of this APD package. I also certify responsibility for the operations conducted on that portion of the leased lands associated with this application with bond coverage being provided under a BLM nationwide bond.

This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Name and title: Dennis L Goins, Operations Engineer for St. Mary Land & Exploration
Company

Signature:

Date:


8/23/05

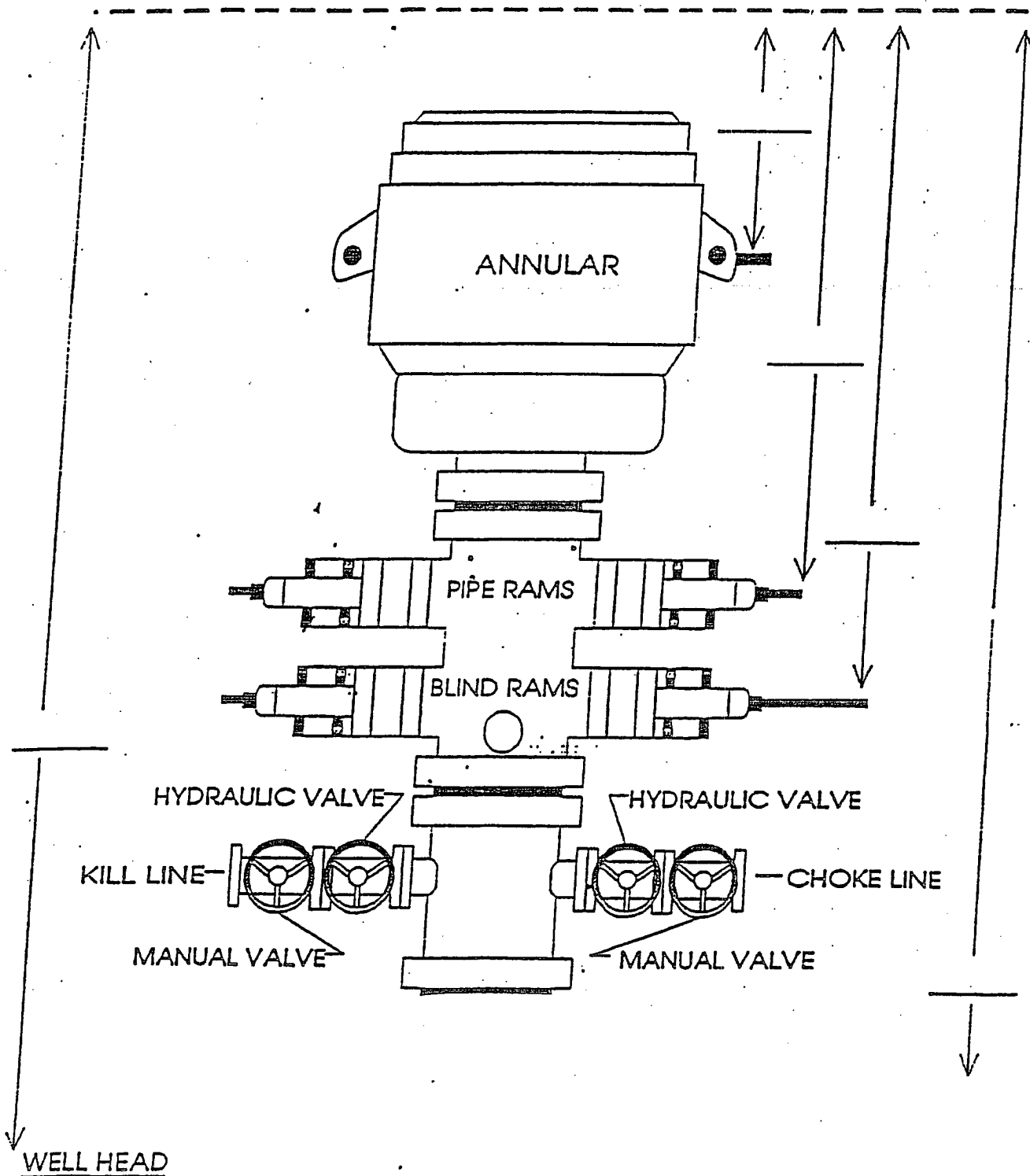
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EXHIBIT A

B.O.P. STACK SPACING

SIZE: 11" 3000#

TOP OF ROTARY



WELL PDU 515

CONTRACTOR UNITED DRILLING

Typical United Drilling Rig Layout

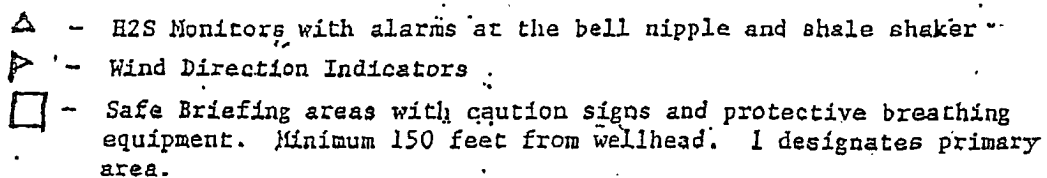


EXHIBIT D

Center
Line
Well

100'

Reserve Pit
50' x 100'

BERM

Working Pits

8'

42'

50'

28'

15'

50'

Stinger

30'

40'

Stinger

30'

40'

Center
Line
Well

150'

UNITED DRILLING, INC.

LOCATION PLAT

RIG 24

Scale: 1"=40'

150'

150'

CONDITIONS OF APPROVAL - DRILLING

Operator's Name: St. Mary Land & Exploration
Well Name & No. Parkway Delaware Unit #515
Location: 1270' FSL, 1980' FEL, Section 35, T. 19 S., R. 29 E., Eddy County, New Mexico
Lease: NM-24160

I. DRILLING OPERATIONS REQUIREMENTS:

1. The Bureau of Land Management (BLM) is to be notified at the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, and (505) 361-2822 for wells in Eddy County in sufficient time for a representative to witness:

A. Well spud

B. Cementing casing: 13-3/8 inch 8-5/8 inch 5-1/2 inch

C. BOP tests

D. Fresh water mud will be used to the surface casing setting depth. Brine water will be allowed when drilling the intermediate hole but if circulation is lost below the top of the Seven Rivers Formation, at an approximate depth of 1623 feet, the operator will cease drilling and switch to fresh water. With the fresh water in the hole the operator may dry drill the rest of the intermediate hole to the base of the Capitan Reef. At such time that circulation is lost, the operator is required to notify the PET staff to arrange for witnessing of the change to fresh water mud.

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

3. Submit a Sundry Notice (Form 3160-5, one original and five copies) for each casing string, describing the casing and cementing operations. Include pertinent information such as; spud date, hole size, casing (size, weight, grade and thread type), cement (type, quantity and top), water zones and problems or hazards encountered. The Sundry shall be submitted within 15 days of completion of each casing string. The reports may be combined into the same Sundry if they fall within the same 15-day time frame.

4. The API No. assigned to the well by NMOCD shall be included on the subsequent report of setting the first casing string.

5. Gamma-Ray/Neutron logs shall be run from the base of the Salado formation to the surface; cable speed not to exceed 30 feet per minute.

II. CASING:

1. The 13-3/8 inch surface casing shall be set at approximately 300 to 400 feet or 25 feet into the top of the Rustler Anhydrite and cement circulated to the surface. If cement does not circulate to the surface the appropriate BLM office shall be notified and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string.

2. The 8-5/8 inch intermediate casing shall be set at the base of the Capitan Reef above the Delaware sandstone and cement circulated to the surface.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is to be circulated to the surface.

4. Whenever a casing string is cemented in the R-111-P Potash Area, cement shall be allowed to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating tests.

8/29/2005

acs

III. PRESSURE CONTROL:

1. All BOP systems and related equipment shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2. The BOP and related equipment shall be installed and operational before drilling below the 13-3/8 inch casing shoe and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

2. Minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 2000 psi.

3. The appropriate BLM office shall be notified in sufficient time for a representative to witness the tests.

- The tests shall be done by an independent service company.
- The results of the test shall be reported to the appropriate BLM office.
- Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.
- Testing must be done in a safe workman-like manner. Hard line connections shall be required.

acs
8/29/2005

8/29/2005
acs