

originally submitted on 5/14/2012.

Form 3160-5  
(August 2007)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED  
OMB No 1004-0137  
Expires July 31, 2010

**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

<b>SUBMIT IN TRIPLICATE – Other instructions on page 2.</b>		7 If Unit of CA/Agreement, Name and/or No
1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		8 Well Name and No Dublin 23 Federal # 1
2. Name of Operator Marshall & Winston Inc.		9 API Well No 30-015-34879
3a Address POB 50880 Midland, TX 79710-0880	3b Phone No (include area code) (432) 684-6373	10 Field and Pool or Exploratory Area Herradura Bend Delaware East <b>&lt;306557</b>
4 Location of Well (Footage, Sec, T, R., M, or Survey Description) 660' FSL & 1980' FEL, Sec 23, T22S, R28E		11 Country or Parish, State Eddy

12 CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input checked="" type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <u>Drill horizontal</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	<u>section</u>
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13 Describe Proposed or Completed Operation. Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

This well is currently completed in the Delaware formation. We intend to squeeze of the Delaware perms at 4252'-4262', drill out cement plug at 5650', N.U.5M BOPE, test casing and wellhead to 1500 psi., set a cement whipstock at 7957' and kick off a horizontal wellbore with a 6 1/8" bit to a **TMD of** 12,519'. The TVD will be 8704'. Existing casings are: 13.375"@425' w/cmt. circ to surface, 9.625"@2615' w/cmt. circ to surface, 7" @9972' w/cmt. circ to surface. After reaching TD, will set 4 1/2" production casing with a liner hanger set at 7800'.

See Attachments

**WITNESS  
PLUG BACK**

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Accepted for record  
NMOCD 5/14/2012

14 I hereby certify that the foregoing is true and correct Name (Printed/Typed) VERNON D. DYER		Title AGENT
Signature <i>Vernon Dyer</i>	Date 05/15/2012 5-17-2012	
THIS SPACE FOR FEDERAL OR STATE OFFICE USE		
Approved by	Title	
Conditions of approval, if any, are attached. Approval of this notice 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.	Office	

**RECEIVED**  
MAY 31 2012  
**NMOCD ARTESIA**  
**APPROVED**  
MAY 29 2012  
WESLEY W. INGRAM  
PETROLEUM ENGINEER

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.

**DISTRICT IV**  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

**GEODETIC COORDINATES**  
NAD 27 NME

**SURFACE LOCATION**  
Y=499412.3 N  
X=585699.9 E  
LAT.=32°22'21.70" N  
LONG.=104°03'20.70" W

**BOTTOM HOLE LOCATION**  
Y=503716.7 N  
X=585792.6 E

**CORNER COORDINATES TABLE**

①	-	Y=504062.3 N, X=585087.8 E
②	-	Y=504032.4 N, X=586433.3 E
③	-	Y=498749.4 N, X=585050.6 E
④	-	Y=498755.6 N, X=586358.3 E

**GRID AZ = 01°13'57"**  
**HORIZ. DIST. = 4306.4'**

**330'**  
**B.H.O.**  
**1980'**

**3166.1'**  
**3174.6'**  
**600'**  
**3147.1'**  
**3160.0'**  
**660'**  
**S.L.O.**  
**1980'**

<h3>OPERATOR CERTIFICATION</h3> <p>I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><u>Vernon Dyer</u> 5/14/2012 Signature Date</p> <p><u>Vernon D. Dyer</u> Printed Name</p> <p><u>Vdyeroil@cableone.com</u> E-mail Address</p>	
<h3>SURVEYOR CERTIFICATION</h3> <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>FEBRUARY 13, 2006</p> <p>Date of Survey</p> <p>Signature and Seal of Professional Surveyor:</p> <div style="text-align: center;"> <p>RECEIVED NEW MEXICO 3239 Ronald J. Eidson PROFESSIONAL SURVEYOR</p> </div> <p>Certificate Number... 12641 Ronald J. Eidson 3239</p> <p>DSS Rel W.O. 04/11/02 JWSC W.O. 12.13.0650</p>	

**Form 3160-5 Sundry Continued:**

This is an existing vertical wellbore, most recently was producing from the Delaware. A horizontal wellbore will be drilled into the 2<sup>nd</sup> Bone Springs formation. The 2<sup>nd</sup> Bone Springs is estimated to be at 8122'.

**DRILLING PROCEDURE:**

1. Remove Pumping unit and surface equipment.
2. MIRU Pulling Unit
3. POOH with rod pump and tubing.
4. Cement squeeze Perfs from 4252' to 4262'
5. MIRU Precision 454. ***Notify BLM – Carlsbad of intent to drill out cement plug and kick off the lateral, and of all casing, cementing and BOP tests.***
6. Rig Up H2S Equipment
7. Drill cement plug at 5650' with 6-1/8" bit.
8. TIH to 8000' and circulate hole clean.
9. Test casing and wellhead to 1500#
10. Rig up mudloggers.
11. Set cased hole whip stock at 7957' and mill window out of casing for about 10-15'
12. Run gyro with whip stock to orientate.
13. TOOH and pick up 6-1/8" tri-cone bit with curve directional assembly.
14. Drill to EOC at 8704' MD and 8434' TVD.
15. TOOH and pick up 6-1/8" PDC bit with lateral directional assembly.
16. Drill to TD of well at 12,519' TMD and 8,454' TVD
17. Condition hole for casing and rotate pipe 70-80 RPM to clean hole.
18. Run 4-1/2" 11.6# P-110 Butress casing from TD to 7800' with the liner hanger.
19. Cement liner from TD to 7800' (see Baker Hughes Cement Recommendation)

1. **GEOLOGICAL SURFACE NAME:** Permian

2. **ESTIMATED FORMATION TOPS:**

2<sup>nd</sup> Bone Spring 8122'

3. **CASING PROGRAM:**

O.D., In	Depth, MD	Wt.	Grade	Conn.	Pw Collaps e Psi	Pw Burst Psi	Pw Tension , Kips	Test, Psi
(EXISTING) 7"	Surface To 9972'	26	P-110	LTC	6,210	9,960	693	1,500
(Will Set): 4-1/2"	7800' To TD	11.6	P-110	Buttress	7,560	10,690	367	1,500

4. **CEMENTING:**

**The production string** shall be cemented to the liner hanger at 7800'.

The lead mixture shall consist of 215 sacks of 50/50 Poz (Fly Ash) Class C cement +5% bwow Sodium Chloride +10% bwoc Bentonite +139.7% Fresh water. Weight of 11.80ppg, Yield 11.30 cuft/sk. 0% excess volume.

The tail mixture will consist of 615 sacks of Class C cement +5% bwow Sodium Chloride +6%bwoc CD-32 +2% bwoc Bentonite +0.6% bwoc Sodium Metasilicate +0.4% bwoc FL-52A +58.4% fresh water. Weight of 14.22 ppg Yield 1.30 cuft/sk. The production displacement mixture shall be in 40% of excess of the calculated annulus volume.

## **5. PRESSURE CONTROL:**

The anticipated surface hole pressure is < 2,000 psi. using a gradient of 0.4538 psi/ft. A 5M BOPE (includes 5,000 psi rated choke manifold), will be nipped up prior to setting the whipstock and will be tested to a 3M system requirements. It shall be tested in accordance with Onshore Orders. The BLM personnel shall be notified at least 48 hours prior to testing.

## **6. MUD PROGRAM:**

<u>Depths</u>	<u>Mud Type</u>	<u>MWT</u>	<u>Water Loss</u>
7,957' - 12,519'	2% KCL	8.6 – 9.0 PPG	<15cc

Mud system will be a closed looped system

## **7. AUXILLARY EQUIPMENT:**

Mud logging: a 2 man unit from 7957' to TD.

## **8. LOGGING PROGRAM:**

No Electrical logs are planned, they have been recorded on the initial wellbore.

## **9. POTENTIAL HAZARDS:**

No abnormal pressures or temperatures are anticipated. (BHP 1500 psi, BHT 98 deg)  
The area has a potential for H2S and the following measures will be taken:

- all personnel will be H2S trained and qualified
- H2S alarms and detection systems will be utilized
- A windsock will be visible at all times
- Flags or warning signs will be visible for road traffic
- ▶ a H2S Contingency Plan is Attached

**10. Surface and Minerals Ownership:**

According to BLM ArcView 2012, the E/2 of section 22 is covered by Lease NMLC 069157. The Lessee is M.J. Harvey Jr., P.O. Box 12705, Dallas, TX 75225.

**Surface Use Disturbance:**

**No new roads or surface disturbance is anticipated.** The well site's initial dimensions has been maintained at 315' (N-S) by 320' (E-W), for proper operations. The equipment set up will fall within the existing pad dimensions. *See Rig well site layout attached.*

**DIRECTIONS TO LOCATION:**

From Carlsbad, NM go east on Hwy 62/285 for 2.3 miles to Eddy Co. Road #605 (Refinery Road). Go south on Refinery Road for 9.1 miles. Turn left for 1.7 miles. Turn left and follow road .3 miles to location.

**COMPANY PERSONNEL:**

Shorty Sweeden (Wellsite Supervisor) 432-634-8722 (c)

Todd Passmore (Marshall & Winston – Foreman) 432-559-2674 (c)

Gabe Herrera (Marshall & Winston – Engineer) 432-684-6373 (o)  
432-260-8650 (c)


Tom Brandt (Marshall & Winston – Operations) 432-684-6373 (o)  
432-553-9747 (c)

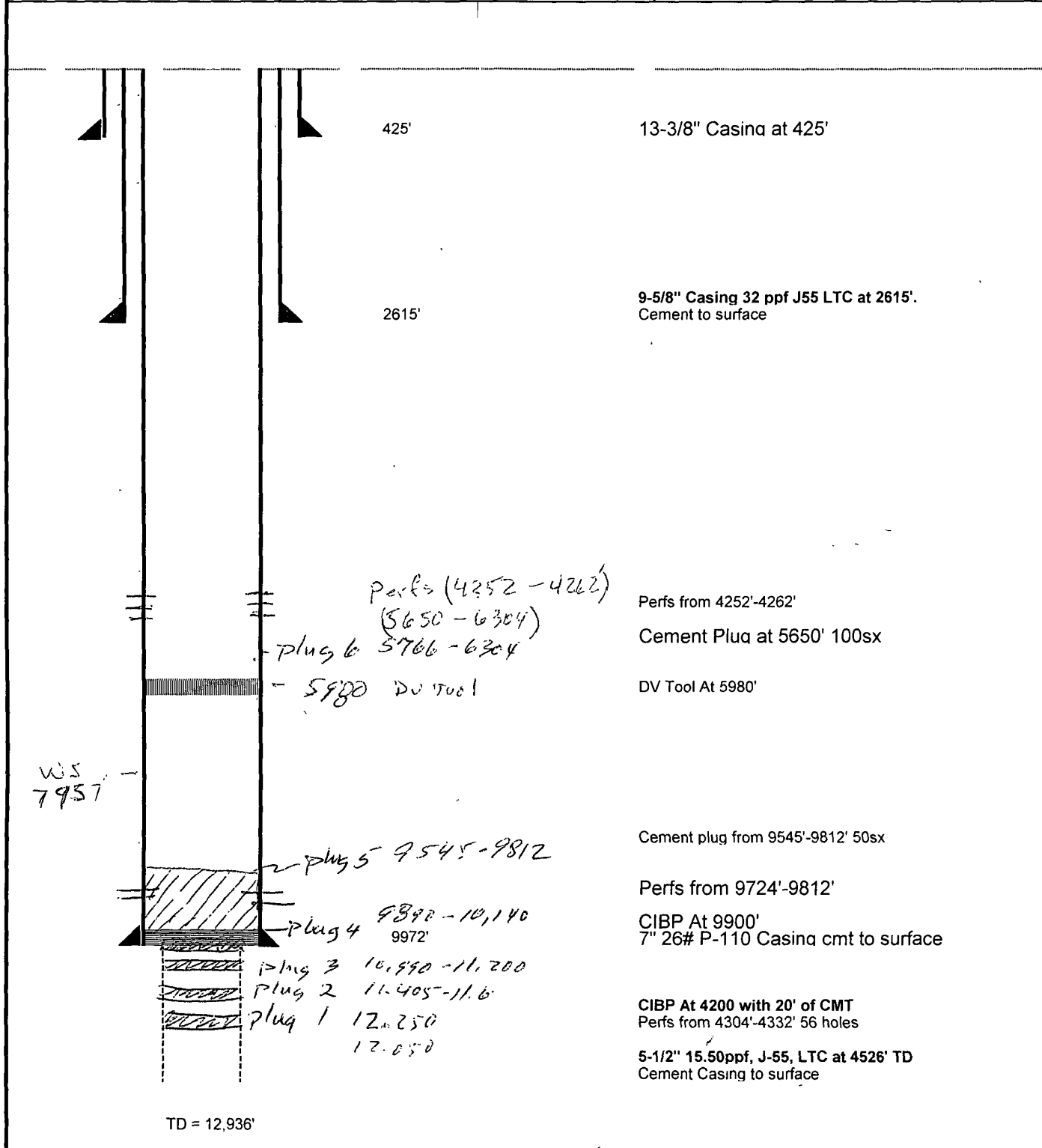
George Watters (Marshall & Winston – Geologist) 432-684-6373 (o)  
432-631-2051 (c)

Brent May (Marshall & Winston – Geologist) 432-684-6373 (o)  
432-254-3525 (c)

Marshall & Winston, Inc.  
P.O. Box 50880  
Midland, Tx. 79710-0880

432-684-6373 Office  
432-687-2684 Fax

AFE No. API 30-015-35730 Permit No. Project No.	 <b>Dublin Fed 23 #1</b> Eddy County, NM Actual Wellbore Sketch	AFE Information Dry Hole:      Days: Proposed TD: 12,936' TD v
		NMLC 069157

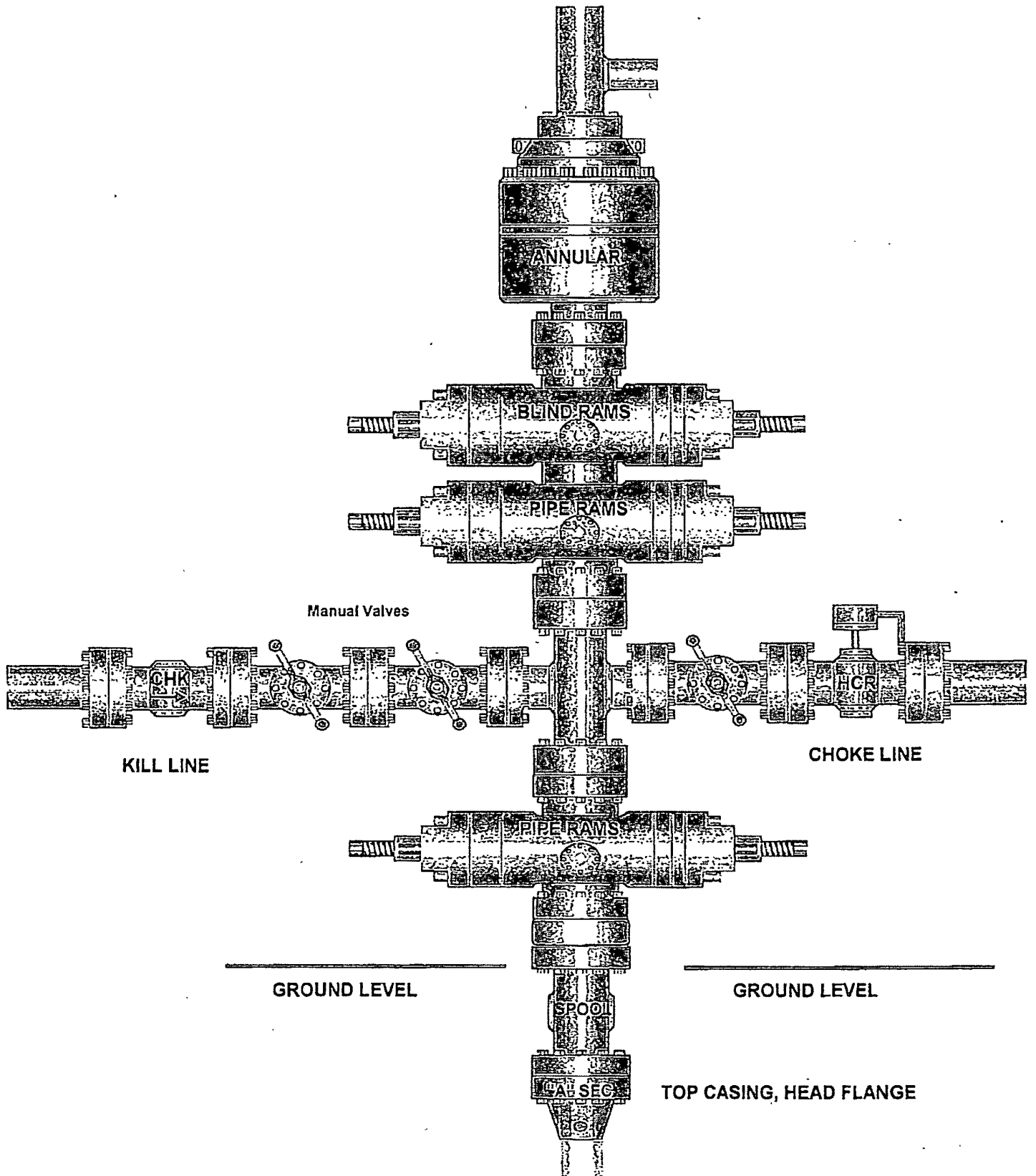


<u>Well Information</u> Surface Location: Sec 23 T22S R28E Eddy County, NM
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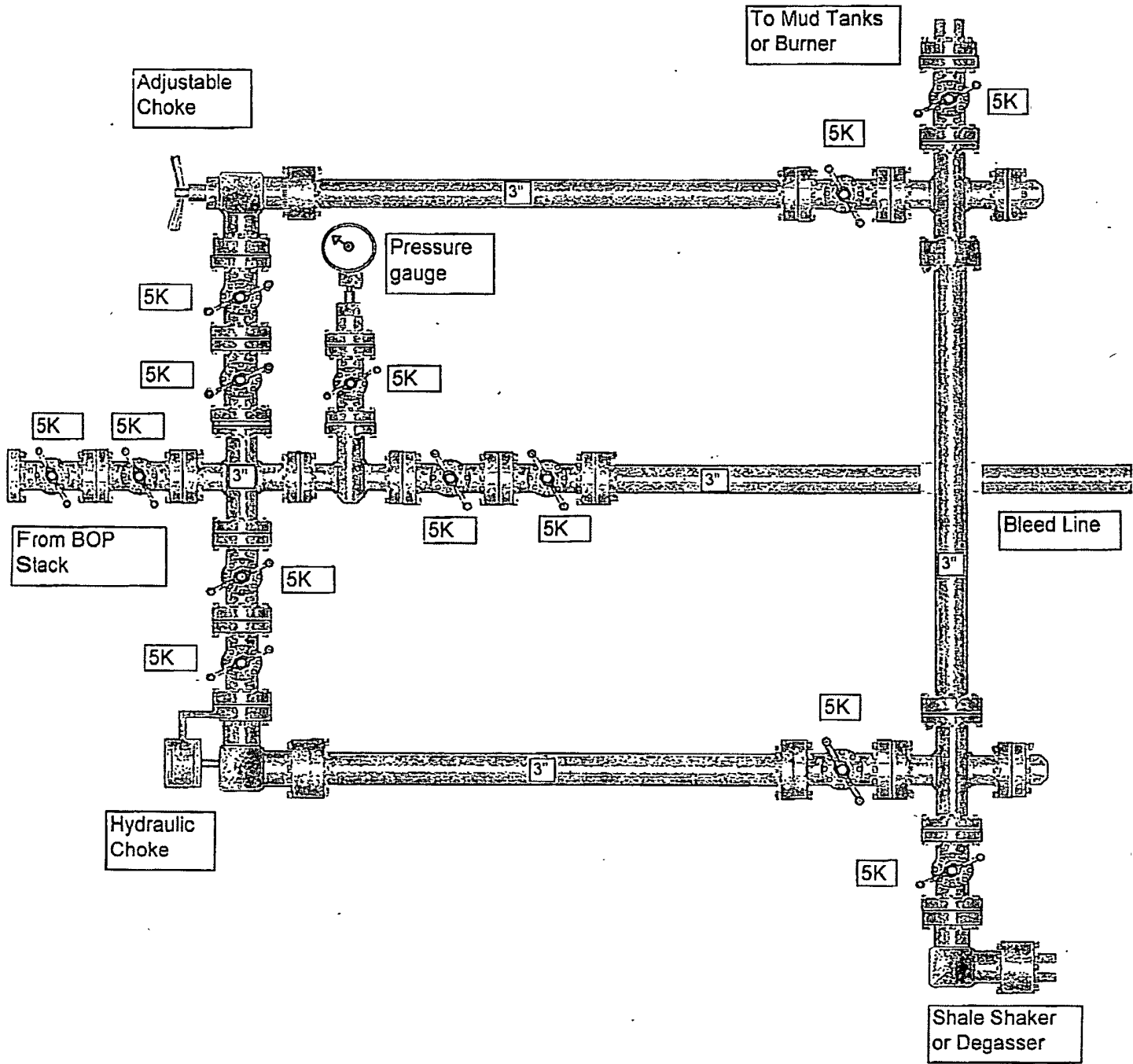
AFE No. API # Permit No. Project No.	<div data-bbox="653 71 814 110" data-label="Image"> </div> Dublin Fed 23-1H Eddy County, NM Proposed Wellbore Sketch	AFE Information Dry Hole:      Days: Proposed TD: 12,519' TMD 8454' TVD v
<div data-bbox="304 305 682 1356" data-label="Diagram"> </div> <div data-bbox="898 337 1121 380" data-label="Text">         13-3/8" Surface casing at 425'          cement to surface       </div> <div data-bbox="898 646 1062 688" data-label="Text">         9-5/8" casing to 2615'          cement to surface       </div> <div data-bbox="898 847 1327 889" data-label="Text">         Will Squeeze with cement perfs from 4252'-4262'          Drill cement plug at 5650'       </div> <div data-bbox="898 896 1617 954" data-label="Text">         Set Cased Hole whip stock at 7957'          Kick off with 6-1/8" bit at about 7957' , <i>Drill EOL 8434' MD, 8704' TVD</i>          Liner Hanger at 7800' with 4-1/2" 11 6# P-110 tie back sleeve to surface       </div> <div data-bbox="898 1000 1348 1023" data-label="Text">         After well is TD and cased we will run 4-1/2" P-110 11 6 # casing       </div> <div data-bbox="898 1084 1171 1127" data-label="Text">         Land Curve at 8434' TVD 8704' TMD          Drill out with 6-1/8" bit to TD       </div> <div data-bbox="1423 1117 1717 1143" data-label="Text">         4-1/2" P-110 11.6# LTC Casing       </div> <div data-bbox="1600 1169 1717 1195" data-label="Text">         TMD 12,519'       </div> <div data-bbox="1575 1237 1675 1263" data-label="Text">         TVD 8454'       </div> <div data-bbox="919 1289 1134 1312" data-label="Text">         7" 26# P-110 Casing at 9972'       </div>		
<div data-bbox="289 1409 672 1458" data-label="Text"> <u>Well Information</u>          Surface Location Eddy County, T22S R28E Section 23       </div>		



# 5,000 psi BOP Stack

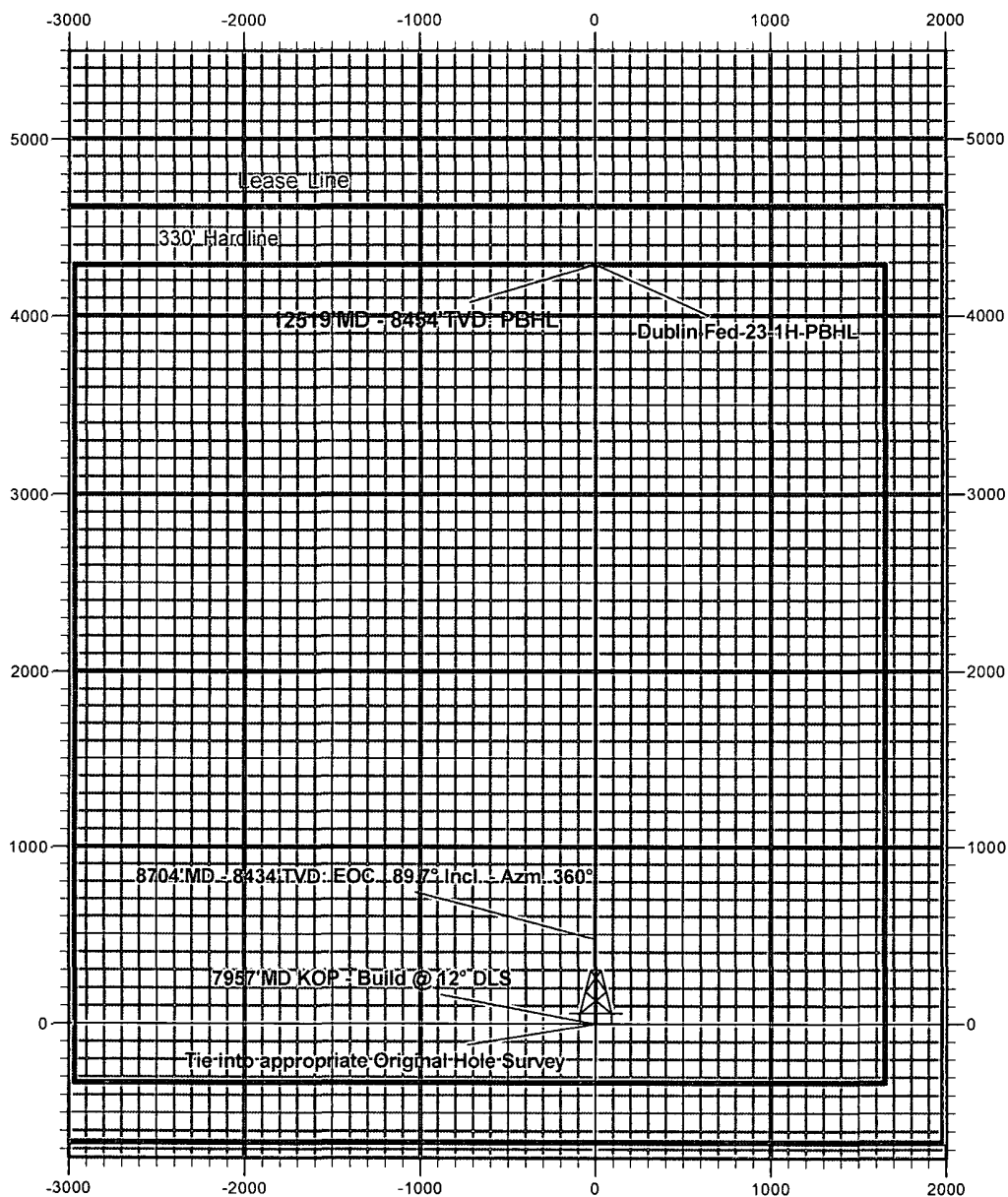


5,000 PSI CHOKE MANIFOLD



# Marshall & Winston, Inc

Dublin Fed 23-1H  
Sec 23, T22S R28E  
Eddy County, NM  
Design #1





## **Marshall & Winston, Inc**

Eddy County, NM  
Sec 23, T22S R28E  
Dublin Fed 23-1H

**Wellbore #1**

**Plan: Design #1**

## **DDC Curve Report**

**29 March, 2012**



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Dublin Fed 23-1H
Company:	Marshall & Winston, Inc	TVD Reference:	GL + 3161' - RKB 20' Est. @ 3181.0usft (TBD)
Project:	Eddy County, NM	MD Reference:	GL + 3161' - RKB 20' Est. @ 3181.0usft (TBD)
Site:	Sec 23, T22S R28E	North Reference:	Grid
Well:	Dublin Fed 23-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project: Eddy County, NM	
Map System:	US State Plane 1927 (Exact solution)
Geo Datum:	NAD 1927 (NADCON CONUS)
Map Zone:	New Mexico East 3001
System Datum:	Mean Sea Level

Site	Sec 23, T22S R28E				
Site Position:		Northing:	499,412 30 usft	Latitude:	32° 22' 21.698 N
From:	Map	Easting:	585,699 90 usft	Longitude:	104° 3' 20.697 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well	Dublin Fed 23-1H					
Well Position	+N/-S	0.0 usft	Northing:	499,412.30 usft	Latitude:	32° 22' 21.698 N
	+E/-W	0.0 usft	Easting:	585,699.90 usft	Longitude:	104° 3' 20.697 W
Position Uncertainty	0.0 usft	Wellhead Elevation:		Ground Level:	3,161.0 usft	

Wellbore		Wellbore #1			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/29/2012	7.72	60.22	48,575

Design:	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	0.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,956.6	0.00	0.00	7,956.6	0.0	0.0	0.00	0.00	0.00	0.00	
8,704.1	89.70	0.00	8,434.0	475.0	0.0	12.00	12.00	0.00	0.00	
12,519.2	89.70	0.00	8,454.0	4,290.0	0.0	0.00	0.00	0.00	0.00	Dublin Fed 23-1H PBI

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Dublin Fed 23-1H
Company:	Marshall & Winston, Inc	TVD Reference:	GL + 3161' - RKB 20' Est. @ 3181 0usft (TBD)
Project:	Eddy County, NM	MD Reference:	GL + 3161' - RKB 20' Est. @ 3181.0usft (TBD)
Site:	Sec 23, T2S R28E	North Reference:	Grid
Well:	Dublin Fed 23-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

#### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>7957MD KOP - Build @ 12° DLS</b>									
7,956.6	0.00	0.00	7,956.6	0.0	0.0	0.0	0.00	0.00	0.00
7,980.0	2.81	0.00	7,980.0	0.6	0.0	0.6	12.00	12.00	0.00
8,010.0	6.41	0.00	8,009.9	3.0	0.0	3.0	12.00	12.00	0.00
8,040.0	10.01	0.00	8,039.6	7.3	0.0	7.3	12.00	12.00	0.00
8,070.0	13.61	0.00	8,068.9	13.4	0.0	13.4	12.00	12.00	0.00
8,100.0	17.21	0.00	8,097.9	21.4	0.0	21.4	12.00	12.00	0.00
8,130.0	20.81	0.00	8,126.2	31.2	0.0	31.2	12.00	12.00	0.00
8,160.0	24.41	0.00	8,153.9	42.7	0.0	42.7	12.00	12.00	0.00
8,190.0	28.01	0.00	8,180.8	55.9	0.0	55.9	12.00	12.00	0.00
8,220.0	31.61	0.00	8,206.8	70.8	0.0	70.8	12.00	12.00	0.00
8,250.0	35.21	0.00	8,231.9	87.4	0.0	87.4	12.00	12.00	0.00
8,280.0	38.81	0.00	8,255.8	105.4	0.0	105.4	12.00	12.00	0.00
8,310.0	42.41	0.00	8,278.6	124.9	0.0	124.9	12.00	12.00	0.00
8,340.0	46.01	0.00	8,300.1	145.9	0.0	145.9	12.00	12.00	0.00
8,370.0	49.61	0.00	8,320.2	168.1	0.0	168.1	12.00	12.00	0.00
8,400.0	53.21	0.00	8,338.9	191.5	0.0	191.5	12.00	12.00	0.00
8,430.0	56.81	0.00	8,356.1	216.1	0.0	216.1	12.00	12.00	0.00
8,460.0	60.41	0.00	8,371.8	241.7	0.0	241.7	12.00	12.00	0.00
8,490.0	64.01	0.00	8,385.8	268.2	0.0	268.2	12.00	12.00	0.00
8,520.0	67.61	0.00	8,398.0	295.6	0.0	295.6	12.00	12.00	0.00
8,550.0	71.21	0.00	8,408.6	323.7	0.0	323.7	12.00	12.00	0.00
8,580.0	74.81	0.00	8,417.4	352.4	0.0	352.4	12.00	12.00	0.00
8,610.0	78.41	0.00	8,424.3	381.6	0.0	381.6	12.00	12.00	0.00
8,640.0	82.01	0.00	8,429.4	411.1	0.0	411.1	12.00	12.00	0.00
8,670.0	85.61	0.00	8,432.6	440.9	0.0	440.9	12.00	12.00	0.00
8,700.0	89.21	0.00	8,434.0	470.9	0.0	470.9	12.00	12.00	0.00
<b>8704MD - 8434TVD: EOC 89.7° Incl. - Azm. 360°</b>									
8,704.1	89.70	0.00	8,434.0	475.0	0.0	475.0	12.00	12.00	0.00

#### Design Targets

##### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
Dublin Fed 23-1H PBHL	0.00	0.00	8,454.0	4,290.0	0.0	503,702.30	585,699.90	32° 23' 4.152 N	104° 3' 20.567 W
- plan misses target center by 3815 1usft at 8704.1usft MD (8434.0 TVD, 475.0 N, 0.0 E)									
- Point									

#### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,900.0	7,900.0	0.0	0.0	Tie into appropriate Original Hole Survey
7,956.6	7,956.6	0.0	0.0	7957MD KOP - Build @ 12° DLS
8,704.1	8,434.0	475.0	0.0	8704MD - 8434TVD: EOC 89.7° Incl. - Azm. 360°
12,519.2	8,454.0	4,290.0	0.0	12519MD - 8454TVD PBHL

Flare Line Area, a min. 150 ft from wellbore

RIG 101

Buried Flare Line

Gas Seperator

Roll off bins, waste, cuttings

Pit 14' X 50'

Hopper House

26'

Pipe Lay Down Area

Sub

Top Dog House

Light House

Water Tank #1

Water Tank #2

Fuel Tank

Trailer House

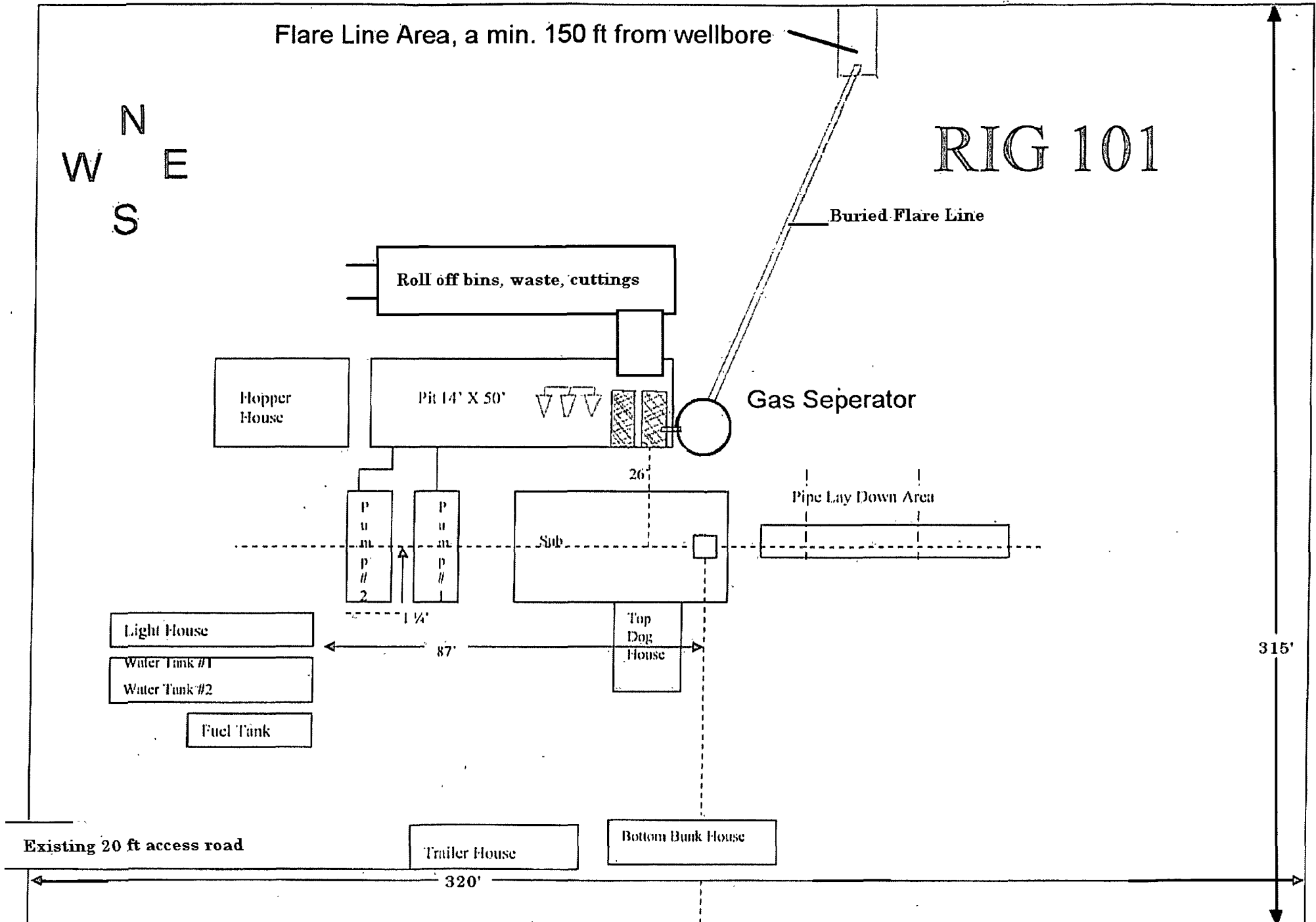
Bottom Bunk House

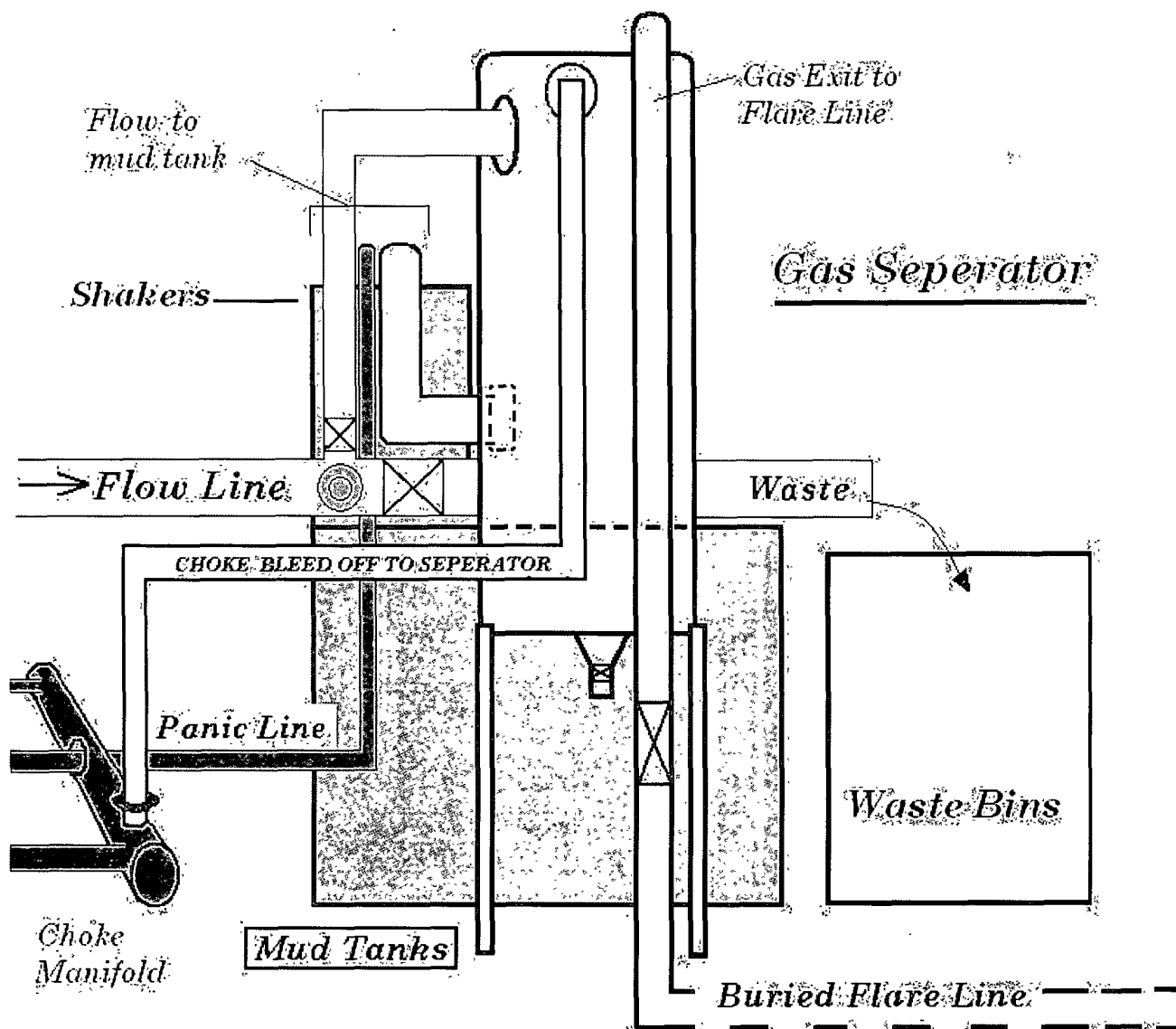
Existing 20 ft access road

320'

315'

N  
W E  
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Flare stack is a minimum 150' from cellar. \*See Rig Plat



## H2S Emergency Procedures

In the case of a release of gas containing H<sub>2</sub>S, 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. Marshall and Winston Inc. 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<sub>2</sub>S, measures for protection against the gas, equipment used for protection and emergency response. Additionally, responders must be equipped with H<sub>2</sub>S 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<sub>2</sub>). 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<sub>2</sub>S and SO<sub>2</sub>:

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air = 1.0	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air = 1.0	2 ppm	N/A	1000 ppm

### Contacting Authorities

Marshall and Winston Inc.'s 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. Marshall and Winston Inc.'s response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

**Marshall & Winston, Incorporated.**

**P.O. Box 50880 Midland, TX., 79710-0880**

**OFFICE 1-(432)- 684-6373, Fax 1-(432)-687-2684**

### COMPANY PERSONNEL:

### Cell Phone #

Otis Holt (Wellsite Supervisor) 1-(325)-206-1528

Gabe Herrera (Marshall & Winston – Engineer) 1-(432)-260-8650

Tom Brandt (Marshall & Winston – Operations) 1-(432)-553-9747

George Watters (Marshall & Winston – Geologist) 1-(432)-631-2051

## **HYDROGEN SULFIDE DRILLING OPERATIONS PLAN PERMIAN BASIN**

This Hydrogen Sulfide Drilling Operations Plan shall be implemented prior to drilling out from under casing (surface or intermediate) set above potential H<sub>2</sub>S bearing formations.

### **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 (H<sub>2</sub>S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H<sub>2</sub>S 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 H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will 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 H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

All personnel entering a location posted with the potential of Hydrogen Sulfide shall be required to carry documentation that they have received the proper training. (Training certificate typically valid for 1 year after training)

### **II. Site Specific Information:**

Upon installation of H<sub>2</sub>S Safety Equipment and Systems on a well, and prior to drilling out of casing above potential Hydrogen Sulfide bearing formations a briefing with all personnel on location shall be held. The briefing should include a review of H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan. This briefing should include site specific elements such as:

- Identification of the briefing areas.
- Discussion of rig orientation and prevailing wind direction.

- Identification of access roads, including secondary egress.
- Confirmation that all personnel have current training.
- Formation tops of potential H<sub>2</sub>S bearing formations.

The H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan shall be available at the well site.

I. H<sub>2</sub>S Safety Equipment and Systems

1. Well Control Equipment that will be installed prior to drilling out of casing above potential Hydrogen Sulfide bearing formations:
  - A Choke manifold with a minimum of one adjustable choke.
  - B At least one choke line must be directed away from the drilling unit and secured at the end. (For closed-loop operations this should be directed to containment bin at the back edge of the location.)
  - C Blind rams and pipe rams to accommodate all pipe sizes
  - D Annular preventor
  - E Properly sized closing unit.
- 1.1 Well control equipment to be available to install as needed should H<sub>2</sub>S be encountered;
  - A Flare line with electronic igniter or continuous pilot.
  - B Mud gas separator
  - C Flare gun with flares.
  - D One portable SO<sub>2</sub> monitor positioned near flare line.
2. Protective equipment for essential personnel:
  - A 30-minute air pack units located in the dog house and at briefing areas.
3. H<sub>2</sub>S detection and monitoring equipment:
  - A Two portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S levels of 20 ppm are reached.
4. Visual warning systems:
  - A Wind direction indicators.
  - B Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

5. Mud program:
  - A. The mud program shall be designed to minimize the volume of H<sub>2</sub>S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S-bearing zones.
  - B. A mud-gas separator and an H<sub>2</sub>S gas buster will be utilized as required if H<sub>2</sub>S is encountered.
6. Metallurgy:
  - A. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.
  - B. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.
7. Communication:
  - A. Communications shall be available on the rig site and in company vehicles. Communications equipment may include one or more of the following; land lines, satellite phones, cellular telephone and 2-way radios.

## Emergency Phone Numbers

Artesia	State Police	(575) 746-2703
Artesia	City Police	(575) 746-2703
Artesia	Sheriff's Office	(575) 746-9888
Artesia	Ambulance	911
Artesia	Fire Department	(575) 746-2701
Artesia	LEPC (Local Emergency Planning Committee)	(575) 746-2122
Artesia	NMOCD	(575) 748-1283

Carlsbad	State Police	(575) 885-3137
Carlsbad	City Police	(575) 885-2111
Carlsbad	Sheriff's Office	(575) 887-7551
Carlsbad	AMBULANCE	911
Carlsbad	Fire Department	(575) 885-2111
Carlsbad	LEPC (Local Emergency Planning Committee)	(575) 887-3798
Carlsbad	US Bureau of Land Management	(575) 887-6544

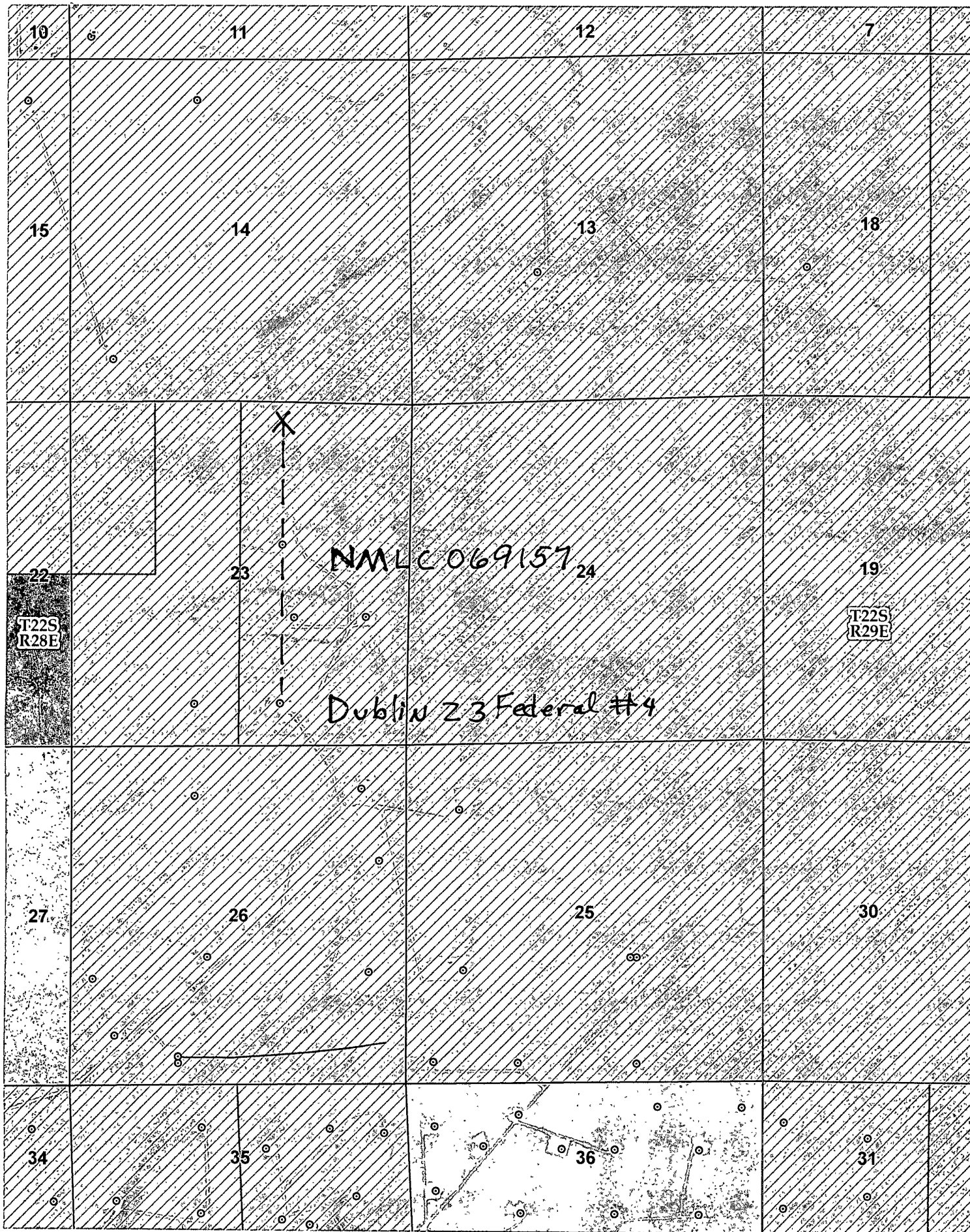
Santa Fe	N.M. Emergency Response Commission	(505) 476-9600
24 Hr.	" " " "	(505) 827-9126
Santa Fe	N.M. State Emergency Operations Center	(505) 476-9635
Washington D.C.	National Emergency Response Center	1-(800) 424-8802

### Other Services :

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

### Air Ambulance

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



## **Conditions of Approval**

**Marshall & Winston Inc.**

**Dublin 23 Federal #1**

**API 3001534879**

May 29, 2012

**Procedure proposes two separate rig activities. BLM shall be notified when the pulling unit arrives and leaves and again when the Precision 454 rig arrives. Operator shall minimize the time between pulling rig departure and drilling rig arrival.**

1. Notify BLM 575-361-2822 before workover operations. The procedures are to be witnessed. If no answer, leave a voice mail with the API#, workover purpose, and a call back phone number. Note the contact, time, & date in your subsequent report.
2. Surface disturbance beyond the existing pad must have prior approval.
3. A closed loop system is required. The operator shall properly dispose of drilling/circulating contents at an authorized disposal site. Tanks are required for all operations, no excavated pits.
4. Functional H<sub>2</sub>S monitoring equipment shall be on location.
5. A minimum of 3000 (3M) BOPE is to be used. All blowout preventer (BOP) and related equipment (BOPE) shall comply with reasonable well control requirements. A two ram system with a blind ram and a pipe ram designed for the size of the work string shall be adequate. Tapered work strings will require an additional pipe ram. The manifold shall comply with Onshore Oil and Gas Order #2 Attachment I (3M) Diagrams of Choke Manifold Equipment). The accumulator system shall have an immediately available power source to close the rams and retain 200 psi above pre-charge. The pre-charge test shall follow requirements in Onshore Order #2.
6. All waste (i.e. trash, salts, chemicals, sewage, gray water, etc.) created as a result of work over 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.
7. **Modify Step 8 to verify the 7" casing plug back total depth. Should the top of the cement plug set 01/09/2007 be below 9670', spot at least 25 sx of "H" cement mixed 15.6 lb/gal, 1.18 ft<sup>3</sup>/sx, and 5.2 g/sx and raise PBTD above 9670'.**
8. **Casing and wellhead test to be charted. Test shall be witnessed by a BLM PET. Pressure leak-off may require remedial action prior to continuing work over. Include a copy of the chart with the subsequent sundry for this work over.**
9. **Operator shall provide BLM with an electronic copy (Adobe Acrobat Document) cement bond log record from 8000' or below to top of cement.**

10. File a **subsequent sundry** Form 3160-5 within 30 days of the work over. Include an updated wellbore diagram.
11. Submit the BLM Form 3160-4 **Recompletion Report** within 30 days of the date all BLM approved procedures are complete.
12. Workover approval is good for 90 days (completion to be within 90 days of approval). A legitimate request is necessary for extension of that date.

PRS/WWI 052912

Access information for use of Form 3160-5 "Sundry Notices and Reports on Wells"

NM Fed Regs & Forms - [http://www.blm.gov/nm/st/en/prog/energy/oil\\_and\\_gas.html](http://www.blm.gov/nm/st/en/prog/energy/oil_and_gas.html)

§ 43 CFR 3162.3-2 Subsequent Well Operations.

§ 43 CFR 3160.0-9 (c)(1) Information collection.

§ 3162.4-1 (c) Well records and reports.