ATS-11-933

OCD Artesia

Form 3160-3
(April 2004)

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.
LO-6425-0000, NMNM107384

6 If Indian, Allotee or Tribe Name

1a Type of work: ☑ DRILL ☐ REENTER **Split Estate**

7 If Unit or CA Agreement, Name and No.

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

8 Lease Name and Well No.
RUBY ST COM #2H [38568]

2. Name of Operator
Manzano, LLC [231429]

9. API Well No
30-015-40287

3a Address **PO BOX 2107**
Roswell, NM 88202

3b. Phone No. *(include area code)*
575-623-1996

10. Field and Pool, or Exploratory [64450]
WILLOW LAKE; Bone Spring

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

At surface **1700' FSL & 350' FEL, Sec 30,T24S,R29E**

At proposed prod zone **1650'FSL & 330' FWL, Sec 30,T24S,R29E (BHL)**

11 Sec., T. R. M or Blk and Survey or Area
Sec. 30,T24S,R29E

14 Distance in miles and direction from nearest town or post office*
3 miles south east from Malaga, NM

12 County or Parish
Eddy County

13 State
NM

15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drlg unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
SHL 350' / **BHL 330'**	**240**	**160**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19 Proposed Depth	20. BLM/BIA Bond No on file
700'	**MD-11657' TVD- 7304'**	**NM-2567**
21. Elevations (Show whether DF, KDB, RT, GL, etc)	22. Approximate date work will start*	23. Estimated duration
2942.5'	**10/01/2011**	**35 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 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	Name *(Printed Typed)*	Date
Paul Ragsdale	**Paul Ragsdale**	**09/02/2011**

Title
Operations Manager

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Don Peterson		DEC 07 2011

Title	Office
FIELD MANAGER	**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 conduct 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 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)

COA Unable to produce until 5.9 is in compliance" Rule TES 5/14/2011

Provide signed copy of form C-102

SEE ATTACHED FOR CONDITIONS OF APPROVAL

RECEIVED
DEC 09 2011
NMOCD ARTESIA

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

12.OPERATOR'S REPRESENTATIVE:

CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Manzano, LLC and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Manzano, LLC

9/30/2011
Date

Paul Ragsdale
Operations Manager
Manzano, LLC

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 & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 15, 2009
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-015-40287	64450	WILLOW LAKE; BONE SPRING

4 Property Code	5 Property Name	6 Well Number
38968	RUBY STATE COM	2H

7 OGRID No.	8 Operator Name	9 Elevation
231429	MANZANO, LLC	2942.5

10 Surface Location

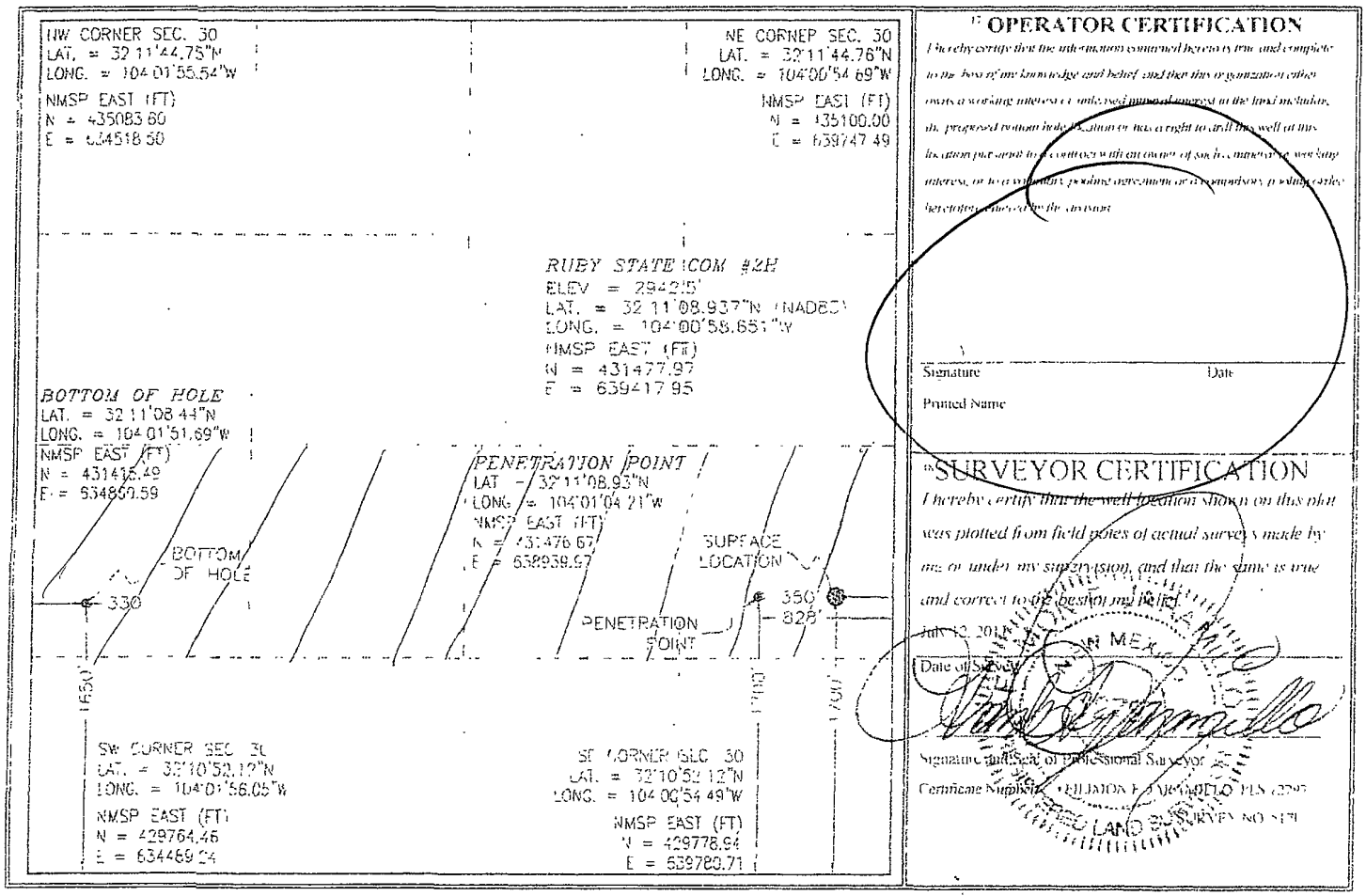
UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	30	24 S	29 E		1700	SOUTH	350	EAST	EDDY

11 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
L	30	24 S	29 E		1650	SOUTH	330	WEST	EDDY

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
160			

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.



17 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 Date

Printed Name

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

July 12, 2011
Date of Survey

Signature and Seal of Professional Surveyor

Certificate Number FIDEL EDWARD ECHAZABAL PLS 12797

NEW MEXICO LAND SURVEYOR NO. 12797

Page 1

ATTACHMENT TO FORM 3160-3
Manzano, LLC
Ruby State Com #2H
SL: 1700' FSL & 350' FEL, UNIT I
BHL: 1650' FSL & 330' FWL, UNIT L
Sec 30, T24S, R29E
Eddy County, New Mexico

1. ESTIMATED FORMATION TOPS

	DEPTH
Rustler	730'
Top of Salt	1185'
Base of Salt	2540'
Lamar	2720'
Bell Canyon	2740'
Cherry Canyon	3610'
Brushy Canyon	4820'
Bone Spring	6490'
1st Bone Spring	7350'

PROPOSED BHL DEPTHS: TVD 7304' and MD 11,657'

2. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL, OR GAS

Anticipated Formation Tops: RKB +/- 2960.5' Ground Elevation: 2942'

Fresh Water	100' – 500'	Surface Fresh Water Sands
Oil/Gas	2740'	Bell Canyon
Oil/Gas	3610'	Cherry Canyon
Oil/Gas	4820'	Brushy Canyon
Oil/Gas	6460'	Bone Spring

3. CASING AND CEMENTING PROGRAM

Casing Size	Hole Size	From To	Weight	Grade	Joint	Condition	Purpose
13-3/8"	17-1/2"	0' - ~~750'~~ 380'	48.0#	H-40	ST&C	New	Surface
9-5/8"	12-1/4"	380' 0' – ~~2550'~~ 2700'	~~32.0#~~ 36#	J-55	ST&C	New	Intermediate
7"	8-3/4""	0' – ~~7304'~~ 7500'	26.0#	P-110	LT&C	New	Production
4-1/2"	6-1/8"	7100' – 11657'	11.6#	P-110	LT&C	New	Prod liner

Casing Size	Burst Rating, psi	Safety Factor	Collapse Rating, psi	Safety Factor	Tension Rating, 1000 lbs.	Safety Factor
13-3/8"	1730	3.10	740	3.20	322	12.20
9-5/8"	3520	1.50	2020	1.90	453	4.90
7"	9950	1.25	6230	1.40	639	3.70
4-1/2"	10,690	1.25	7580	1.40	279	4.70

Equivalent or adequate grades and weights of casing may be substituted at time casing is run, depending on availability.

9 5/8" Intermediate Casing - Cementing Program

Cement lead with 450 sacks of Premium Plus Class C/Pozmix + 4% bentonite, 5% MPA-5, 1% sodium metasilicate and 5% sodium chloride with yield = 2.02 cu.ft./sack & tail with 200 sacks Premium Plus Class C + 1% calcium chloride and 1 gal/100 sk FP-6L with yield = 1.34 cu.ft./sack; circulate cement to surface using **50% excess**. If cement does not circulate, will run a temperature survey to find actual top of cement and run 1" tubing into annulus and pump cement as necessary to achieve circulation to surface.

Directional Drilling:

Drill out the 9-5/8" Intermediate casing with a 8 ¾"" bit to a TVD of approximately 6800'. The hole will be kicked off with a 8 3/4" bit at a TVD of +/- 6800'. The directional hole will be kicked off building angle at 12.5 deg/100' until the end of the curve at +/- 7304 TVD/7576 MD and then 7" casing will be run to the total depth of the hole.

7" Production Casing - Cementing Program

Cement lead with 525 sacks of Pox:C cement with 6% bentonite, .25% FL-52, .4% sodium metasilicate, ¼ lb cello flake with yield = 2.44 cu.ft./sack, & tail in 200 sacks Class C + 0.15% R-3 with yield = 1.34 cu.ft./sack; circulate cement to an estimated 2300' or 200' inside the 9-5/8" intermediate casing. **50% excess used to calculate cement**. May perform a 2-stage job utilizing DV tool if determined to be necessary to raise cement to the above described height.

See COA

Directional Drilling and 4 ½" liner:

A 4500' lateral using a 6 1/8" bit will then be drilled in the Avalon shale extending across section 30 from east to west. At total measured depth 4-1/2", 11.6# P-110, **liner** will be ran and hung in the 7" production casing. The 4-1/2" casing in the lateral will be equipped sleeves to be opened during the completion utilizing a ball drop system.

7. ANTICIPATED RESERVOIR CONDITIONS

No abnormal temperatures or pressures are anticipated. Low levels of H2S have been monitored in producing wells in the area, so H2S may be present while drilling the well. An H2S Plan is attached to the Drilling Program. Anticipated Bottom Hole Pressure is 3200 PSI (maximum), and anticipated static Bottom Hole Temperature is 115 degrees Fahrenheit.

8. OTHER PERTINENT INFORMATION

A. Auxiliary Equipment
- Upper and lower Kelly cocks. Full opening stab in valve on the rig floor.

B. Anticipated Starting Date
- October 1, 2011
- 25 days drilling operations with drilling rig
- 3 days completion operations with drilling rig

ALL CASINGS:

Tension	Calculated using weight of casing times landing depth without utilizing buoyancy effects
Collapse	Calculated with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run. The effects of axial load on collapse will be considered.
Burst	In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture gradients up to a 1.0 psi/ft. gradient. The effects of tension on burst will not be utilized.

4. PRESSURE CONTROL EQUIPMENT: Blowout Preventer (See Attached Diagrams)

A BOP equivalent to Diagram 1 will be nippled up on the surface casing string. The BOP Stack, choke, kill lines, Kelly cock, inside BOP, etc., will be hydro tested to ~~1000 psi~~ 6K. A BOP equivalent to Diagram 2 will be nippled up on the intermediate and production casing and test to 3000 psi. The annulus will be tested to 2500 psi. In addition to the rated working pressure tests, a low pressure (250 psi) test will be required. These tests will be performed: Independent tester is required See COA

a) upon installation
b) after any component changes
c) 15 days after a previous test
d) as required by well conditions.

A function test to insure that the preventors are operating correctly will be performed on each trip. All blowout preventer (BOP) and related equipment shall comply with well control requirements as described in Onshore Oil and gas Order No. 2 and API RP 53 Sec. 17.

Minimum working pressure of the blowout preventer (BOP) and related equipment required for drilling below the intermediate and production casing shoes shall be 3000 psi.
See Diagram 2
Diagram 3 is a schematic of the choke manifold system.
Diagram 4 is a layout of the drilling rig on location.
D. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the test

a. The test shall be done by an independent service company.
b. The results of the test shall be reported to the appropriate BLM office.
c. 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.

5. MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph
0 – 750' 580	Fresh Water/Native	8.4 - 8.8	36-38	6-10	6-20		
750' – 2550 ' 2700	Brine	9.9 – 10.1	29-30	0 - 1	0 - 1		
2550' – 7304'	Fresh - Brine	8.4 – 10.0	28-29	0 -1	0 -1		
7304' – 11598'	Dynazan/Starch	8.4 – 10.0	34-36	4 - 8	4 - 8	12-15	

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. In order to run open-hole logs and casing, the viscosity and water loss may have to be adjusted to meet these needs.

Mud system monitoring equipment with derrick floor indicators and visual / audio alarms shall be installed and operative prior to drilling into the Bone Spring formation. This equipment will remain in use until the production casing is run and cemented. Monitoring equipment shall consist of the following:

A recording pit level indicator.
A pit volume totalizer.
A flowline sensor.

6. TECHNICAL STAGES OF OPERATION

A. Testing: None planned.

B. Logging: See COA

- Two man unit from 1400' to TD
- The vertical hole will be logged above kickoff GR/Dual Laterolog/Neutron Density/Caliper

C. Conventional Coring: None anticipated.

D. Cement:

13 3/8" Surface Casing - Cementing Program

Cement with +/- 400 sacks lead slurry of Premium Plus "C" + 4% bentonite, 5% MPA-5, 3% sodium metasilicate and 5% sodium Chloride with yield 2.16 cu.ft./sack and +/- 200 sacks tail slurry of Premium Plus "C" + 2% calcium chloride with a yield of 1.34 cu. Ft/sack ; circulate cement to surface with **100% excess**. If cement does not circulate, will run a temperature survey to find actual top of cement and run 1" tubing into annulus and pump cement as necessary to achieve circulation to surface.

Weatherford

Drilling Services

Proposal

MANZANO LLC

RUBY STATE COM #2H

EDDY CO, NM

WELL FILE: **PLAN 1**

AUGUST 10, 2011

Weatherford International, Ltd.
P.O. Box 61028
Midland, TX 79711 USA
+1.432.561.8892 Main
+1.432.561.8895 Fax
www.weatherford.com

Manzano, LLC
Ruby State Com #2H
Eddy County, New Mexico

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	269.21	0.00	0.00	0.00	0.00	0.00	0.00	
2	6828.18	0.00	269.21	6828.18	0.00	0.00	0.00	0.00	0.00	
3	7575.60	90.00	269.21	7304.00	-6.52	-475.78	12.04	269.21	475.82	PP
4	11657.56	90.00	269.21	7304.00	-62.48	-4557.36	0.00	0.00	4557.79	Pbhl

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PP	7304.00	-6.52	-475.78	431471.45	638942.17	32°11'07.565N	103°53'03.195W	Point
Pbhl	7304.00	-62.48	-4557.36	431415.49	634860.59	32°11'07.177N	103°53'50.692W	Point

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#2H	0.00	0.00	431477.97	639417.95	32°11'07.610N	103°52'57.659W	N/A

LEGEND

1
Ruby State Com #2H

FIELD DETAILS

Eddy Co, NM (Nad 27 NMEZ)

Geodetic System: US State Plane Coordinate System 1927
Ellipsoid: NAD27 (Clarke 1866)
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010

System Datum: Mean Sea Level
Local North: Grid North

SITE DETAILS

Ruby State Com #2H

Site Centre Northing: 431477.97
Easting: 639417.95

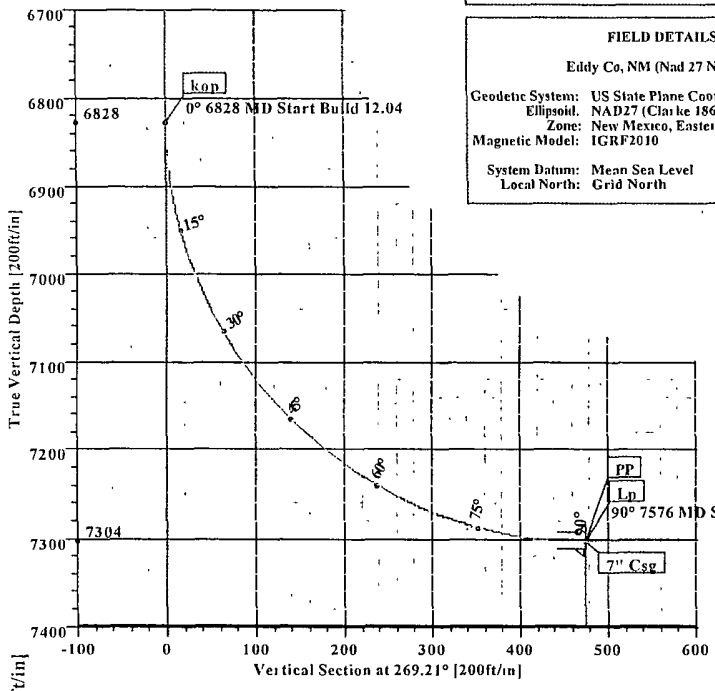
Ground Level: 2942.50
Positional Uncertainty: 0.00
Convergence: 0.24

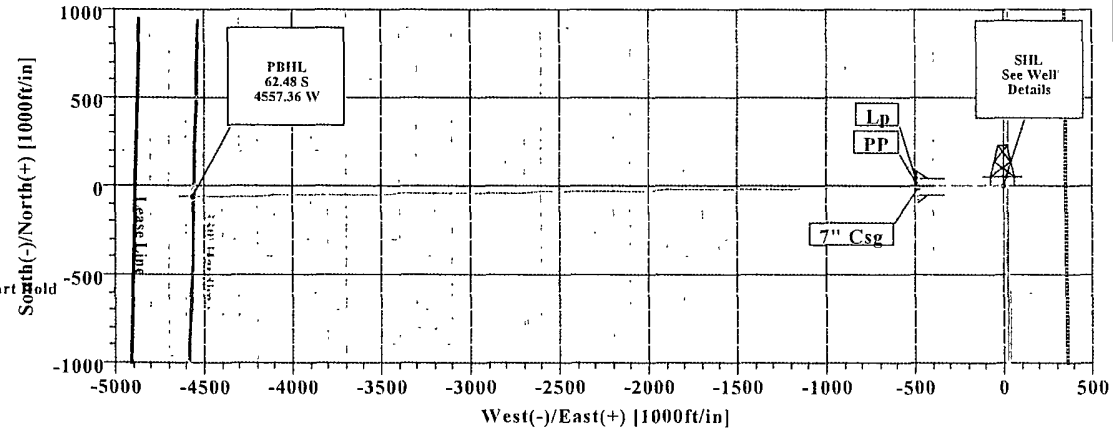
Azimuths to Grid North
True North: -0.24°
Magnetic North: 7.45°

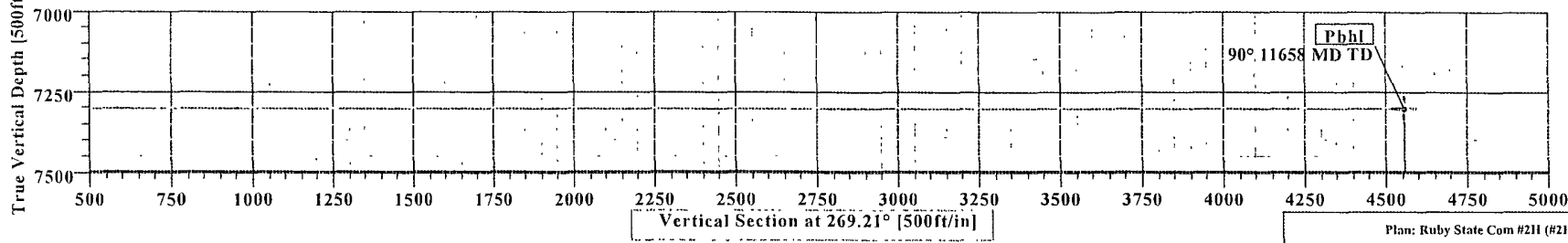
Magnetic Field
Strength: 48550nT
Dip Angle: 60.09°
Date: 10/15/2011
Model: IGRF2010

Total correction to Grid North 7.45°

KB ELEV: 2961.00
GL ELEV: 2942.50







Plan: Ruby State Com #2H (#2H/1)
Created By: Russell W. Joyner Date: 8/10/2011

Weatherford International Ltd.

WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 8/10/2011	**Time:** 12:28:57	**Page:**	1
Field:	Eddy Co, NM (Nad 27 NMEZ)	**Co-ordinate(NE) Reference:**	Well: #2H, Grid North		
Site:	Ruby State Com #2H	**Vertical (TVD) Reference:**	SITE 2961.0		
Well:	#2H	**Section (VS) Reference:**	Well (0.00N,0.00E,269 21Azi)		
Wellpath:	1	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Plan:	Ruby State Com #2H	**Date Composed:**	8/10/2011
		Version:	1
Principal:	Yes	**Tied-to:**	From Surface

Field:	Eddy Co, NM (Nad 27 NMEZ)		
Map System:	US State Plane Coordinate System 1927	**Map Zone:**	New Mexico, Eastern Zone
Geo Datum:	NAD27 (Clarke 1866)	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site:	Ruby State Com #2H				
Site Position:		**Northing:**	431477.97 ft	**Latitude:**	32 11 7.610 N
From:	Map	**Easting:**	639417.95 ft	**Longitude:**	103 52 57.659 W
Position Uncertainty:	0.00 ft			**North Reference:**	Grid
Ground Level:	2942.50 ft			**Grid Convergence:**	0 24 deg

Well:	#2H				**Slot Name:**	
Well Position:	+N/-S	0.00 ft	**Northing:**	431477.97 ft	**Latitude:**	32 11 7 610 N
	+E/-W	0.00 ft	**Easting :**	639417 95 ft	**Longitude:**	103 52 57.659 W
Position Uncertainty:		0.00 ft				

Wellpath:	1			**Drilled From:**	Surface
				Tie-on Depth:	0 00 ft
Current Datum:	SITE	**Height**	2961.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	10/15/2011			**Declination:**	7.69 deg
Field Strength:	48550 nT			**Mag Dip Angle:**	60.09 deg

Vertical Section:	**Depth From (TVD)** ft	**+N/-S** ft	**+E/-W** ft	**Direction** deg
	0.00	0.00	0.00	269.21

Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	269.21	0 00	0.00	0.00	0.00	0.00	0.00	0 00	
6828.18	0.00	269.21	6828.18	0.00	0.00	0.00	0 00	0.00	0.00	
7575 60	90 00	269.21	7304.00	-6.52	-475.78	12.04	12.04	0 00	269.21	PP
11657.56	90 00	269.21	7304.00	-62.48	-4557.36	0.00	0.00	0.00	0.00	Pbhl

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
6800.00	0.00	269 21	6800.00	0.00	0 00	0 00	0.00	431477.97	639417.95	
6828.18	0.00	269.21	6828.18	0.00	0.00	0 00	0.00	431477 97	639417.95	kop
6900.00	8 65	269.21	6899 73	-0.07	-5.41	5.41	12.04	431477.90	639412 54	
7000.00	20.69	269.21	6996 29	-0 42	-30.69	30.69	12.04	431477.55	639387.26	
7100.00	32.73	269.21	7085 45	-1.04	-75.55	75 55	12.04	431476.93	639342 40	
7200.00	44.77	269 21	7163.30	-1.89	-138.02	138 03	12.04	431476.08	639279.93	
7300.00	56.81	269.21	7226.39	-2 95	-215.36	215 38	12 04	431475.02	639202.59	
7400.00	68.86	269.21	7271.96	-4.17	-304.16	304.18	12.04	431473.80	639113.79	
7500.00	80.90	269.21	7298 01	-5.49	-400.51	400.54	12.04	431472.48	639017 44	
7575.60	90.00	269.21	7304.00	-6.52	-475.78	475.82	12.04	431471.45	638942 17	PP
7600.00	90.00	269 21	7304.00	-6 85	-500.18	500 23	0 00	431471.12	638917.77	
7700.00	90.00	269.21	7304.00	-8.22	-600.17	600.23	0 00	431469.75	638817.78	
7800 00	90.00	269.21	7304 00	-9.59	-700.16	700.23	0.00	431468.38	638717 79	
7900.00	90.00	269.21	7304 00	-10.97	-800 15	800.23	0.00	431467.00	638617.80	
8000.00	90.00	269.21	7304 00	-12.34	-900.14	900 23	0.00	431465.63	638517 81	
8100.00	90.00	269.21	7304.00	-13.71	-1000 13	1000 23	0.00	431464.26	638417 82	
8200 00	90 00	269 21	7304 00	-15.08	-1100.12	1100.23	0 00	431462.89	638317 83	

Weatherford International Ltd.

WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 8/10/2011	**Time:** 12:28 57	**Page:**	2
Field:	Eddy Co, NM (Nad 27 NMEZ)	**Co-ordinate(NE) Reference:**	Well: #2H, Grid North		
Site:	Ruby State Com #2H	**Vertical (TVD) Reference:**	SITE 2961 0		
Well:	#2H	**Section (VS) Reference:**	Well (0 00N,0.00E,269 21Azi)		
Wellpath:	1	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
8300.00	90.00	269.21	7304 00	-16.45	-1200.11	1200 23	0 00	431461 52	638217.84	
8400.00	90 00	269 21	7304.00	-17.82	-1300 10	1300.23	0.00	431460.15	638117.85	
8500 00	90.00	269.21	7304.00	-19.19	-1400.09	1400.23	0.00	431458 78	638017 86	
8600.00	90.00	269 21	7304.00	-20.56	-1500.08	1500 23	0.00	431457.41	637917 87	
8700.00	90 00	269.21	7304.00	-21.93	-1600.08	1600 23	0 00	431456.04	637817 87	
8800.00	90.00	269.21	7304.00	-23.30	-1700 07	1700.23	0 00	431454.67	637717.88	
8900.00	90.00	269.21	7304 00	-24.67	-1800 06	1800.23	0 00	431453.30	637617 89	
9000.00	90.00	269.21	7304.00	-26 04	-1900.05	1900.23	0.00	431451.93	637517.90	
9100.00	90.00	269.21	7304.00	-27.41	-2000 04	2000.23	0 00	431450.56	637417.91	
9200.00	90 00	269.21	7304.00	-28.78	-2100.03	2100.23	0.00	431449.19	637317.92	
9300.00	90 00	269.21	7304 00	-30.15	-2200 02	2200.23	0.00	431447.82	637217.93	
9400.00	90.00	269.21	7304.00	-31.52	-2300.01	2300.23	0.00	431446.45	637117.94	
9500 00	90.00	269 21	7304.00	-32.89	-2400.00	2400.23	0.00	431445.08	637017.95	
9600 00	90.00	269.21	7304.00	-34.26	-2499.99	2500.23	0.00	431443.71	636917.96	
9700 00	90.00	269.21	7304.00	-35.63	-2599.98	2600.23	0.00	431442.34	636817.97	
9800.00	90.00	269.21	7304.00	-37.00	-2699.97	2700.23	0.00	431440.97	636717.98	
9900.00	90.00	269.21	7304.00	-38.37	-2799.96	2800.23	0.00	431439 60	636617.99	
10000.00	90.00	269.21	7304.00	-39 74	-2899.95	2900 23	0.00	431438 23	636518.00	
10100.00	90 00	269.21	7304 00	-41.11	-2999.94	3000.23	0.00	431436.86	636418.01	
10200 00	90 00	269.21	7304.00	-42.48	-3099.93	3100.23	0.00	431435.49	636318 02	
10300 00	90.00	269.21	7304.00	-43.85	-3199.93	3200.23	0.00	431434.12	636218 02	
10400.00	90.00	269.21	7304.00	-45.22	-3299.92	3300.23	0 00	431432.75	636118.03	
10500.00	90 00	269.21	7304.00	-46.59	-3399 91	3400.23	0 00	431431.38	636018 04	
10600.00	90.00	269.21	7304.00	-47.96	-3499.90	3500.23	0 00	431430.01	635918.05	
10700.00	90.00	269.21	7304.00	-49.33	-3599.89	3600.23	0.00	431428.64	635818.06	
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11200.00	90.00	269 21	7304.00	-56.18	-4099 84	4100.23	0.00	431421 79	635318.11	
11300 00	90.00	269.21	7304.00	-57.55	-4199 83	4200 23	0.00	431420 42	635218.12	
11400.00	90.00	269 21	7304.00	-58 92	-4299.82	4300.23	0.00	431419.05	635118.13	
11500 00	90.00	269.21	7304.00	-60 29	-4399 81	4400.23	0.00	431417.68	635018.14	
11600.00	90.00	269.21	7304.00	-61.66	-4499.80	4500.23	0.00	431416.31	634918.15	
11657.56	90.00	269.21	7304.00	-62.48	-4557.36	4557.79	0.00	431415.49	634860.59	Pbhl

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ----> Deg Min Sec	<--- Longitude ---> Deg Min Sec
PP			7304 00	-6.52	-475 78	431471.45	638942.17	32 11 7 565 N	103 53 3.195 W
Pbhl			7304.00	-62 48	-4557.36	431415.49	634860 59	32 11 7.177 N	103 53 50.692 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
7575 60	7304.00	0.000	0 000	7" Csg

Weatherford International Ltd.

WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 8/10/2011	**Time:** 12.28 57	**Page:**	3
Field:	Eddy Co, NM (Nad 27 NMEZ)	**Co-ordinate(NE) Reference:**	Well #2H, Grid North		
Site:	Ruby State Com #2H	**Vertical (TVD) Reference:**	SITE 2961 0		
Well:	#2H	**Section (VS) Reference:**	Well (0.00N,0.00E,269.21Azi)		
Wellpath:	1	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Annotation

MD ft	TVD ft	
6828.18	6828 18	kop
7575.60	7304.00	Lp
11657 56	7304.00	Pbhl

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Weatherford

Weatherford Drilling Services

GeoDec v5.03

Report Date:	August 10, 2011
Job Number:	
Customer:	Manzano, LLC
Well Name:	Ruby State Com #2H
API Number:	
Rig Name:	
Location:	Eddy Co, NM (Nad 27 NMEZ)
Block:	
Engineer:	R Joyner

US State Plane 1927	Geodetic Latitude / Longitude
System: New Mexico East 3001 (NON-EXACT)	System: Latitude / Longitude
Projection: SPC27 Transverse Mercator	Projection: Geodetic Latitude and Longitude
Datum: NAD 1927 (NADCON CONUS)	Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866	Ellipsoid: Clarke 1866
North/South 431477.970 USFT	Latitude 32.1854471 DEG
East/West 639417.950 USFT	Longitude -103.8826830 DEG
Grid Convergence: .24°	
Total Correction: +7.45°	

Geodetic Location WGS84	Elevation =	0.0 Meters
Latitude =	32.18545° N	32° 11 min 7.610 sec
Longitude =	103.88268° W	103° 52 min 57.659 sec

Magnetic Declination =	7.69°	[True North Offset]	
Local Gravity =	.9988 g	CheckSum =	6649
Local Field Strength =	48547 nT	Magnetic Vector X =	23990 nT
Magnetic Dip =	60.09°	Magnetic Vector Y =	3238 nT
Magnetic Model =	IGRF-2010g11	Magnetic Vector Z =	42080 nT
Spud Date =	Oct 15, 2011	Magnetic Vector H =	24208 nT

Signed:_____ Date:_____

13 3/8" 2000 psi Annular B.O.P Stack

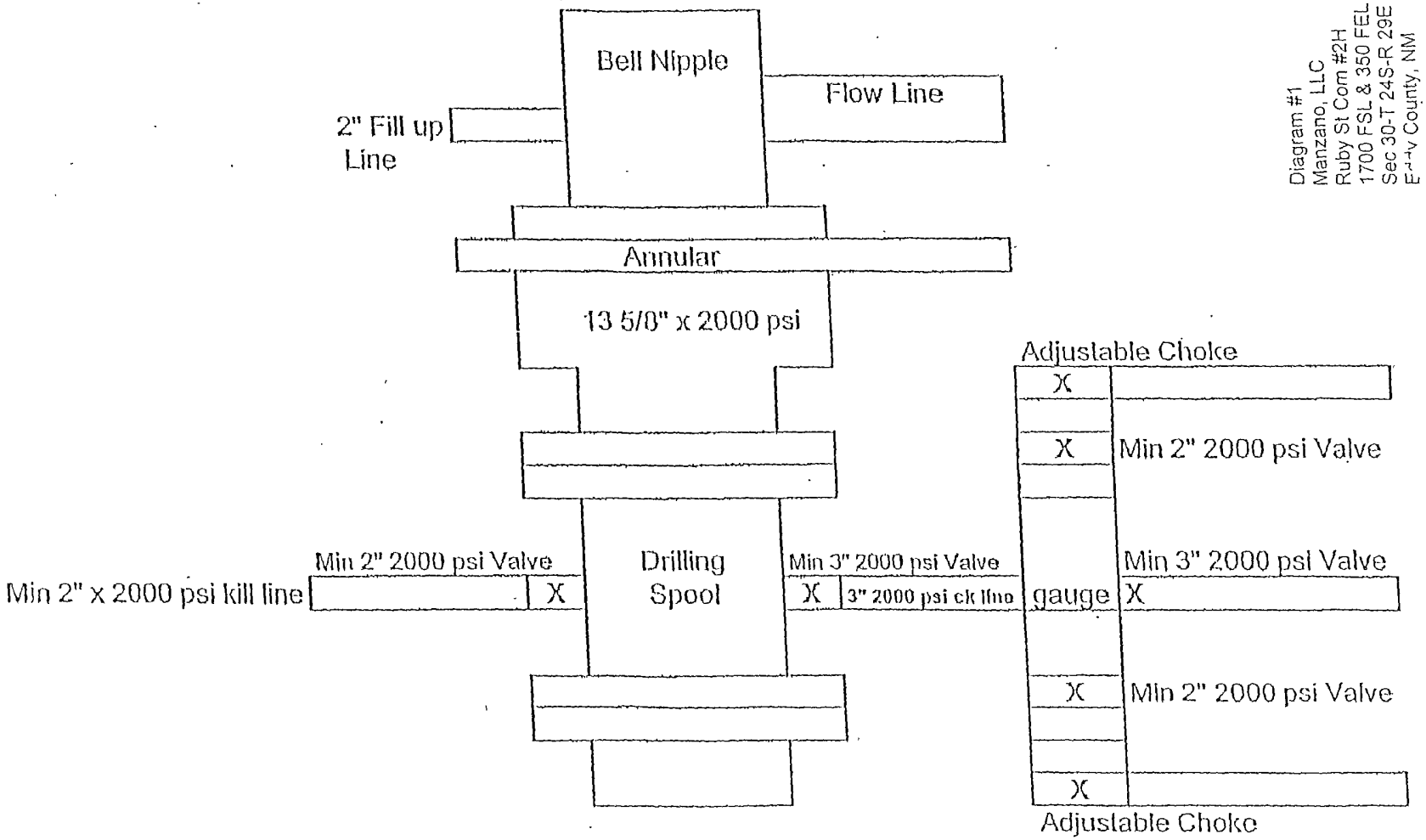


Diagram #1
Manzano, LLC
Ruby St Com #2H
1700 FSL & 350 FEL
Sec 30-T 24S-R 29E
Eddy County, NM

Diagram #1
Manzano, LLC
Ruby St Com #2H
1700 FSL & 350 FEL
Sec 30-T 24S-R 29E
Eddy County, NM

13-5/8" 3M BOPE & Closed Loop Equipment Schematic

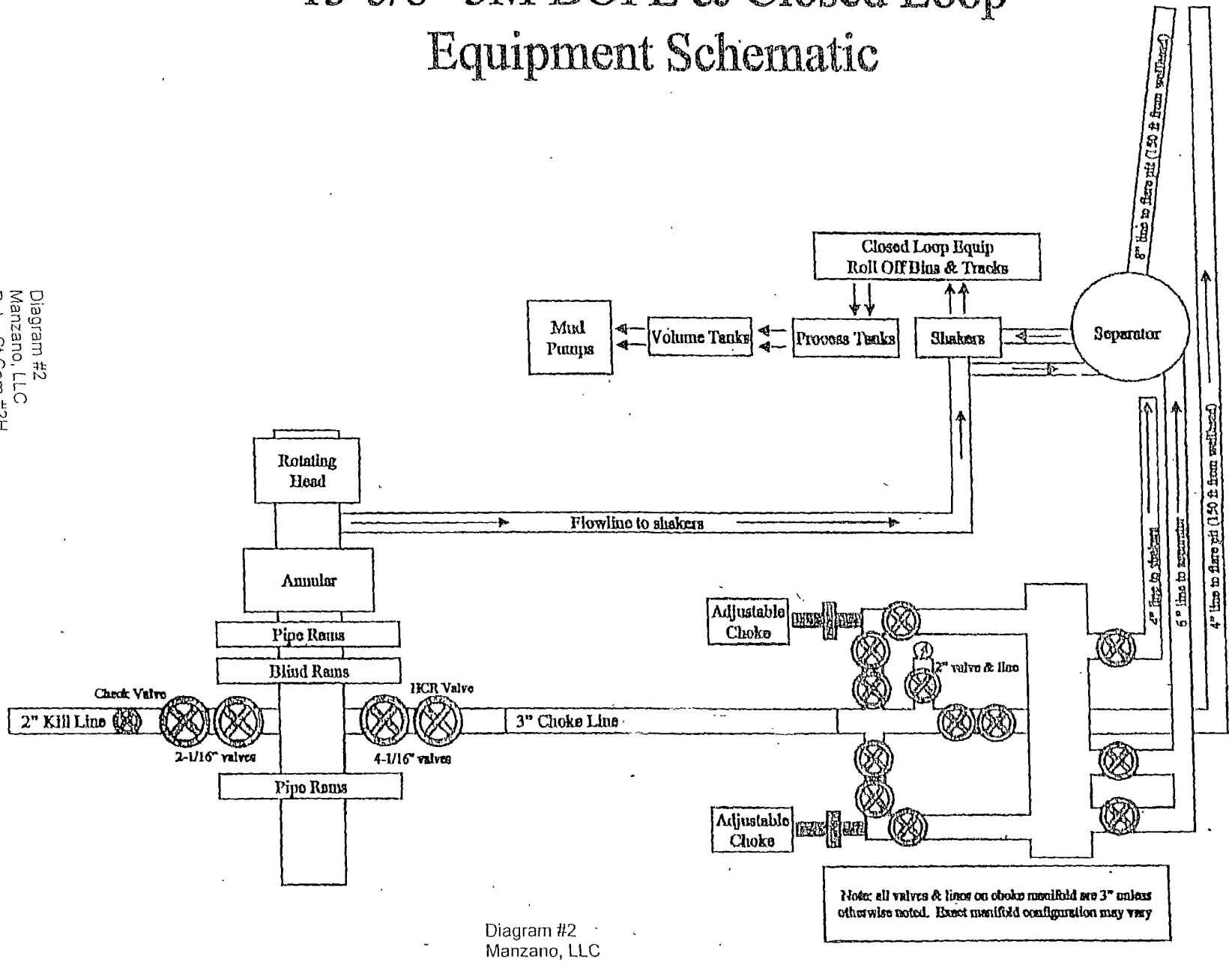
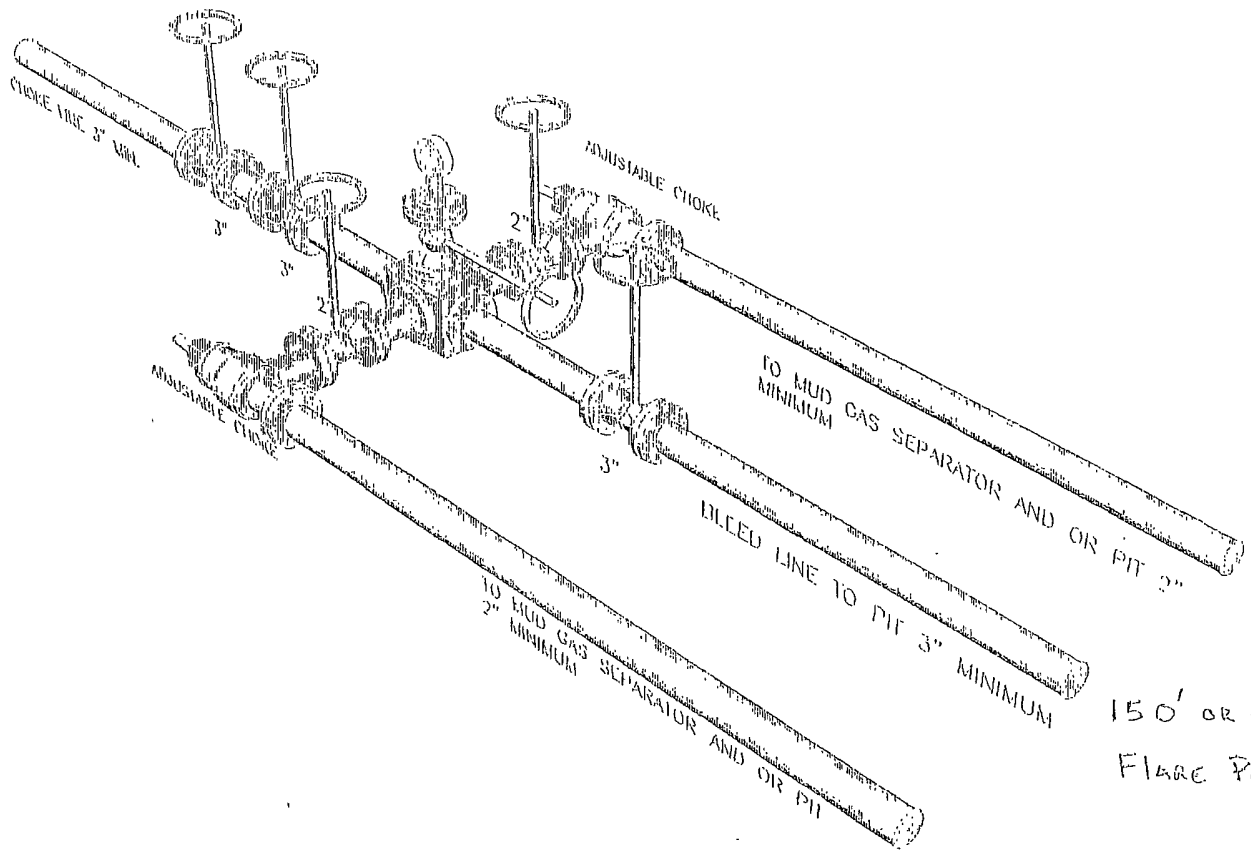


Diagram #2
Manzano, LLC
Ruby St Com #2H
1700 FSL & 350 FEL
Sec 30-T 24S-R 29E
Eddy County, NM

Diagram #2
Manzano, LLC
Ruby St Com #2H
1700 FSL & 350 FEL
Sec 30-T 24S-R 29E
Eddy County, NM

Diagram #3
Manzano, LLC
Ruby St Com #2H
1700 FSL & 350 FEL
Sec 30-T 24S-R 29E
Eddy County, NM



150' or more to Flare Pit

3M CHOKE MANIFOLD EQUIPMENT--CONFIGURATION OF CHOKES MAY VARY

[54 FR 39528, Sept. 27, 1989]

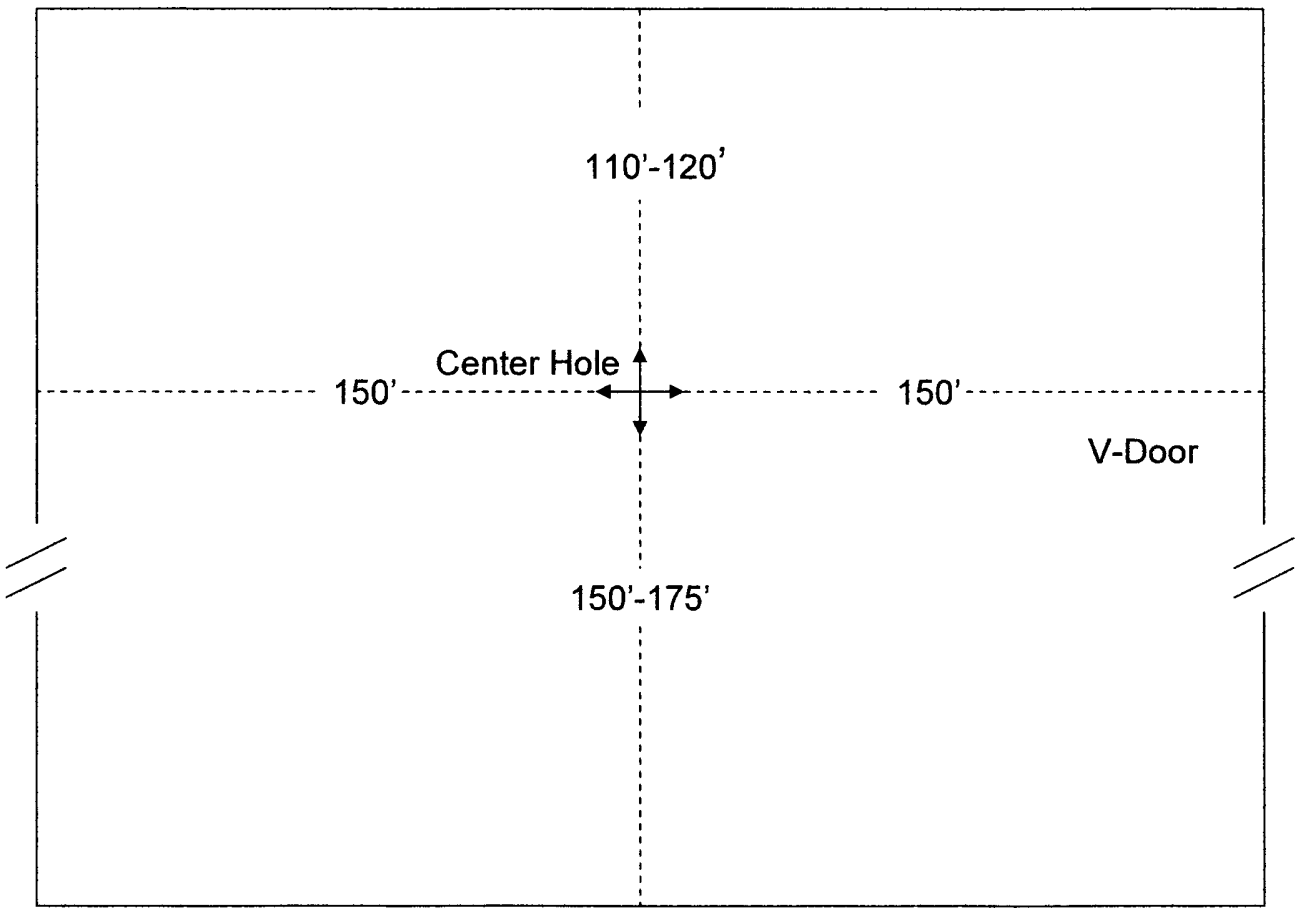
DRAWN BY: DARRELL CARTER

Diagram #3
Manzano, LLC
Ruby St Com #2H
1700 FSL & 350 FEL
Sec 30-T 24S-R 29E
Eddy County, NM

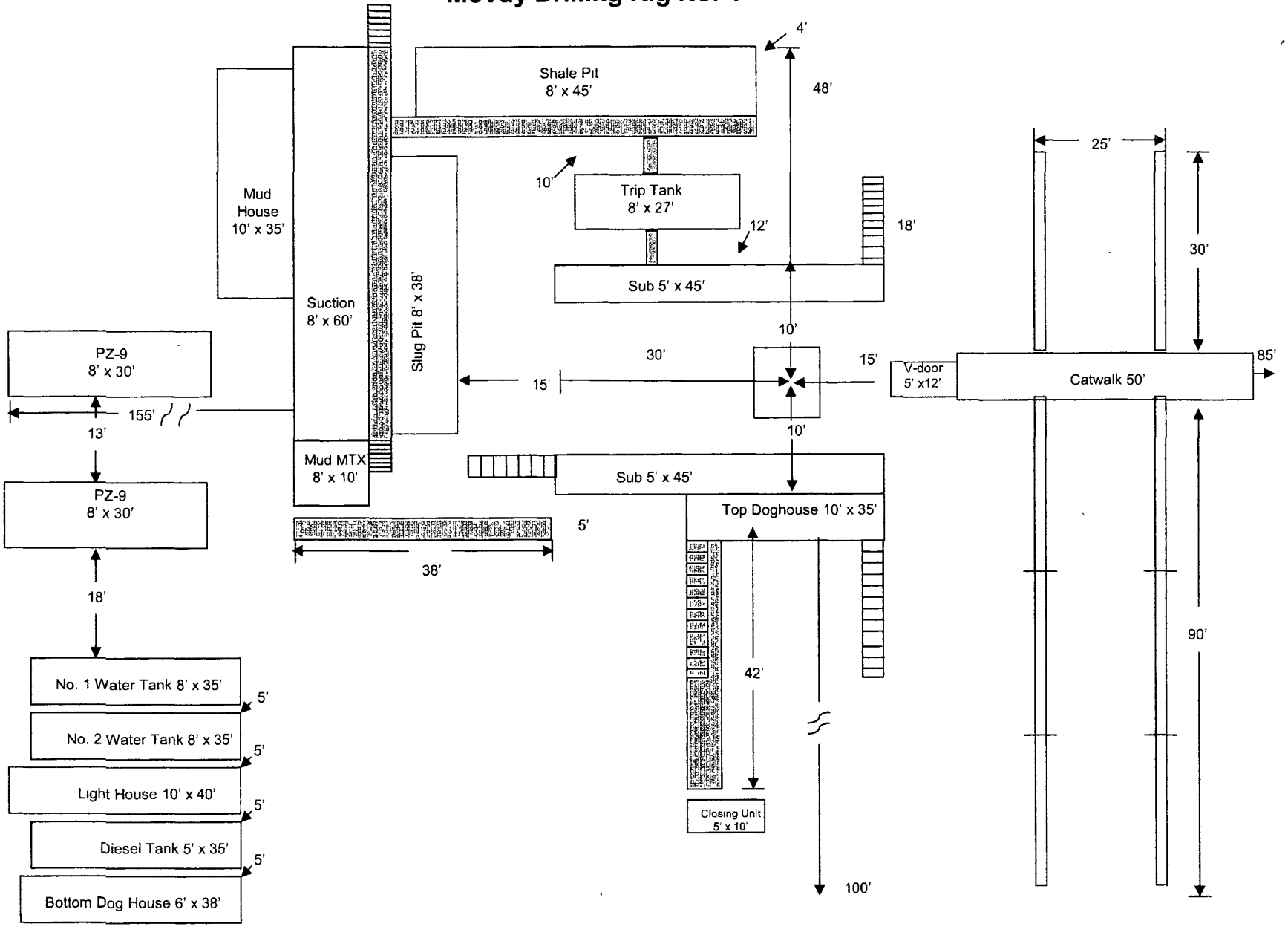
McVay Drilling Co.

Closed Loop Location Platt

Rig 4



McVay Drilling Rig No. 4



Page 5

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. All company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
   a. Characteristics of H2S
   b. Physical effects and hazards
   c. Proper use of safety equipment and life support systems
   d. Principle and operations of H2S detectors, warning system and briefing areas
   e. Evacuation procedures, routes and first aid
   f. Proper use of 30-minute pressure demand air pack

2. H2S Detection and alarm System
   a. H2S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.

3. Windsock and/or wind streamers
   a. Windsock at mud pit area should be high enough to be visible
   b. Windsock at briefing area should be high enough to be visible
   c. There should be a windsock at entrance to location

4. Condition Flags and Signs
   a. Warning Sign on access road to location
   b. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure or danger. Red flag, danger, H2S present in Dangerous concentration. Only emergency personnel admitted to location.

5. Well Control Equipment
   a. See Diagrams 1,2 and 3

6. Communication
   a. While working under masks chalkboards will be used for communication.
   b. Hand signals will be used where chalk board is inappropriate
   c. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters

7. Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment

   If H2S is encountered, mud system will be altered if necessary to maintain control of formation.

   A mud gas separator will be brought into service along with H2S scavengers if necessary,

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MANZANO, LLC
LEASE NO.:	NM107384
WELL NAME & NO.:	RUBY STATE COM 2H
SURFACE HOLE FOOTAGE:	1700' FSL & 350' FEL
BOTTOM HOLE FOOTAGE	1650' FSL & 330' FWL
LOCATION:	Section 30, T.24 S., R.29 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)

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.

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 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.

Communitization Agreement
A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

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 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

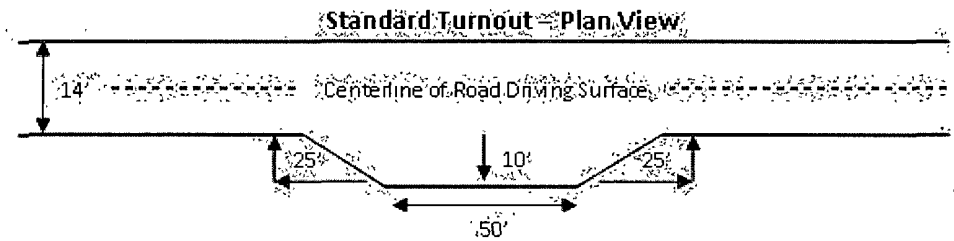
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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:

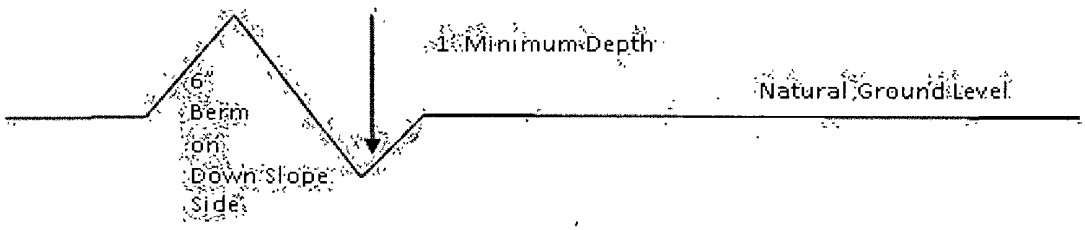


Drainage

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:

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

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.

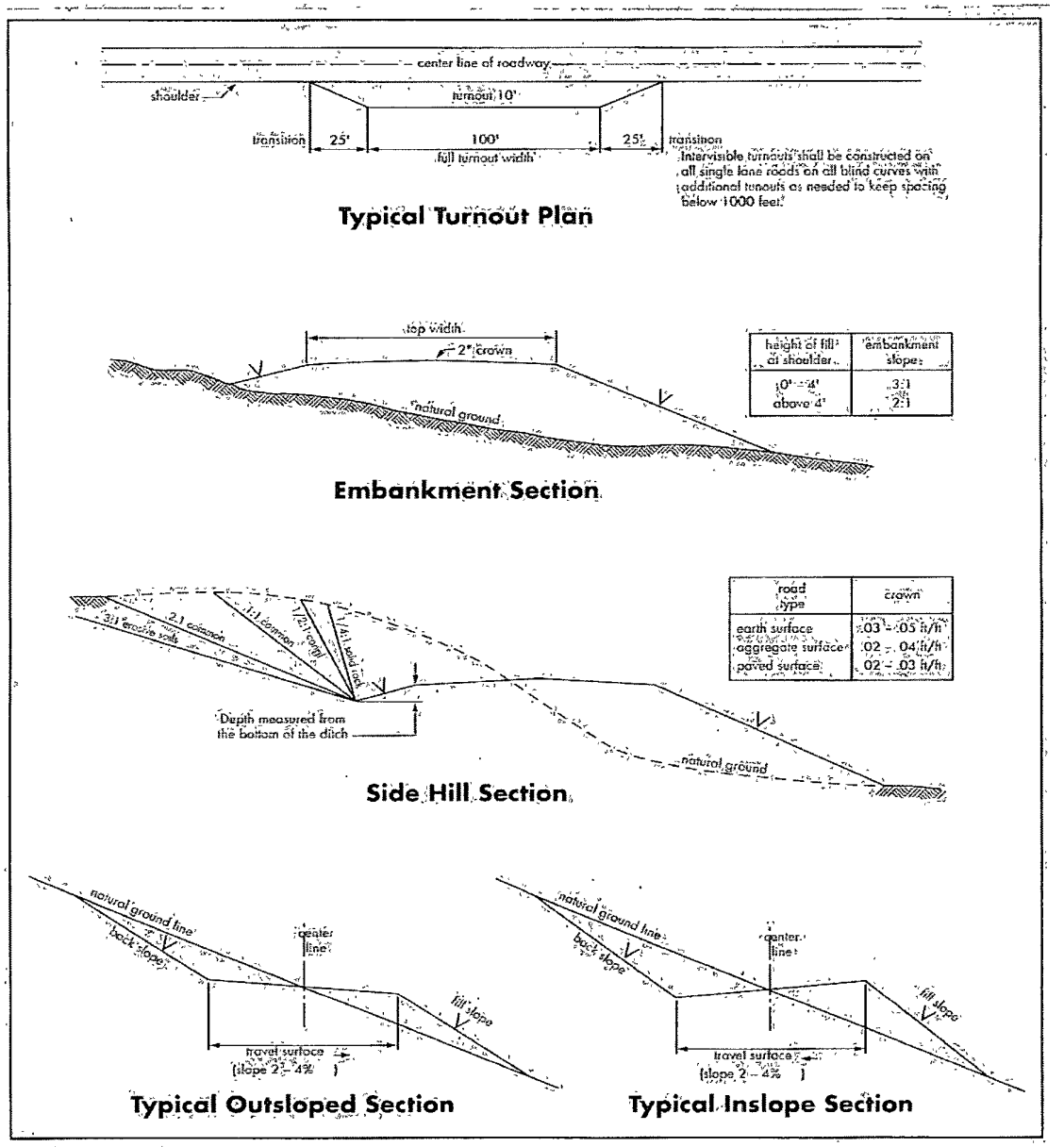
Fence Requirement

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. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**

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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. 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.

4. **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 and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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.
Possible lost circulation in the Delaware and Bone Spring formations.

1. The **13-3/8** inch surface casing shall be set at approximately **380** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) 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.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, **which is to be set in the base of the Castile at approximately 2700',** 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.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

3. The minimum required fill of cement behind the **7** inch production casing is:

   ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Approved for single stage job only, Operator must submit a sundry with details in order to do a two stage job.**

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 **2000 (2M)** psi.

   a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **3000 (3M)** psi.

4. 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.

D. DRILL STEM TEST

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

E. 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

B. PIPELINES (not applied in APD)

C. ELECTRIC LINES (not applied in APD)

IX. INTERIM RECLAMATION

The area for the project is on state surface. Interim reclamation will proceed according to state requirements for this project.

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 2, for Sandy 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
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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