Revision #2

Form 3160-3
(August 2007)

HOBBS OCD

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCT 01 2012

RECEIVED

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

Split Estate

1a. Type of work. ☑ DRILL ☐ REENTER	5 Lease Serial No. NMNM 077054 & FEE Lease
	6 If Indian Allotee or Tribe Name
	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. Gay Nineties Fed Com #1 <39483>
2 Name of Operator Manzano, LLC <231429>	9 API Well No. 30-025-40827
3a. Address P.O. BOX 2107, Roswell, NM 88203 — 3b Phone No. (include area code) 575-623-3940	10 Field and Pool or Exploratory ~~Lusk S.E.~~ Bone Spring <97220>
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1547' FSL & 2280' FEL, Sec 36-T19S-R32E Unit J; At proposed prod. zone BHL 330' FSL & 1980' FEL, Sec 1-T20S-R32E	11. Sec., T. R. M or Blk. and Survey or Area Sec 1-T20S-R32E
14 Distance in miles and direction from nearest town or post office* 30 miles east of Carlsbad	12 County or Parish Lea — 13. State NM
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) SHL- 1547'	16 No of acres in lease 320 in Fee lease 798.8 in Fed lease 1118.80 acres — 17. Spacing Unit dedicated to this well 160
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 300'	19 Proposed Depth PBTD = 10,100' TVD of Horizontal = 9,900' MD of Lateral = 15003' — 20 BLM/BIA Bond No on file NM-2567
21. Elevations (Show whether DF, KDB, RT, GL etc.) GL-3561'	22. Approximate date work will start* 07/01/2012 — 23. Estimated duration 37 DAYS

24. Attachments

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

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

25 Signature Paul Ragsdale	Name (Printed Typed) Paul Ragsdale	Date 06/13/2012
Title Engineer		
Approved by (Signature) /S/ Arlen L. Seidlitz	Name (Printed Typed)	Date SEP 24 2012
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. 09/10-22-2012

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.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

OCT 22 2012

Rev 2

Manzano, LLC
DRILLING AND OPERATIONS PROGRAM
Gay Nineties Fed Com 1H
Surface Location
1547' FSL & 2280' FEL
Section 36, T19S, R32E
Bottom Hole Location
330' FSL & 1980' FEL
Section 1, T20S, R32E
Lea County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, Manzano,LLC submits the following ten items of pertinent information in accordance with BLM requirements.

1. **Geological surface formation:** Permian

2. **The estimated tops of geologic markers are as follows:**

Rustler Anhydrite	1170'
Top of Salt	1310'
Base of Salt	2730'
Top Yates Sandstone	3010'
Top of Capitan Reef	3262'
Top of Delaware Sand (Cherry)	4704'
Manzanita Marker	5005'
Brushy Canyon	5105'
Top of Bone Springs	7850'
1st Bone Springs Sand	8930'
2nd Bone Springs Sand	9840'

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

Surface	185	Water
Delaware	4700'	Oil
BS 1st sand	8930'	Oil
BS 2 nd sand	9840'	Oil

No other formations are expected to give up oil, gas, or fresh water in measurable quantities.

The surface fresh water sands will be protected by setting 20" casing at 1250' in a 26" hole and circulating cement back to surface. Potash / salt sections will be protected by setting 13 3/8" casing at 3200' and circulating cement back to surface.

After the 13 3/8" casing is set and cemented, the hole size will be reduced to 12 ¼" and drilling will continue. Once the salt sections have been drilled in a vertical hole, controlling deviation to less than 3 degrees, a directional drilling system will be installed and used to directionally drill the well on a 13 degree angle towards Section 1 to the south. 9 5/8" casing will be set at 5000' into the Delaware formation and cement circulated back to surface.

The 9 5/8" casing will be drilled out with a 8 ¾" bit and directionally drilled on the same 13 deg. path to a proposed Bottom pilot hole TD of 10100' TVD, 10,271' MD in Section 1 T20S R32E. Open hole electric logs will be run at this time.

After logging, a target will be chosen and the well bore will plugged back to a kick off point. A cement plug will be set with a top of 9200' tvd and then the well will be directionally drilled to a horizontal lateral of 9900' tvd. 7" casing will be set and cemented at 10,300' MD in the 2nd curve.

The hole size will be reduced again to 6 1/8" and the lateral will be drilled across the section from north to south with a proposed tvd of 9900' and a md of 15003'. A 4 ½" liner will be run into the open hole with a 20 stage "port and packer" system. The liner will be hung and the rig will be moved off awaiting completion.

4. Proposed Casing Program:

HOLE SIZE	HOLE INTERVAL	CASING INTERVAL	OD	NEW	WT	COLLAR	GRADE
26"	0-1250' 1145	0'-1250'	20" new		106.5#	BT&C	J-55
17 ½"	1250'-3200'	0'-100'	13 3/8"	new	68#	BT&C	J-55
17 ½"		101'-2000'	13 3/8"	new	54.5#	BT&C	J-55
17 ½		2000'-3200'	13 3/8"	new	68#	BT&C	J-55
12 ¼"	3200'-5000'	0'-100'	9 5/8"	new	40#	LT&C	L-80
12 ¼"	4500	101'-4000'	9 5/8"	new	40#	LT&C	J-55
12 ¼"		4001'-5000' 4500	9 5/8"	new	40#	LT&C	L-80
8 ¾"	5000'-10,300	0'-100'	7"	new	26#	LT&C	P-110
8 ¾"		101'-7000'	7"	new	23#	LT&C	P-110
8 ¾"		7001'-10300'	7"	new	26#	LT&C	P-110
6 1/8"	10300'-15003'	10200'-15003'	4 ½"	new	11.6#	LT&C	P-110

See COA

See COA

5. Proposed Cement Program:

20" surface casing: 1625 sks BJ Lite Class "C" (35:65:4) w/ 5% Salt, 2.5 SMS, 5% MPA5,1/8#/sk Cello Flake & 5#/sk LCM1 (yd @2.15 cuft/sk @12.5 PPG). Tail w/ 200 sks Class "C"w/ 2% CaCl2 (yd @1.34 cuft/sk @ 14.8 PPG) Using 100 % excess cement circulated to surface.

13 3/8" intermediate casing: 2800 sks BJ Lite Class "C" (35:65:4) w/ 5# sk LCM 1 & ¼ #/sk celloflake (yd @2.13 cuft/sk @ 12.5 PPG). Tail w/ 200 sks Class "C" Neat (yd @ 1.33 cuft/sk @ 14.8 PPG). Using 100 % excess. Cement circulated to surface

9 5/8" intermediate casing: 1000 sks BJ Lite Class "C" (35:65:4) w/ 5# sk LCM 1 & ¼ #/sk celloflake (yd @2.13 cuft/sk @ 12.5 PPG). Tail w/ 200 sks Class "C" Neat (yd @ 1.33 cuft/sk @ 14.8 PPG). Using 100 % excess. Cement circulated to surface

Open Hole Plug: 400 sacks Premium H with 0.5% CFR-3, 0.5% D-Air 5000, 0.2% HR-800 mixed at 17 ppg, 1 cu.ft./sk.. Plug set "on bottom" of pilot hole with top of cement at 9200'.

7" production casing 800 sks BJ Lite Class "C" (35:65:4) w/ 5# sk LCM 1 & ¼ #/sk celloflake (yd @2.13 cuft/sk @ 12.5 PPG). Tail w/ 300 sks Class "C" Neat (yd @ 1.33 cuft/sk @ 14.8 PPG). Estimated Top of Cement is ~~4000'~~ 3200' See COA using 100 % excess.

4 ½" liner: . A 4 ½" liner will be run into the open hole with a 20 stage "port and packer" system. No cement will be used.
The above cement volumes could be revised pending the caliper measurement from the open hole logs. **All casing is new and API approved.**

6. Minimum Specifications for Pressure Control:

Plan to nipple up on the 20" & the 13 3/8" with a 2M annular system and test to 1000 psig with a 3rd party testing unit. Nipple up on 9 5/8" with a 5M system and test to 3000 psig with independent tester. Nipple up on 7" with a 5M system and test to 3000 psig with an independent tester.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. A 2"kill line and a 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a Kelly cock, floor safety valve (inside BOP), choke lines and choke manifold with 3000 psi WP rating.

7. Estimated BHP:

From: 0' -1250'	**Anticipated Max. BHP 555 PSI**
From: 1250'-3200'	**Anticipated Max BHP 1650 psi**
From: 3200'-5000'	**Anticipated Max. BHP 2171 PSI**
From: 5000'-10,300'	**Anticipated Max. BHP 4375 PSI**

8. Mud Program: The applicable depths and properties of this system are as follows:

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' – 1250'	Fresh Water Gel	8.4 – 8.9	32-34	N.C.
1250' –3200'	Brine	10.0 – 10.0	28-29	N.C
3200'-~~5000'~~ 4500	~~Cut Brine~~ Fw,	8.6-9.1	28-29	N.C.
4500 5000'-10,300'	Fresh Water Gel	8.4 – 8.9	32-34	15 cc
10300-TD	X Polymer	8.4 – 8.9	32-34	15 cc

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

9. Auxiliary Well Control and Monitoring Equipment:

a. A Kelly cock will be in the drill string at all times.
b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 4 ½" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

10. Testing, Logging and Coring Program:

a. No drill stem test are planned
b. The open hole electrical logging program will be:
   i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
   ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
   iii. No coring program is planned
   iv. Additional testing will be initiated subsequent to setting the 4 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

See COA

11. Potential Hazards:

a. No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 4375 psi. Estimated BHT: 120°. No H2S is anticipated to be encountered.

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Drilling Services

Proposal

MANZANO LLC

GAY NINETIES FED COM #1H

LEA CO, NM

WELL FILE: **PILOT PLAN 1**
LATERAL PLAN 1

APRIL 25, 2012

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Manzano, LLC
Gay Nineties Fed Com #1H
Lea County, New Mexico

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	177.14	0.00	0.00	0.00	0.00	0.00	0.00	
2	3010.00	0.00	177.14	3010.00	0.00	0.00	0.00	0.00	0.00	
3	3433.07	12.69	177.14	3429.62	-46.61	2.33	3.00	177.14	46.67	
4	10270.52	12.69	177.14	10100.00	-1547.00	77.35	0.00	0.00	1548.93	PBHL Pilot

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Gay Nineties Fed Com #1H	0.00	0.00	587618.21	730643.04	32°36'50.060N	103°43'06.689W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL Pilot	10100.00	-1547.00	77.35	586071.21	730720.39	Point

FIELD DETAILS

Lea Co., NM (NAD 83)

Geodetic System: US State Plane Coordinate System 1983
Ellipsoid: GRS 1980
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010

System Datum: Mean Sea Level
Local North: Grid North

FORMATION TOP DETAILS

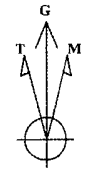
No.	TVDPath	MDPath	Formation
1	1310.00	1310.00	Top Salt
2	1610.00	1610.00	Base Salt
3	2950.00	2950.00	Pot Ash

SITE DETAILS

Gay Nineties Fed Com #1H

Site Centre Northing: 587618.21
Easting: 730643.04

Ground Level: 3563.00
Positional Uncertainty: 0.00
Convergence: 0.33



Azimuths to Grid North
True North: -0.33°
Magnetic North: 7.21°

Magnetic Field
Strength: 48741nT
Dip Angle: 60.49°
Date: 8/25/2012
Model: IGRF2010

Total correction to Grid North 7.21

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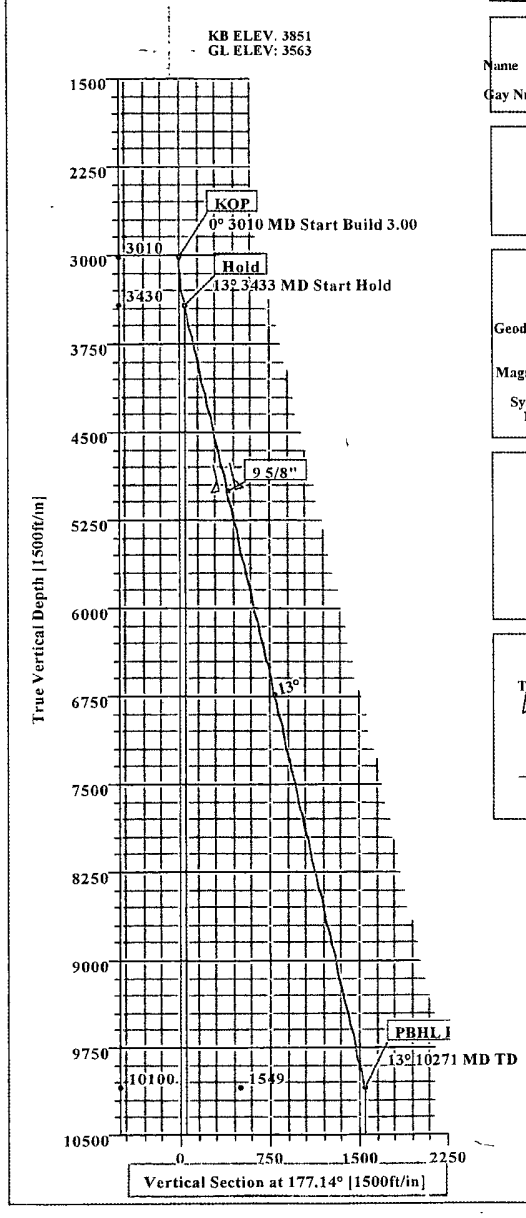

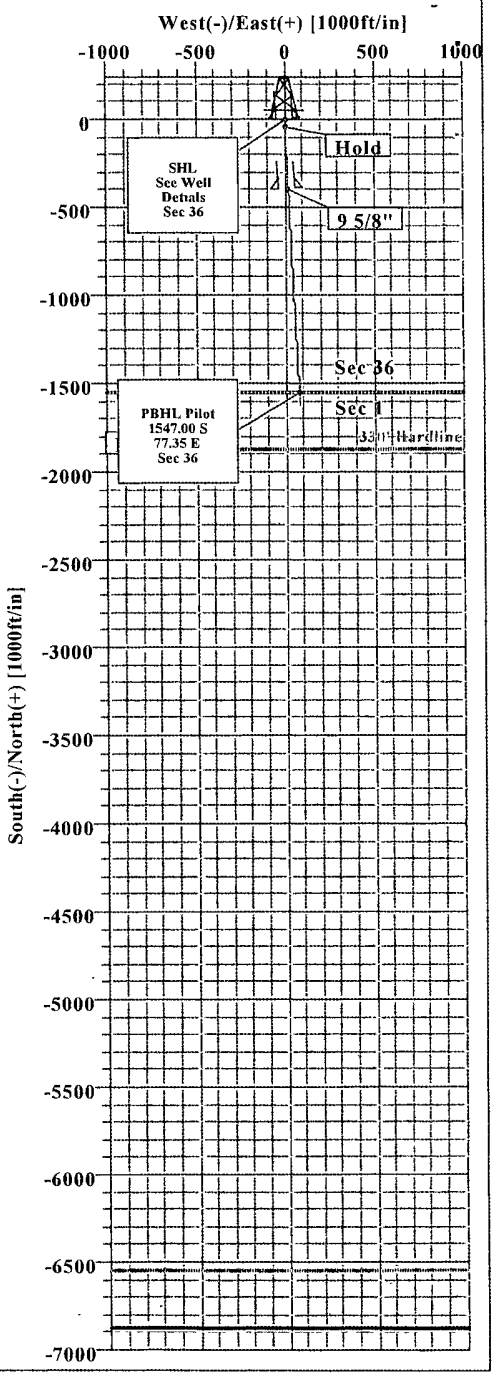

Plan: Plan #1 (Gay Nineties Fed Com #1H/Pilot)

Created By: Russell W. Joyner Date: 4/25/2012

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WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 4/25/2012	**Time:** 13:05:05	**Page:**	1
Field:	Lea Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well: Gay Nineties Fed Com #1H		
Site:	Gay Nineties Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3581 0		
Well:	Gay Nineties Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0 00E,177.14Azi)		
Wellpath:	Pilot	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Plan:	Plan #1	**Date Composed:**	4/25/2012
		Version:	1
Principal:	Yes	**Tied-to:**	From Surface

Field: Lea Co , NM (NAD 83)

Map System:	US State Plane Coordinate System 1983	**Map Zone:**	New Mexico, Eastern Zone
Geo Datum:	GRS 1980	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site: Gay Nineties Fed Com #1H

Site Position:		**Northing:**	587618 21 ft	**Latitude:**	32	36	50.060	N
From:	Map	**Easting:**	730643 04 ft	**Longitude:**	103	43	6.689	W
Position Uncertainty:	0 00 ft			**North Reference:**			Grid	
Ground Level:	3563.00 ft			**Grid Convergence:**			0.33	deg

Well: Gay Nineties Fed Com #1H **Slot Name:**

Well Position:	+N/-S 0 00 ft	**Northing:**	587618 21 ft	**Latitude:**	32	36	50.060	N
	+E/-W 0.00 ft	**Easting :**	730643.04 ft	**Longitude:**	103	43	6.689	W
Position Uncertainty:	0.00 ft							

Wellpath:	Pilot			**Drilled From:**	Surface
				Tie-on Depth:	0.00 ft
Current Datum:	SITE	**Height**	3581.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	8/25/2012			**Declination:**	7.54 deg
Field Strength:	48741 nT			**Mag Dip Angle:**	60.49 deg

Vertical Section:	**Depth From (TVD)**	**+N/-S**	**+E/-W**	**Direction**
	ft	ft	ft	deg
	0 00	0 00	0 00	177.14

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	177 14	0 00	0 00	0 00	0.00	0.00	0 00	0 00	
3010 00	0.00	177.14	3010.00	0 00	0.00	0.00	0.00	0.00	0 00	
3433 07	12.69	177.14	3429 62	-46 61	2 33	3 00	3 00	0.00	177 14	
10270.52	12.69	177.14	10100.00	-1547.00	77.35	0.00	0 00	0 00	0 00	PBHL Pilot

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
3000 00	0.00	177 14	3000.00	0.00	0.00	0 00	0.00	587618 21	730643 04	
3010 00	0 00	177.14	3010.00	0 00	0 00	0.00	0 00	587618.21	730643 04	KOP
3100.00	2 70	177.14	3099 97	-2 12	0 11	2.12	3 00	587616 09	730643.15	
3200 00	5.70	177.14	3199.69	-9.43	0.47	9.44	3 00	587608 78	730643 51	
3300.00	8 70	177.14	3298.89	-21 95	1 10	21.98	3.00	587596.26	730644 14	
3400.00	11 70	177.14	3397 30	-39.63	1 98	39 68	3.00	587578.58	730645 02	
3433.07	12 69	177 14	3429.62	-46.61	2 33	46 67	3 00	587571 60	730645 37	Hold
3500.00	12.69	177.14	3494.91	-61.30	3.06	61 37	0.00	587556 91	730646 10	
3600.00	12 69	177.14	3592 47	-83.24	4.16	83 34	0.00	587534 97	730647 20	
3700.00	12 69	177 14	3690.03	-105.18	5 26	105.32	0.00	587513 03	730648.30	
3800.00	12.69	177.14	3787.58	-127 13	6 36	127.29	0.00	587491.08	730649 40	
3900.00	12.69	177 14	3885.14	-149.07	7.45	149 26	0.00	587469 14	730650 49	
4000.00	12 69	177.14	3982.70	-171 01	8.55	171.23	0.00	587447 20	730651 59	
4100 00	12 69	177 14	4080.25	-192.96	9 65	193.20	0.00	587425.25	730652 69	
4200.00	12.69	177 14	4177 81	-214 90	10.75	215.17	0 00	587403.31	730653 79	
4300.00	12 69	177 14	4275 36	-236 85	11 84	237.14	0 00	587381.36	730654 88	
4400.00	12 69	177.14	4372 92	-258 79	12 94	259.11	0 00	587359 42	730655.98	

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WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 4/25/2012 **Time:** 13.05.05	**Page:** 2
Field:	Lea Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well: Gay Nineties Fed Com #1H
Site:	Gay Nineties Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3581.0
Well:	Gay Nineties Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,177.14Azi)
Wellpath:	Pilot	**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
4500.00	12.69	177.14	4470.48	-280.73	14.04	281.08	0.00	587337.48	730657.08	
4600.00	12.69	177.14	4568.03	-302.68	15.13	303.06	0.00	587315.53	730658.17	
4700.00	12.69	177.14	4665.59	-324.62	16.23	325.03	0.00	587293.59	730659.27	
4800.00	12.69	177.14	4763.15	-346.56	17.33	347.00	0.00	587271.65	730660.37	
4900.00	12.69	177.14	4860.70	-368.51	18.43	368.97	0.00	587249.70	730661.47	
5000.00	12.69	177.14	4958.26	-390.45	19.52	390.94	0.00	587227.76	730662.56	
5042.78	12.69	177.14	5000.00	-399.84	19.99	400.34	0.00	587218.37	730663.03	9 5/8"
5100.00	12.69	177.14	5055.82	-412.40	20.62	412.91	0.00	587205.81	730663.66	
5200.00	12.69	177.14	5153.37	-434.34	21.72	434.88	0.00	587183.87	730664.76	
5300.00	12.69	177.14	5250.93	-456.28	22.81	456.85	0.00	587161.93	730665.85	
5400.00	12.69	177.14	5348.49	-478.23	23.91	478.82	0.00	587139.98	730666.95	
5500.00	12.69	177.14	5446.04	-500.17	25.01	500.80	0.00	587118.04	730668.05	
5600.00	12.69	177.14	5543.60	-522.11	26.11	522.77	0.00	587096.10	730669.15	
5700.00	12.69	177.14	5641.16	-544.06	27.20	544.74	0.00	587074.15	730670.24	
5800.00	12.69	177.14	5738.71	-566.00	28.30	566.71	0.00	587052.21	730671.34	
5900.00	12.69	177.14	5836.27	-587.95	29.40	588.68	0.00	587030.26	730672.44	
6000.00	12.69	177.14	5933.83	-609.89	30.49	610.65	0.00	587008.32	730673.53	
6100.00	12.69	177.14	6031.38	-631.83	31.59	632.62	0.00	586986.38	730674.63	
6200.00	12.69	177.14	6128.94	-653.78	32.69	654.59	0.00	586964.43	730675.73	
6300.00	12.69	177.14	6226.49	-675.72	33.79	676.56	0.00	586942.49	730676.83	
6400.00	12.69	177.14	6324.05	-697.66	34.88	698.54	0.00	586920.55	730677.92	
6500.00	12.69	177.14	6421.61	-719.61	35.98	720.51	0.00	586898.60	730679.02	
6600.00	12.69	177.14	6519.16	-741.55	37.08	742.48	0.00	586876.66	730680.12	
6700.00	12.69	177.14	6616.72	-763.49	38.17	764.45	0.00	586854.72	730681.21	
6800.00	12.69	177.14	6714.28	-785.44	39.27	786.42	0.00	586832.77	730682.31	
6900.00	12.69	177.14	6811.83	-807.38	40.37	808.39	0.00	586810.83	730683.41	
7000.00	12.69	177.14	6909.39	-829.33	41.47	830.36	0.00	586788.88	730684.51	
7100.00	12.69	177.14	7006.95	-851.27	42.56	852.33	0.00	586766.94	730685.60	
7200.00	12.69	177.14	7104.50	-873.21	43.66	874.30	0.00	586745.00	730686.70	
7300.00	12.69	177.14	7202.06	-895.16	44.76	896.28	0.00	586723.05	730687.80	
7400.00	12.69	177.14	7299.62	-917.10	45.86	918.25	0.00	586701.11	730688.90	
7500.00	12.69	177.14	7397.17	-939.04	46.95	940.22	0.00	586679.17	730689.99	
7600.00	12.69	177.14	7494.73	-960.99	48.05	962.19	0.00	586657.22	730691.09	
7700.00	12.69	177.14	7592.29	-982.93	49.15	984.16	0.00	586635.28	730692.19	
7800.00	12.69	177.14	7689.84	-1004.88	50.24	1006.13	0.00	586613.33	730693.28	
7900.00	12.69	177.14	7787.40	-1026.82	51.34	1028.10	0.00	586591.39	730694.38	
8000.00	12.69	177.14	7884.96	-1048.76	52.44	1050.07	0.00	586569.45	730695.48	
8100.00	12.69	177.14	7982.51	-1070.71	53.54	1072.04	0.00	586547.50	730696.58	
8200.00	12.69	177.14	8080.07	-1092.65	54.63	1094.02	0.00	586525.56	730697.67	
8300.00	12.69	177.14	8177.62	-1114.59	55.73	1115.99	0.00	586503.62	730698.77	
8400.00	12.69	177.14	8275.18	-1136.54	56.83	1137.96	0.00	586481.67	730699.87	
8500.00	12.69	177.14	8372.74	-1158.48	57.92	1159.93	0.00	586459.73	730700.96	
8600.00	12.69	177.14	8470.29	-1180.43	59.02	1181.90	0.00	586437.78	730702.06	
8700.00	12.69	177.14	8567.85	-1202.37	60.12	1203.87	0.00	586415.84	730703.16	
8800.00	12.69	177.14	8665.41	-1224.31	61.22	1225.84	0.00	586393.90	730704.26	
8900.00	12.69	177.14	8762.96	-1246.26	62.31	1247.81	0.00	586371.95	730705.35	
9000.00	12.69	177.14	8860.52	-1268.20	63.41	1269.78	0.00	586350.01	730706.45	
9100.00	12.69	177.14	8958.08	-1290.14	64.51	1291.76	0.00	586328.07	730707.55	
9200.00	12.69	177.14	9055.63	-1312.09	65.60	1313.73	0.00	586306.12	730708.64	
9300.00	12.69	177.14	9153.19	-1334.03	66.70	1335.70	0.00	586284.18	730709.74	
9400.00	12.69	177.14	9250.75	-1355.97	67.80	1357.67	0.00	586262.24	730710.84	
9500.00	12.69	177.14	9348.30	-1377.92	68.90	1379.64	0.00	586240.29	730711.94	
9600.00	12.69	177.14	9445.86	-1399.86	69.99	1401.61	0.00	586218.35	730713.03	

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WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 4/25/2012 **Time:** 13:05:05	**Page:** 3
Field:	Lea Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well Gay Nineties Fed Com #1H
Site:	Gay Nineties Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3581.0
Well:	Gay Nineties Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,177.14Azi)
Wellpath:	Pilot	**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
9700 00	12 69	177.14	9543 42	-1421.81	71.09	1423.58	0.00	586196.40	730714.13	
9800.00	12 69	177.14	9640 97	-1443.75	72.19	1445.55	0 00	586174 46	730715.23	
9900 00	12.69	177 14	9738 53	-1465 69	73 28	1467.52	0.00	586152 52	730716.32	
10000.00	12.69	177.14	9836 09	-1487.64	74.38	1489.50	0.00	586130 57	730717.42	
10100 00	12.69	177.14	9933 64	-1509.58	75.48	1511.47	0.00	586108.63	730718.52	
10200.00	12 69	177.14	10031.20	-1531.52	76.58	1533.44	0 00	586086.69	730719.62	
10270 52	12 69	177.14	10100.00	-1547.00	77.35	1548.93	0.00	586071.21	730720.39	PBHL Pilot

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
PBHL Pilot -Plan hit target			10100.00	-1547 00	77 35	586071.21	730720 39	32 36 34 748 N	103 43 5 889 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1250.00	1250 00	13 375	17 500	13 3/8"
5042 78	5000 00	9 625	12 250	9 5/8"

Annotation

MD ft	TVD ft	
3010 00	3010 00	KOP
3433.07	3429.62	Hold
10270 52	10100 00	PBHL Pilot

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
1310 00	1310.00	Top Salt		0 00	0.00
1610.00	1610 00	Base Salt		0 00	0.00
2950.00	2950 00	Pot Ash		0.00	0.00

Manzano, LLC
Gay Nineties Fed Com #1H
Lea County, New Mexico

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	9688.78	12.69	177.14	9532.47	-1419 34	70.97	0.00	0.00	1421.12	
2	10327.91	89.39	177.14	9905.00	-1879.46	93.97	12.00	0.00	1881.81	
3	15003.59	89.39	177.14	9955 00	-6549.04	327.46	0 00	0.00	6557.22	PBHL

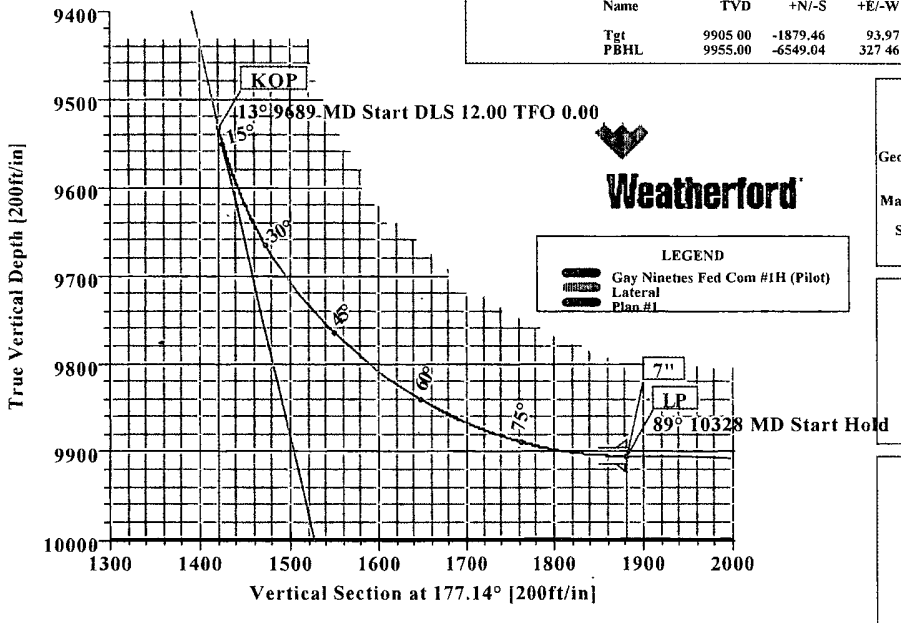
WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longtude	Slot
Gay Nineties Fed Com #1H	0.00	0.00	587618.21	730643.04	32°36'50.060N	103°43'06.689W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Tgt	9905 00	-1879.46	93.97	585738.75	730737.01	Point
PBHL	9955.00	-6549.04	327 46	581069.17	730970.50	Point

KB ELEV: 3851
GL ELEV: 3563



Weatherford

LEGEND
- Gay Nineties Fed Com #1H (Pilot)
- Lateral
- Plan #1

FIELD DETAILS

Lea Co., NM (NAD 83)

Geodetic System: US State Plane Coordinate System 1983
Ellipsoid: GRS 1980
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010

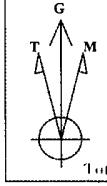
System Datum: Mean Sea Level
Local North: Grid North

SITE DETAILS

Gay Nineties Fed Com #1H

Site Centre Northing: 587618.21
Easting: 730643.04

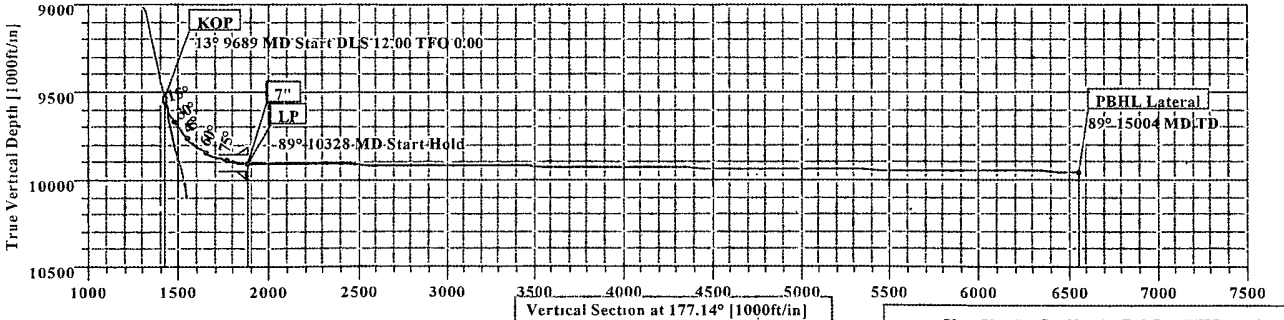
Ground Level: 3563.00
Positional Uncertainty: 0.00
Convergence: 0.33



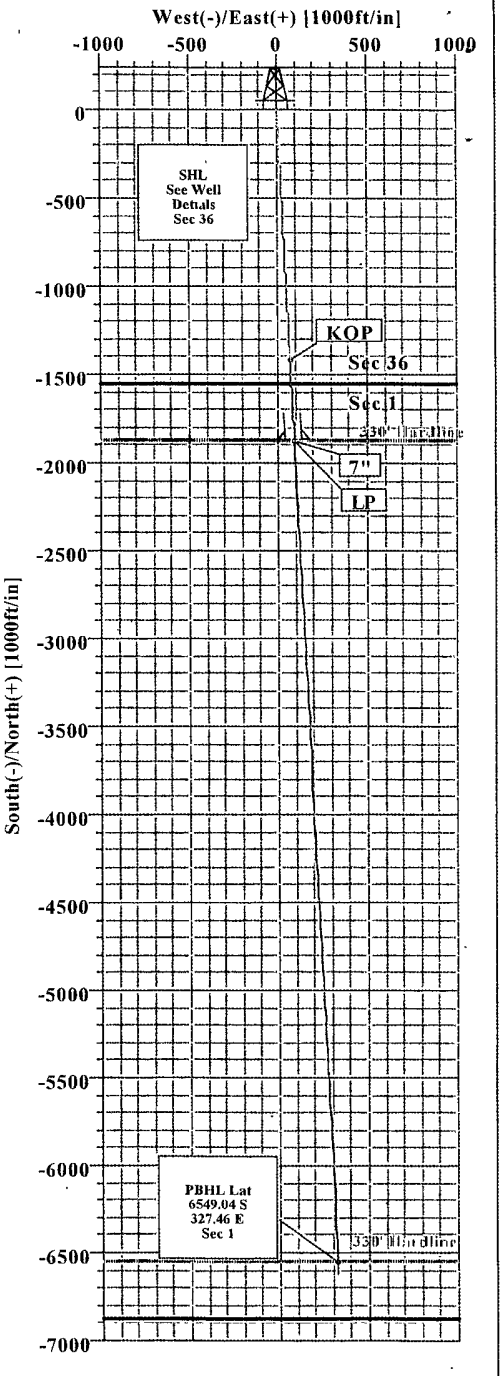
Azimuths to Grid North
True North: -0.33°
Magnetic North: 7.21°

Magnetic Field
Strength: 48741nT
Dip Angle: 60.49°
Date: 8/25/2012
Model: IGRF2010

Total correction to Grid North 7.21°



Plan: Plan #1 (Gay Nineties Fed Com #1H/Lateral)
Created By: Russell W. Joyner Date: 4/25/2012



Weatherford International Ltd.

WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 4/25/2012	**Time:** 13:18:10	**Page:**	1
Field:	Lea Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well. Gay Nineties Fed Com #1H		
Site:	Gay Nineties Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3581.0		
Well:	Gay Nineties Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,177.14Azi)		
Wellpath:	Lateral	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Plan:	Plan #1	**Date Composed:**	4/25/2012
		Version:	1
Principal:	Yes	**Tied-to:**	User Defined

Field:	Lea Co., NM (NAD 83)		
Map System:	US State Plane Coordinate System 1983	**Map Zone:**	New Mexico, Eastern Zone
Geo Datum:	GRS 1980	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site:	Gay Nineties Fed Com #1H				
Site Position:		**Northing:**	587618.21 ft	**Latitude:**	32 36 50.060 N
From:	Map	**Easting:**	730643 04 ft	**Longitude:**	103 43 6.689 W
Position Uncertainty:	0 00 ft			**North Reference:**	Grid
Ground Level:	3563.00 ft			**Grid Convergence:**	0 33 deg

Well:	Gay Nineties Fed Com #1H				**Slot Name:**	
Well Position:	**+N/-S**	0 00 ft	**Northing:**	587618 21 ft	**Latitude:**	32 36 50.060 N
	+E/-W	0.00 ft	**Easting :**	730643.04 ft	**Longitude:**	103 43 6.689 W
Position Uncertainty:		0 00 ft				

Wellpath:	Lateral			**Drilled From:**	Pilot
				Tie-on Depth:	9688 78 ft
Current Datum:	SITE	**Height**	3581 00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	8/25/2012			**Declination:**	7.54 deg
Field Strength:	48741 nT			**Mag Dip Angle:**	60.49 deg

Vertical Section:	**Depth From (TVD)**	**+N/-S**	**+E/-W**	**Direction**
	ft	ft	ft	deg
	0.00	0 00	0.00	177 14

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
9688 78	12.69	177.14	9532 47	-1419.34	70 97	0.00	0.00	0 00	0.00	
10327.91	89.39	177.14	9905 00	-1879.46	93 97	12 00	12.00	0 00	0 00	
15003 59	89 39	177.14	9955 00	-6549 04	327 46	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
9688.78	12 69	177.14	9532 47	-1419 34	70.97	1421.12	0 00	586198.87	730714.01	KOP
9700 00	14 04	177.14	9543 39	-1421.93	71.10	1423.71	12 00	586196.28	730714.14	
9800 00	26 04	177.14	9637 16	-1456 09	72 80	1457 91	12 00	586162.12	730715.84	
9900 00	38.04	177 14	9721 77	-1508 98	75.45	1510 86	12 00	586109 23	730718.49	
10000 00	50.04	177.14	9793.53	-1578.28	78.91	1580.25	12.00	586039.93	730721.95	
10100.00	62 04	177 14	9849 29	-1660.97	83 05	1663.04	12 00	585957.24	730726 09	
10200.00	74 04	177 14	9886.62	-1753.43	87 67	1755.62	12.00	585864.78	730730.71	
10300 00	86 04	177.14	9903 89	-1851.62	92.58	1853.93	12 00	585766 59	730735.62	
10327 91	89.39	177.14	9905 00	-1879 46	93.97	1881 81	12.00	585738.75	730737.01	7"
10400.00	89.39	177.14	9905.77	-1951 46	97 57	1953 90	0.00	585666 75	730740 61	
10500 00	89.39	177 14	9906 84	-2051 33	102 57	2053.89	0.00	585566 88	730745 61	
10600 00	89 39	177 14	9907 91	-2151.20	107 56	2153.89	0.00	585467.01	730750 60	
10700.00	89 39	177 14	9908.98	-2251.07	112.55	2253.88	0.00	585367 14	730755 59	
10800 00	89.39	177.14	9910.05	-2350.94	117 55	2353.88	0.00	585267.27	730760.59	
10900 00	89 39	177 14	9911 12	-2450.81	122 54	2453 87	0.00	585167.40	730765 58	
11000.00	89.39	177.14	9912 19	-2550.68	127.54	2553.86	0.00	585067.53	730770 58	
11100.00	89 39	177 14	9913.26	-2650 55	132 53	2653.86	0 00	584967 66	730775.57	
11200.00	89 39	177 14	9914.33	-2750.42	137.52	2753.85	0.00	584867.79	730780 56	

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WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 4/25/2012	**Time:** 13:18:10	**Page:**	2
Field:	Lea Co.; NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well Gay Nineties Fed Com #1H		
Site:	Gay Nineties Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3581.0		
Well:	Gay Nineties Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,177.14Azi)		
Wellpath:	Lateral	**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
11300.00	89.39	177.14	9915.40	-2850.29	142.52	2853.85	0.00	584767.92	730785.56	
11400.00	89.39	177.14	9916.47	-2950.16	147.51	2953.84	0.00	584668.05	730790.55	
11500.00	89.39	177.14	9917.54	-3050.02	152.50	3053.83	0.00	584568.19	730795.54	
11600.00	89.39	177.14	9918.61	-3149.89	157.50	3153.83	0.00	584468.32	730800.54	
11700.00	89.39	177.14	9919.67	-3249.76	162.49	3253.82	0.00	584368.45	730805.53	
11800.00	89.39	177.14	9920.74	-3349.63	167.48	3353.82	0.00	584268.58	730810.52	
11900.00	89.39	177.14	9921.81	-3449.50	172.48	3453.81	0.00	584168.71	730815.52	
12000.00	89.39	177.14	9922.88	-3549.37	177.47	3553.81	0.00	584068.84	730820.51	
12100.00	89.39	177.14	9923.95	-3649.24	182.47	3653.80	0.00	583968.97	730825.51	
12200.00	89.39	177.14	9925.02	-3749.11	187.46	3753.79	0.00	583869.10	730830.50	
12300.00	89.39	177.14	9926.09	-3848.98	192.45	3853.79	0.00	583769.23	730835.49	
12400.00	89.39	177.14	9927.16	-3948.85	197.45	3953.78	0.00	583669.36	730840.49	
12500.00	89.39	177.14	9928.23	-4048.72	202.44	4053.78	0.00	583569.49	730845.48	
12600.00	89.39	177.14	9929.30	-4148.59	207.43	4153.77	0.00	583469.62	730850.47	
12700.00	89.39	177.14	9930.37	-4248.46	212.43	4253.77	0.00	583369.75	730855.47	
12800.00	89.39	177.14	9931.44	-4348.33	217.42	4353.76	0.00	583269.88	730860.46	
12900.00	89.39	177.14	9932.51	-4448.20	222.41	4453.75	0.00	583170.01	730865.45	
13000.00	89.39	177.14	9933.58	-4548.07	227.41	4553.75	0.00	583070.14	730870.45	
13100.00	89.39	177.14	9934.65	-4647.94	232.40	4653.74	0.00	582970.27	730875.44	
13200.00	89.39	177.14	9935.71	-4747.81	237.40	4753.74	0.00	582870.40	730880.44	
13300.00	89.39	177.14	9936.78	-4847.68	242.39	4853.73	0.00	582770.53	730885.43	
13400.00	89.39	177.14	9937.85	-4947.55	247.38	4953.73	0.00	582670.66	730890.42	
13500.00	89.39	177.14	9938.92	-5047.42	252.38	5053.72	0.00	582570.79	730895.42	
13600.00	89.39	177.14	9939.99	-5147.28	257.37	5153.71	0.00	582470.93	730900.41	
13700.00	89.39	177.14	9941.06	-5247.15	262.36	5253.71	0.00	582371.06	730905.40	
13800.00	89.39	177.14	9942.13	-5347.02	267.36	5353.70	0.00	582271.19	730910.40	
13900.00	89.39	177.14	9943.20	-5446.89	272.35	5453.70	0.00	582171.32	730915.39	
14000.00	89.39	177.14	9944.27	-5546.76	277.34	5553.69	0.00	582071.45	730920.38	
14100.00	89.39	177.14	9945.34	-5646.63	282.34	5653.69	0.00	581971.58	730925.38	
14200.00	89.39	177.14	9946.41	-5746.50	287.33	5753.68	0.00	581871.71	730930.37	
14300.00	89.39	177.14	9947.48	-5846.37	292.33	5853.67	0.00	581771.84	730935.37	
14400.00	89.39	177.14	9948.55	-5946.24	297.32	5953.67	0.00	581671.97	730940.36	
14500.00	89.39	177.14	9949.62	-6046.11	302.31	6053.66	0.00	581572.10	730945.35	
14600.00	89.39	177.14	9950.68	-6145.98	307.31	6153.66	0.00	581472.23	730950.35	
14700.00	89.39	177.14	9951.75	-6245.85	312.30	6253.65	0.00	581372.36	730955.34	
14800.00	89.39	177.14	9952.82	-6345.72	317.29	6353.65	0.00	581272.49	730960.33	
14900.00	89.39	177.14	9953.89	-6445.59	322.29	6453.64	0.00	581172.62	730965.33	
15000.00	89.39	177.14	9954.96	-6545.46	327.28	6553.63	0.00	581072.75	730970.32	
15003.59	89.39	177.14	9955.00	-6549.04	327.46	6557.22	0.00	581069.17	730970.50	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
Tgt			9905.00	-1879.46	93.97	585738.75	730737.01	32 36 31.457 N	103 43 5.718 W
PBHL			9955.00	-6549.04	327.46	581069.17	730970.50	32 35 45.239 N	103 43 3.304 W

Weatherford International Ltd.

WFT Plan Report - X & Y's

Weatherford

Company:	Manzano LLC	**Date:** 4/25/2012 **Time:** 13:18:10	**Page:** 3
Field:	Lea Co., NM (NAD 83)	**Co-ordinate(NE) Reference:**	Well Gay Nineties Fed Com #1H
Site:	Gay Nineties Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3581.0
Well:	Gay Nineties Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,177.14Azi)
Wellpath:	Lateral	**Survey Calculation Method:**	Minimum Curvature **Db:** Sybase

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
10327.91	9905.00	7.000	8.500	7"

Annotation

MD ft	TVD ft	
9688.78	9532.47	KOP
10327.91	9905.00	LP
15003.58	9955.00	PBHL Lateral

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Weatherford Drilling Services

GeoDec v5.03

Report Date:	April 25, 2012
Job Number:	
Customer:	Manzano, LLC
Well Name:	Gay Nineties Fed Com #1H
API Number:	
Rig Name:	
Location:	Lea County, New Mexico
Block:	
Engineer:	R Joyner

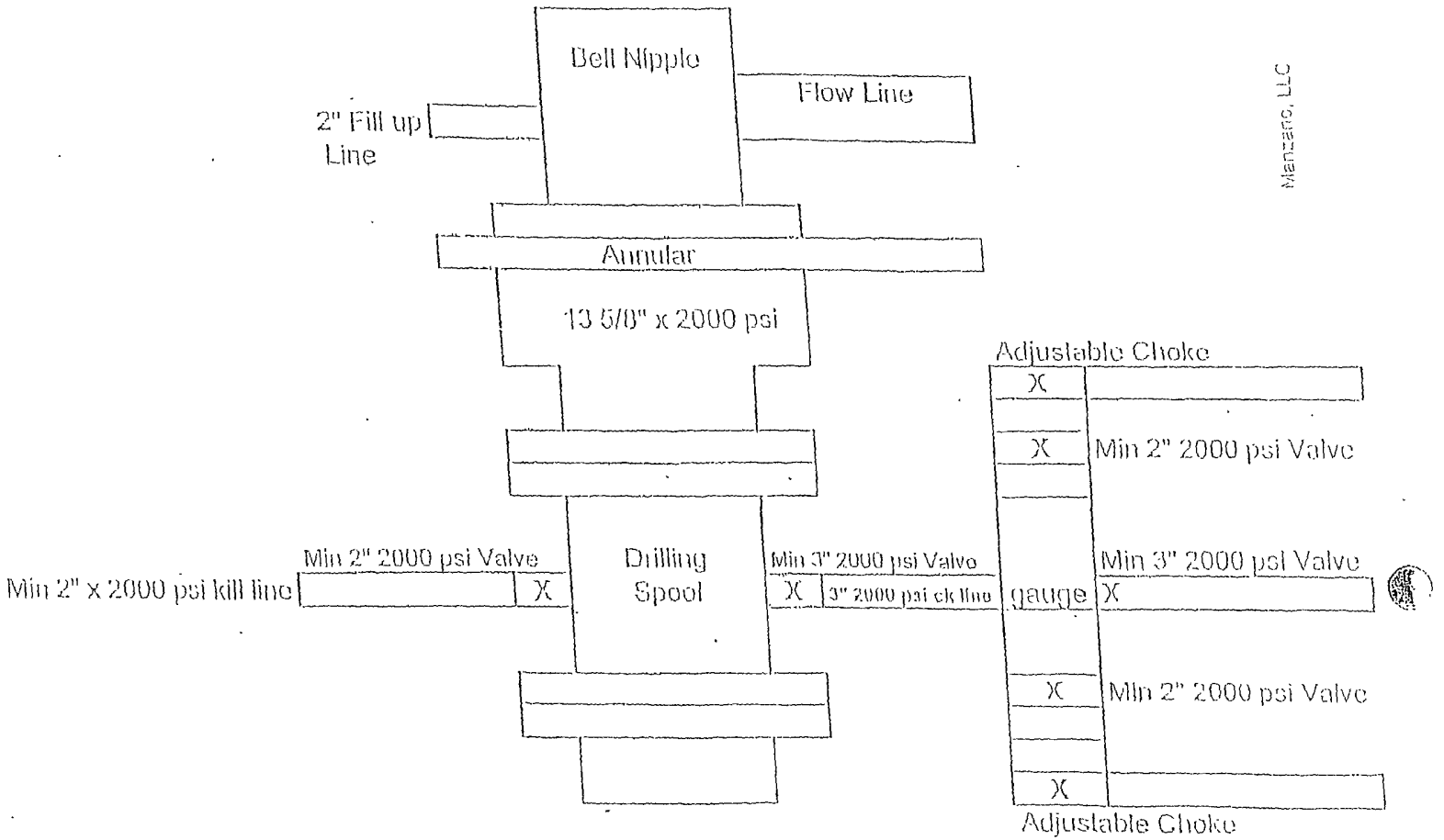
US State Plane 1983	Geodetic Latitude / Longitude
System: New Mexico Eastern Zone	System: Latitude / Longitude
Projection: Transverse Mercator/Gauss Kruger	Projection: Geodetic Latitude and Longitude
Datum: North American Datum 1983	Datum: North American Datum 1983
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
North/South 587618.208 USFT	Latitude 32.6139087 DEG
East/West 730643.044 USFT	Longitude -103.7185200 DEG
Grid Convergence: .33°	
Total Correction: +7.21°	

Geodetic Location WGS84	Elevation =	0.0 Meters
Latitude =	32.61391° N	32° 36 min 50.071 sec
Longitude =	103.71852° W	103° 43 min 6.672 sec

Magnetic Declination =	7.54°	[True North Offset]	
Local Gravity =	.9988 g	CheckSum =	6653
Local Field Strength =	48737 nT	Magnetic Vector X =	23797 nT
Magnetic Dip =	60.49°	Magnetic Vector Y =	3149 nT
Magnetic Model =	IGRF-2010g11	Magnetic Vector Z =	42416 nT
Spud Date =	Aug 25, 2012	Magnetic Vector H =	24005 nT

Signed:_____ Date:_____

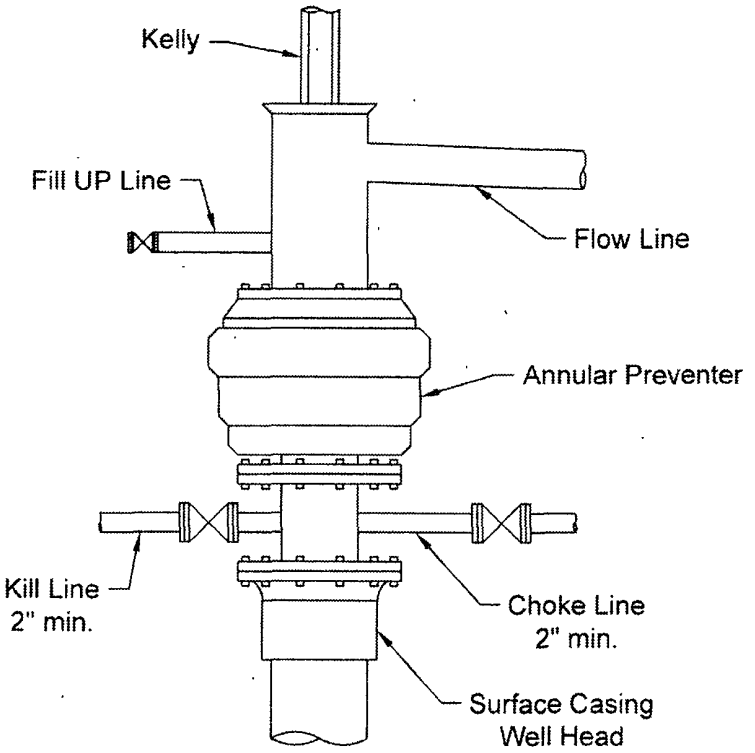
13 3/8" 2000 psi Annular B.O.P Stack



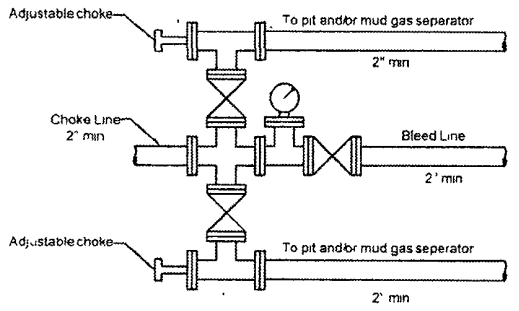
Manzano, LLC

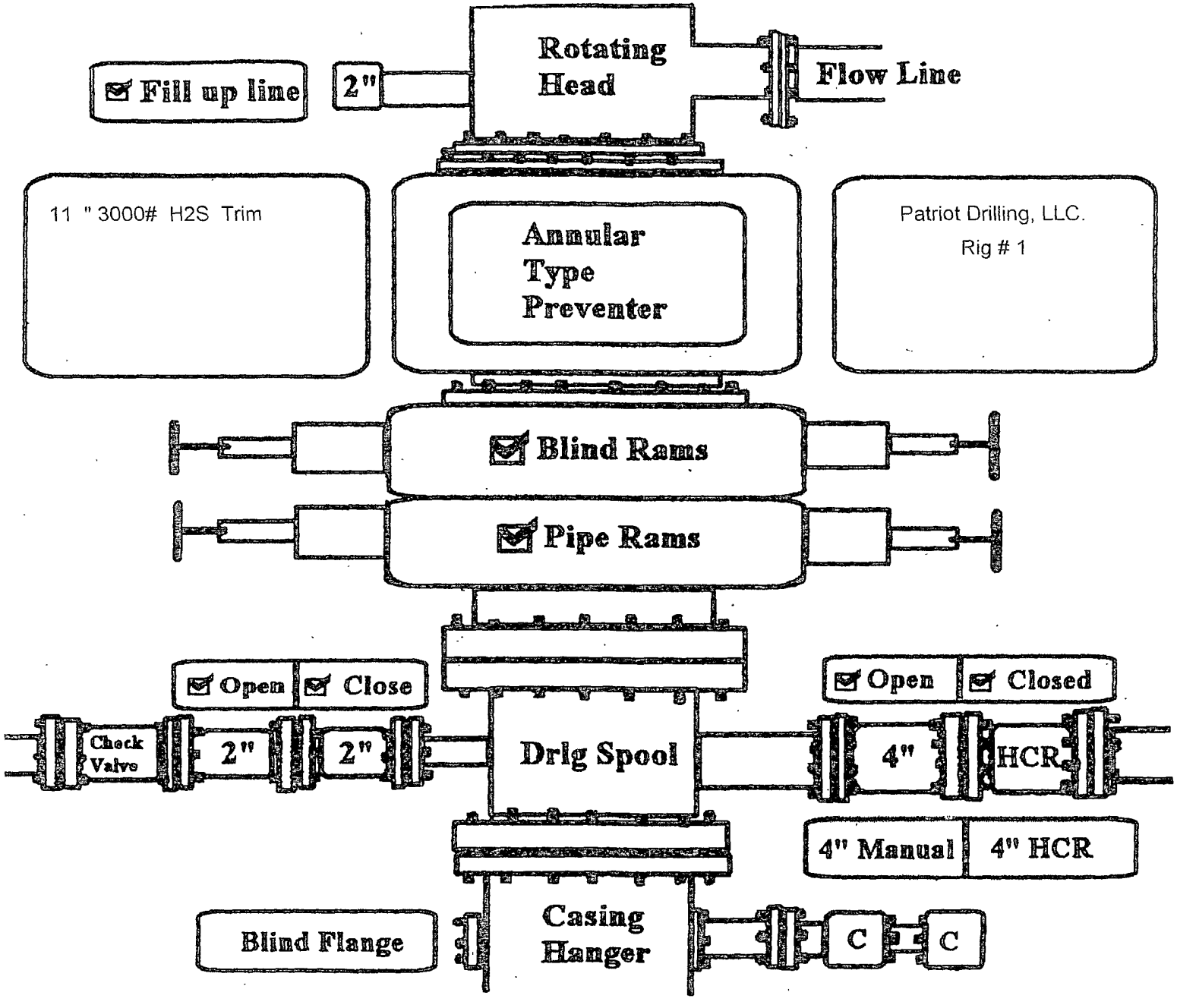
Manzano LLC

Typical low Pressure System
Schematic
Annular Preventer 2,000psi

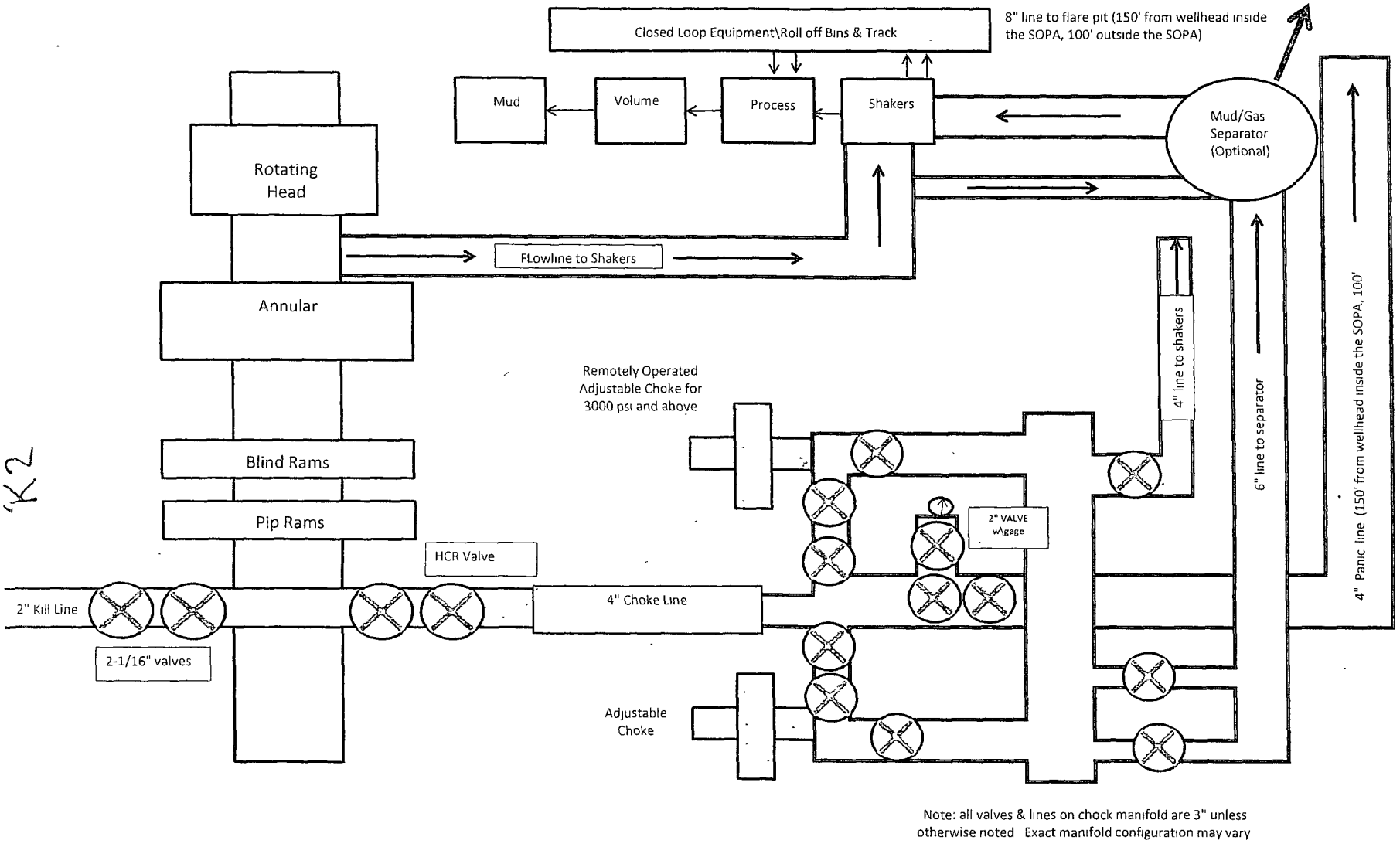


Typical 2,000 psi choke manifold assembly with at least these minimum features



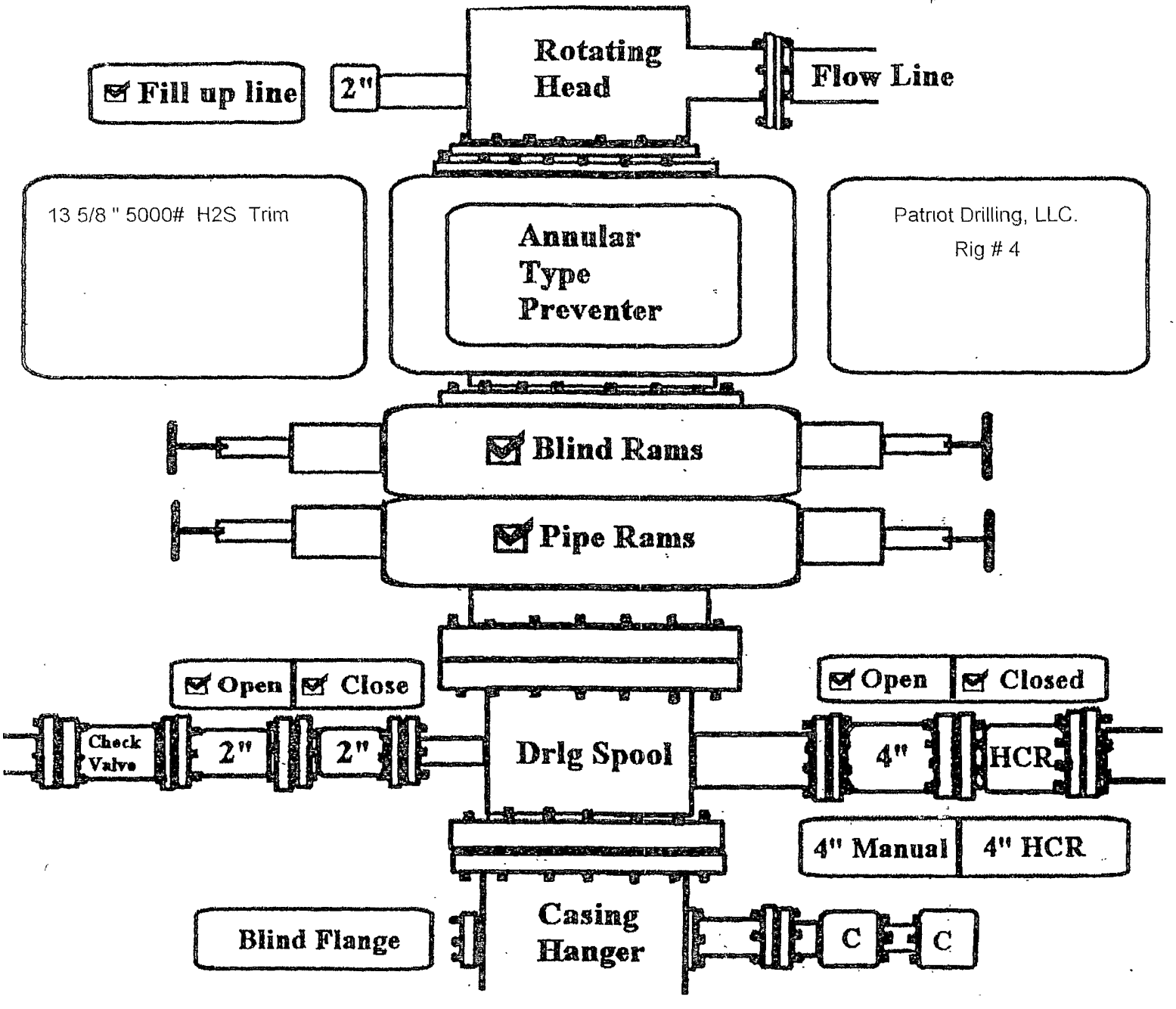

Rotating Head
Fill up line
2"
Flow Line
11 " 3000# H2S Trim
Annular Type Preventer
Patriot Drilling, LLC.
Rig # 1
Blind Rams
Pipe Rams
Open
Close
Open
Closed
Check Valve
2"
2"
Drlg Spool
4"
HCR
4" Manual
4" HCR
Blind Flange
Casing Hanger
C
C

R2



Note: all valves & lines on chock manifold are 3" unless otherwise noted Exact manifold configuration may vary

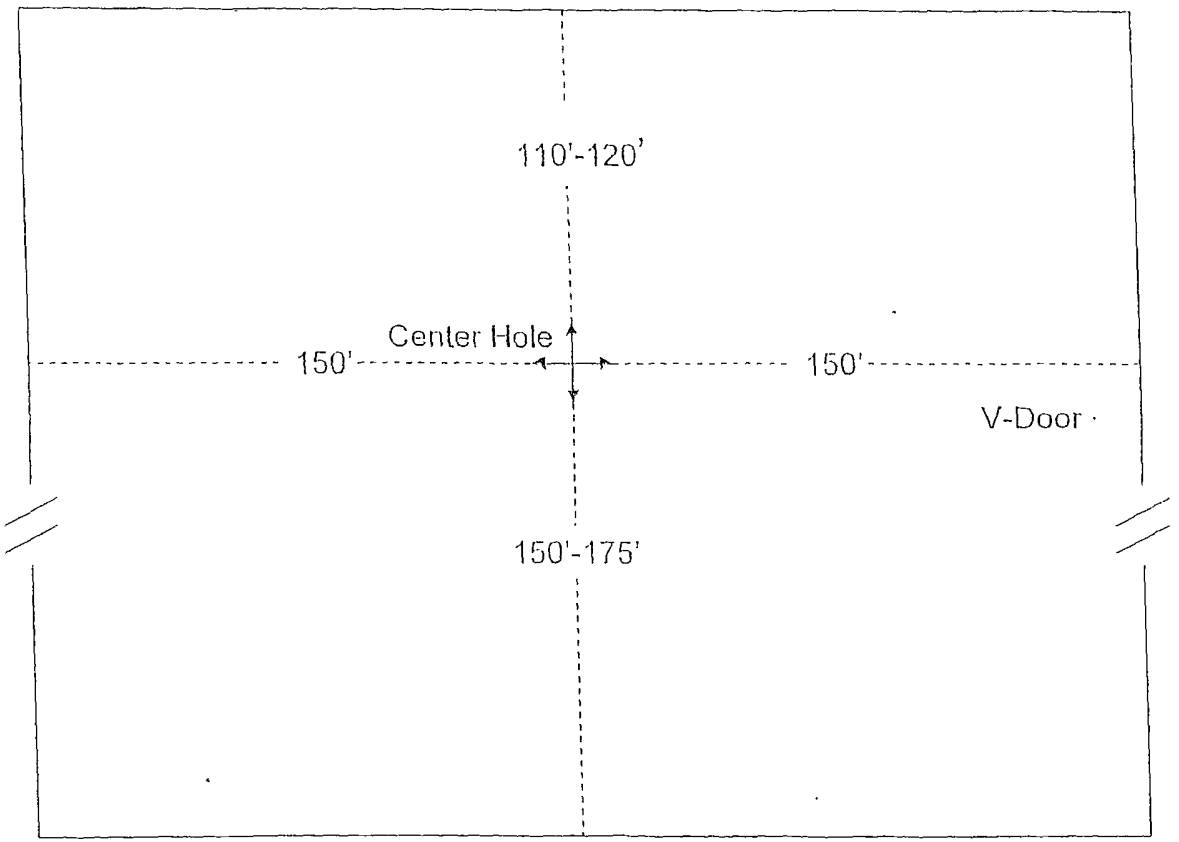
13-5/8" X 5-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic
Diagram 2


Rotating Head
Fill up line
2"
Flow Line
13 5/8 " 5000# H2S Trim
Annular Type Preventer
Patriot Drilling, LLC.
Rig # 4
Blind Rams
Pipe Rams
Open
Close
Open
Closed
Check Valve
2"
2"
Drlg Spool
4"
HCR
4" Manual
4" HCR
Blind Flange
Casing Hanger
C
C

McVay Drilling Co.

Closed Loop Location Platt

Rig 4



McVay Drilling Rig No. 4