

R-111-POTASH

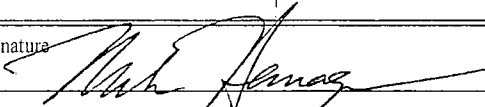
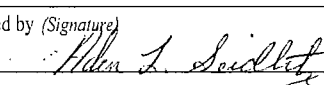
FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM14328	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator MANZANO, LLC (231429)		7. If Unit or CA Agreement, Name and No.	
3a. Address PO BOX 2107 ROSWELL, NM 88202-2107		8. Lease Name and Well No. LITTLE VALLEY FEDERAL 1A (40223)	
3b. Phone No. (include area code) 575-623-1996		9. API Well No. 30-025-41496	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 660' FSL & 1050' FWL - SECTION 17 - T21S - R32E At proposed prod. zone BHL: 2310' FSL & 330' FWL - SECTION 18-T21S-R32E		10. Field and Pool, or Exploratory LOST TANK, DELAWARE (40299)	
11. Sec., T. R. M. or Blk. and Survey or Area SECTION 18 - T22S - R32E 17 21S 32E		12. County or Parish LEA	
13. State NM		14. Distance in miles and direction from nearest town or post office* 40 MILES EAST OF CARLSBAD, NM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330'	16. No. of acres in lease 652.52 ACRES	17. Spacing Unit dedicated to this well 163.15 ACRES (N/2 S/2 OF SECTION 18)	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1300' (N. Bilbrey)	19. Proposed Depth TVD 8300' MD 12835'	20. BLM/BLA Bond No. on file NM-2567	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3632' GL	22. Approximate date work will start* 11/01/2013	23. Estimated duration 30 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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed/Typed) MIKE HANAGAN	Date 09/05/2013
Title MANAGING MEMBER		
Approved by (Signature) 	Name (Printed/Typed) Adam L. Seidlitz	Date 10/18/13
Title Acting 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.

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

APPROVAL FOR TWO YEARS

SEE ATTACHED FOR
CONDITIONS OF APPROVALAPPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHEDNOV 14 2013 **PM**

Manzano, LLC
DRILLING PROGRAM

Little Valley Fed #1

Surface Location: 660' FSL & 1050' FWL - Section 17-T21S- R32E

Bottom Hole Location: 2310' FSL & 330 FWL - Section 18-T21S-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:**

<u>Geologic Marker</u>	<u>Depth</u>
Red Beds	Surface
Rustler	1000'
Top of Salt	1100'
Base of Salt	3125'
Delaware	4500'MD/4490'TVD
Cherry Canyon	5640'MD/5475'TVD
Brushy Canyon	7180'MD/6770'TVD
Brushy "L" Sand	9150'MD/8325'TVD
TD	12835'MD/8300'TVD

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

Water	125'-200'
Oil/Gas in Delaware	4500'-12835'

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 13 3/8" casing 50' into the Rustler Anhydrite at 1050' in a 17 1/2" hole and circulating cement back to surface. After the 13 3/8" casing is set and cemented, the hole size will be reduced to 12 1/4" and drilling will continue. Potash / salt sections will be protected by setting 8 5/8" casing 500' below the base of the Salt at 3625' and circulating cement back to surface.

The 8 5/8" casing will be drilled out with a 7 7/8" bit and drilled to a kick off point at 3704'TVD. At that point, directional drilling tools will be installed and the well will be "kicked off" and drilled on a 2.5 degrees per 100' angle to an orthodox

location within the Brushy Canyon (highest potential pay zone) at 7518' MD/7050' TVD. The angle will then be increased to 10 degrees per 100' to a landing point of ~91 degrees at 9341' MD/8354' TVD which is in the lower Brushy Canyon "L" sand. A 3469' lateral will then be within the lower Brushy Canyon "L" sand to a total depth of 12835' MD/8300' TVD.

Upon reaching total depth, a 20 stage "Port & Packer system" will be run on 5 1/2" casing from TD to 8700' and mechanical DV Tool will be placed at 8700' with 5 1/2" casing run above the DV Tool to surface and cement circulated to surface.

4. Proposed Casing Program:

See COA

Hole Size	Hole Interval	Casing Size	Casing Wt./Ft.	Grade & Coupling	Length
17 1/2"	0-1050'	13 3/8"	54.50#	J-55 ST&C	1050'
12 1/4"	1050'-3625'	8 5/8"	32.0#	K-55 ST&C	3625'
7 7/8"	3625'-8700'	5 1/2"	17.0#	P-110 LT&C	8700'
7 7/8"	8700'-12835'	5 1/2"	17.0#	P-110 LT&C	4135'

Minimum casing design factors: Collapse of 1.125, Burst of 1.125 and tensile strength of 1.6. All casing is new and API approved.

5. Proposed Cement Program:

13 3/8" surface casing at 1050' : 450sx Class "C" w/ 4% gel, 2% CACL₂, 1/8#/sk Cello Flake (yd @2.15 cuft/sk @12.5 PPG). Tail w/ 500sx Class "C" w/ 2% CaCl₂ (yd @1.34 cuft/sk @ 14.8 PPG) Using 100 % excess cement circulated to surface.

8 5/8" intermediate casing at 3625' : 1000sx Howco Lite Class "C" (35:65:4) w/ 5# sk LCM 1 & 1/4 #/sk celloflake (yd @2.13 cuft/sk @ 12.5 PPG). Tail w/ 400sx Class "C" Neat (yd @ 1.33 cuft/sk @ 14.8 PPG). Using 100% excess in open hole. Cement circulated to surface

5 1/2" production casing at 8700' MD: 1100sx EconoCem Class "H" w/3# sk LCM + 1/4 #/sk celloflake (yd @2.47 cuft/sk @ 11.9 PPG). Tail w/700sx VersaCem Class "H" Neat (yd @ 1.30 cuft/sk @ 14.2 PPG). Using 100 % excess in open hole and 20% inside the 8 5/8". Cement circulated to surface.

5 1/2" production casing w/Stage tools at 8700' MD-12835' MD: A "Port & Packer system" will be utilized so there will be no cement across this interval.

The above cement volumes could be revised pending the fluid caliper measurement to calculate cement volumes..

6. Minimum Specifications for Pressure Control:

See COA
A 13 5/8" x 2000# Annular system with a 2000# choke manifold will be installed after running the 13 3/8" casing. A 11" x 3000# Double Ram BOP and a 3000# Annular will be installed after running the 8 5/8". Pressure tests will be conducted prior to drilling out all casing strings.

BOPE will be inspected and operated as recommended in Onshore Order #2.

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. 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. Downhole Conditions & Estimated BHP:

From: 0' -1050' Possible lost circulation. Est. BHP 525 PSI

From: 1050'-3625' Possible lost circulations. Est BHP 1800 psi

From: 4500'-12835' Oil and Gas shows. Est BHP - 4150 PSI

BHT is estimated at 120 deg F.

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

See COA

Depth	Type System	Weight(lb/gal)	Viscosity	Water Loss
0-1050'	4400 fresh water gel	8.4-8.9	32-34	No control
1050'-3625'	Brine	9.5-10.0	28-29	No control
3625'-12835'	Fresh water gel	8.4-9.0	28-34	15 cc

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

Visual mud monitoring equipment will be in place to detect volume changes indicating loss or gain of circulating fluid volume. Visual pit level monitors and audible alarms will be utilized and will be available to the control room and the supervisors. Mud properties will be monitored daily and reported on the automatic monitoring system.

9. Testing, Logging and Coring Program:

- No drill stem test are planned
- 10' samples from 3625' to TD.
- A mud log will be run from 3625' to TD.
- Open hole logs will be run to 8700'. Platform Express GR-Neu/Den-HRLA.
- A gamma ray log will be run from KOP to TD

10. Potential Hazards:

See
COA

a. No abnormal pressures or temperatures are expected. H₂S has sometimes been detected in the Delaware in this area during drilling. The rig will be equipped with H₂S monitors, H₂S warning signs and pit monitors. Wind socks will indicate wind direction. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. Lost circulation may occur in the 17 ½" surface hole as well as in the 12 ¼" intermediate hole and lost circulation materials will be on site to help seal off any losses. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated maximum BHP: 4150 psi. Estimated maximum BHT: 120°.

LITTLE VALLEY FEDERAL #1
CASING DESIGN FACTORS

HOLE SIZE	HOLE INTERVAL	CASING INTERVAL	CASING OD	NEW	WT	COLLAR	GRADE	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0'-1050'	0'-1050'	13 3/8"	new	54.50#	BT&C	J-55/K-55	1.125	1.125	1.6
12 1/4"	1050'-3625'	0'-3625'	8 5/8"	new	32#	ST&C	K-55	1.125	1.125	1.6
7 7/8"	3625'-8892'MD	0'-8892'MD	5 1/2"	new	17#	LT&C	P-110	1.125	1.125	1.6



Weatherford

Drilling Services

Proposal

MANZANO LLC

LITTLE VALLEY FEDERAL #1

LEA CO, NM

WELL FILE: **PLAN 6**

SEPTEMBER 24, 2013

Weatherford International, Ltd.

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Manzano, LLC

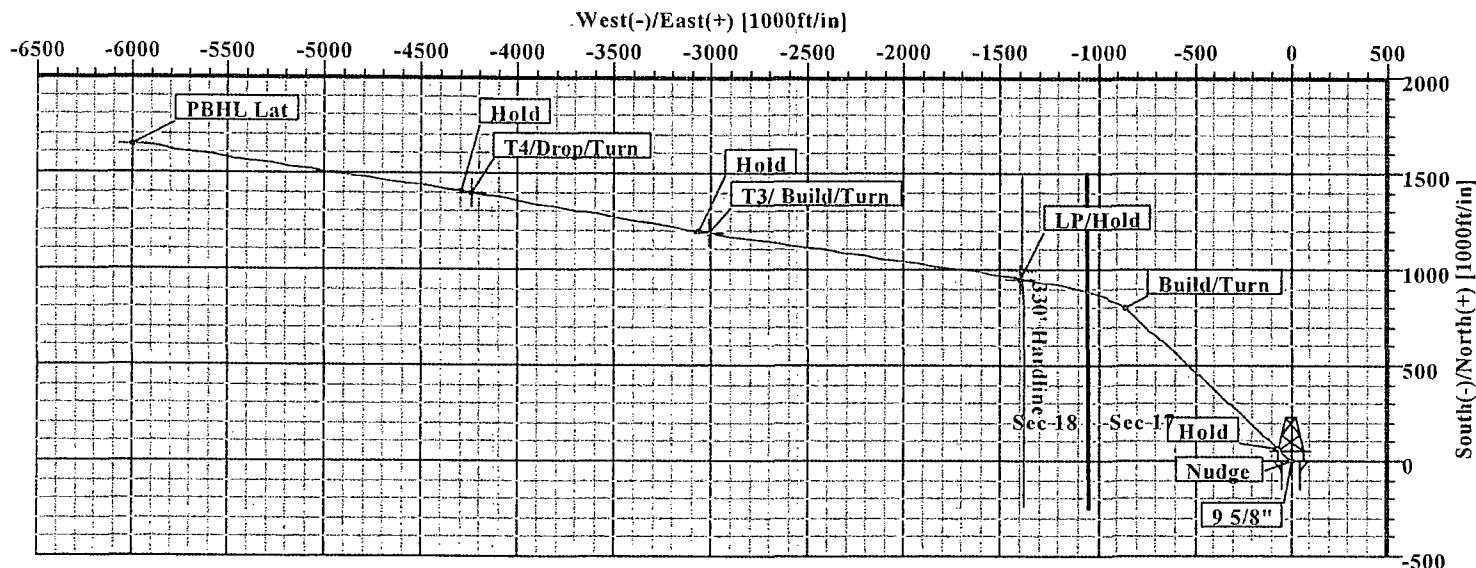
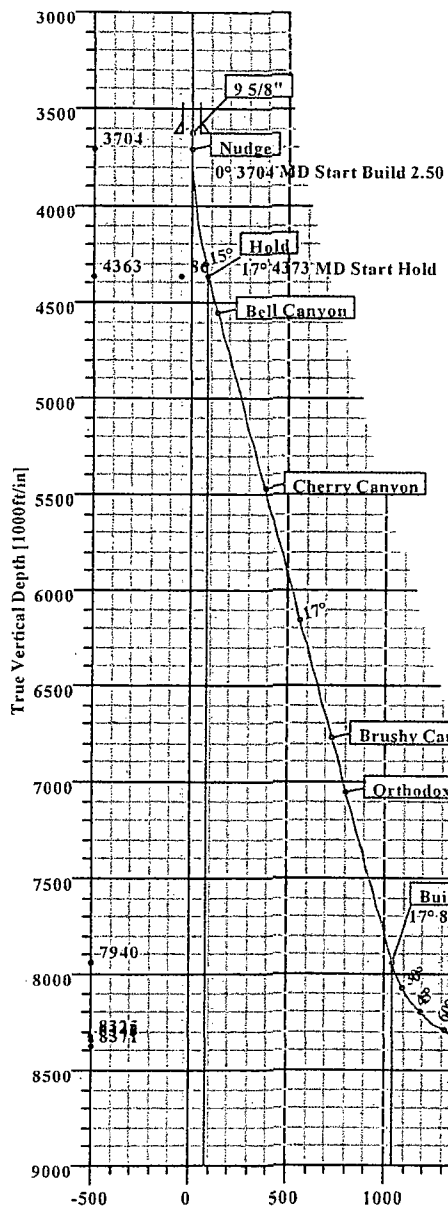
Little Valley Federal #1
Lea County, New Mexico



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SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	3704.00	0.00	0.00	3704.00	0.00	0.00	0.00	0.00	0.00	
3	4372.60	16.71	312.95	4363.15	65.98	-70.88	2.50	0.00	85.84	
4	8107.55	16.71	312.95	7940.30	797.86	-857.18	0.00	0.00	1038.09	
5	8879.51	90.89	278.25	8371.25	953.09	-1406.03	10.00	-35.71	1608.46	LP Tgt
6	10510.53	90.89	278.24	8346.00	1187.00	-3020.00	0.00	-61.64	3226.66	Tgt #3
7	10562.37	90.93	279.80	8345.18	1195.13	-3071.19	3.00	88.58	3278.18	
8	11748.64	90.93	279.80	8326.00	1397.00	-4240.00	0.00	0.00	4458.67	Tgt #4
9	11803.53	90.84	278.15	8325.16	1405.56	-4294.21	3.00	-93.12	4513.21	
10	13526.93	90.84	278.15	8300.00	1650.00	-6000.00	0.00	0.00	6222.74	PBHL Lat

KB ELEV: 3646
GL ELEV: 3632



WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Little Valley Federal #1	0.00	0.00	536471.80	736015.90	32°28'23.657N	103°42'07.418W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Orthodox Tgt	7050.00	990.00	-1386.26	537461.80	734629.64	Point
PBHL Lat	8300.00	1650.00	-6000.00	538121.80	730015.90	Point
Tgt #4	8326.00	1397.00	-4240.00	537868.80	731775.90	Point
Tgt #3	8346.00	1187.00	-3020.00	537658.80	732995.90	Point
LP Tgt	8371.25	953.09	-1406.03	537424.89	734609.87	Point

Plan: Plan #6 (Little Valley Federal #1/1)

Created By: Russell Joyner

Date: 9/24/2013

Weatherford International Ltd.

WFT Plan Report - X & Y's



Weatherford

Company: Manzano LLC	Date: 9/24/2013	Time: 09:32:52	Page: 1
Field: Lea Co., NM (NAD 83)	Co-ordinate(NE) Reference: Well: Little Valley Federal #1		
Site: Little Valley Federal #1	Vertical (TVD) Reference: SITE 3646.0		
Well: Little Valley Federal #1	Section (VS) Reference: Well (0.00N,0.00E,285.38Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Plan: Plan #6	Date Composed: 8/30/2013
Principal: Yes	Version: 1
	Tied-to: From Surface

Site: Little Valley Federal #1

Site Position:	Northing: 536471.80 ft	Latitude: 32 28 23.657 N
From: Map	Easting: 736015.90 ft	Longitude: 103 42 7.418 W
Position Uncertainty: 0.00 ft	North Reference: Grid	
Ground Level: 3632.00 ft	Grid Convergence: 0.34 deg	

Well: Little Valley Federal #1	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 536471.80 ft
+E/-W 0.00 ft	Easting: 736015.90 ft
Position Uncertainty: 0.00 ft	Latitude: 32 28 23.657 N
	Longitude: 103 42 7.418 W

Wellpath: 1	Drilled From: Surface
Current Datum: SITE	Tie-on Depth: 0.00 ft
Magnetic Data: 4/15/2013	Above System Datum: Mean Sea Level
Field Strength: 48594 nT	Declination: 7.44 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 60.35 deg
ft	+N/-S
	+E/-W
	Direction
	deg
0.00	0.00
0.00	0.00
0.00	285.38

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3704.00	0.00	0.00	3704.00	0.00	0.00	0.00	0.00	0.00	0.00	
4372.60	16.71	312.95	4363.15	65.98	-70.88	2.50	2.50	0.00	0.00	
8107.55	16.71	312.95	7940.30	797.86	-857.18	0.00	0.00	0.00	0.00	
8879.51	90.89	278.25	8371.25	953.09	-1406.03	10.00	9.61	-4.49	-35.71	LP Tgt
10510.53	90.89	278.24	8346.00	1187.00	-3020.00	0.00	0.00	0.00	-61.64	Tgt #3
10562.37	90.93	279.80	8345.18	1195.13	-3071.19	3.00	0.07	3.00	88.58	
11748.64	90.93	279.80	8326.00	1397.00	-4240.00	0.00	0.00	0.00	0.00	Tgt #4
11803.53	90.84	278.15	8325.16	1405.56	-4294.21	3.00	-0.16	-3.00	-93.12	
13526.93	90.84	278.15	8300.00	1650.00	-6000.00	0.00	0.00	0.00	0.00	PBHL Lat

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
3704.00	0.00	0.00	3704.00	0.00	0.00	0.00	0.00	536471.80	736015.90	Nudge
3800.00	2.40	312.95	3799.97	1.37	-1.47	1.78	2.50	536473.17	736014.43	
3900.00	4.90	312.95	3899.76	5.71	-6.13	7.43	2.50	536477.51	736009.77	
4000.00	7.40	312.95	3999.18	13.01	-13.97	16.92	2.50	536484.81	736001.93	
4100.00	9.90	312.95	4098.03	23.25	-24.98	30.25	2.50	536495.05	735990.92	
4200.00	12.40	312.95	4196.14	36.43	-39.13	47.39	2.50	536508.23	735976.77	
4300.00	14.90	312.95	4293.30	52.50	-56.41	68.31	2.50	536524.30	735959.49	
4372.60	16.71	312.95	4363.15	65.98	-70.88	85.84	2.50	536537.78	735945.02	Hold
4400.00	16.71	312.95	4389.40	71.35	-76.65	92.83	0.00	536543.15	735939.25	
4500.00	16.71	312.95	4485.17	90.94	-97.70	118.32	0.00	536562.74	735918.20	
4567.69	16.71	312.95	4550.00	104.21	-111.95	135.58	0.00	536576.01	735903.95	Bell Canyon
4600.00	16.71	312.95	4580.95	110.54	-118.76	143.82	0.00	536582.34	735897.14	
4700.00	16.71	312.95	4676.72	130.13	-139.81	169.32	0.00	536601.93	735876.09	
4800.00	16.71	312.95	4772.50	149.73	-160.86	194.81	0.00	536621.53	735855.04	
4900.00	16.71	312.95	4868.27	169.32	-181.91	220.31	0.00	536641.12	735833.99	
5000.00	16.71	312.95	4964.05	188.92	-202.97	245.80	0.00	536660.72	735812.93	
5100.00	16.71	312.95	5059.82	208.52	-224.02	271.30	0.00	536680.32	735791.88	
5200.00	16.71	312.95	5155.60	228.11	-245.07	296.79	0.00	536699.91	735770.83	

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WFT Plan Report - X & Y's



Weatherford

Company: Manzano LLC
Field: Lea Co., NM (NAD 83)
Site: Little Valley Federal #1
Well: Little Valley Federal #1
Wellpath: 1

Date: 9/24/2013 Time: 09:32:52 Page: 3
Co-ordinate(NE) Reference: Well: Little Valley Federal #1
Vertical (TVD) Reference: SITE 3646.0
Section (VS) Reference: Well (0.00N,0.00E,285.38Azi)
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	Comments
9300.00	90.89	278.25	8364.75	1013.41	-1822.13	2025.65	0.00	537485.21	734193.77	
9400.00	90.89	278.25	8363.20	1027.75	-1921.08	2124.86	0.00	537499.55	734094.82	
9500.00	90.89	278.25	8361.65	1042.09	-2020.03	2224.08	0.00	537513.89	733995.87	
9600.00	90.89	278.25	8360.10	1056.43	-2118.99	2323.29	0.00	537528.23	733896.91	
9700.00	90.89	278.25	8358.56	1070.77	-2217.94	2422.50	0.00	537542.57	733797.96	
9800.00	90.89	278.25	8357.01	1085.11	-2316.90	2521.72	0.00	537556.91	733699.00	
9900.00	90.89	278.25	8355.46	1099.46	-2415.85	2620.93	0.00	537571.26	733600.05	
10000.00	90.89	278.25	8353.91	1113.80	-2514.80	2720.15	0.00	537585.60	733501.10	
10100.00	90.89	278.25	8352.36	1128.14	-2613.76	2819.36	0.00	537599.94	733402.14	
10200.00	90.89	278.25	8350.81	1142.47	-2712.71	2918.57	0.00	537614.27	733303.19	
10300.00	90.89	278.24	8349.26	1156.81	-2811.67	3017.79	0.00	537628.61	733204.23	
10400.00	90.89	278.24	8347.71	1171.15	-2910.62	3117.00	0.00	537642.95	733105.28	
10500.00	90.89	278.24	8346.16	1185.49	-3009.58	3216.21	0.00	537657.29	733006.32	
10510.53	90.89	278.24	8346.00	1187.00	-3020.00	3226.66	0.00	537658.80	732995.90	Tgt #3
10562.37	90.93	279.80	8345.18	1195.13	-3071.19	3278.18	3.00	537666.93	732944.71	Hold
10600.00	90.93	279.80	8344.57	1201.53	-3108.26	3315.62	0.00	537673.33	732907.64	
10700.00	90.93	279.80	8342.95	1218.55	-3206.79	3415.13	0.00	537690.35	732809.11	
10800.00	90.93	279.80	8341.34	1235.57	-3305.32	3514.65	0.00	537707.37	732710.58	
10900.00	90.93	279.80	8339.72	1252.58	-3403.85	3614.16	0.00	537724.38	732612.05	
11000.00	90.93	279.80	8338.10	1269.60	-3502.38	3713.67	0.00	537741.40	732513.52	
11100.00	90.93	279.80	8336.49	1286.62	-3600.90	3813.19	0.00	537758.42	732415.00	
11200.00	90.93	279.80	8334.87	1303.64	-3699.43	3912.70	0.00	537775.44	732316.47	
11300.00	90.93	279.80	8333.25	1320.65	-3797.96	4012.21	0.00	537792.45	732217.94	
11400.00	90.93	279.80	8331.64	1337.67	-3896.49	4111.72	0.00	537809.47	732119.41	
11500.00	90.93	279.80	8330.02	1354.69	-3995.02	4211.24	0.00	537826.49	732020.88	
11600.00	90.93	279.80	8328.40	1371.70	-4093.55	4310.75	0.00	537843.50	731922.35	
11700.00	90.93	279.80	8326.79	1388.72	-4192.07	4410.26	0.00	537860.52	731823.83	
11748.64	90.93	279.80	8326.00	1397.00	-4240.00	4458.67	0.00	537868.80	731775.90	Tgt #4
11803.53	90.84	278.15	8325.16	1405.56	-4294.21	4513.21	3.00	537877.36	731721.69	Hold
11900.00	90.84	278.15	8323.75	1419.25	-4389.69	4608.90	0.00	537891.05	731626.21	
12000.00	90.84	278.15	8322.29	1433.43	-4488.67	4708.10	0.00	537905.23	731527.23	
12100.00	90.84	278.15	8320.83	1447.61	-4587.65	4807.29	0.00	537919.41	731428.25	
12200.00	90.84	278.15	8319.37	1461.80	-4686.63	4906.49	0.00	537933.60	731329.27	
12300.00	90.84	278.15	8317.91	1475.98	-4785.60	5005.68	0.00	537947.78	731230.30	
12400.00	90.84	278.15	8316.45	1490.16	-4884.58	5104.88	0.00	537961.96	731131.32	
12500.00	90.84	278.15	8314.99	1504.35	-4983.56	5204.07	0.00	537976.15	731032.34	
12600.00	90.84	278.15	8313.53	1518.53	-5082.54	5303.27	0.00	537990.33	730933.36	
12700.00	90.84	278.15	8312.07	1532.71	-5181.52	5402.46	0.00	538004.51	730834.38	
12800.00	90.84	278.15	8310.61	1546.90	-5280.50	5501.66	0.00	538018.70	730735.40	
12900.00	90.84	278.15	8309.15	1561.08	-5379.47	5600.85	0.00	538032.88	730636.43	
13000.00	90.84	278.15	8307.69	1575.26	-5478.45	5700.05	0.00	538047.06	730537.45	
13100.00	90.84	278.15	8306.23	1589.45	-5577.43	5799.24	0.00	538061.25	730438.47	
13200.00	90.84	278.15	8304.77	1603.63	-5676.41	5898.44	0.00	538075.43	730339.49	
13300.00	90.84	278.15	8303.31	1617.81	-5775.39	5997.64	0.00	538089.61	730240.51	
13400.00	90.84	278.15	8301.85	1632.00	-5874.37	6096.83	0.00	538103.80	730141.53	
13500.00	90.84	278.15	8300.39	1646.18	-5973.34	6196.03	0.00	538117.98	730042.56	
13526.93	90.84	278.15	8300.00	1650.00	-6000.00	6222.74	0.00	538121.80	730015.90	PBHL Lat

**Weatherford®****Weatherford Drilling Services**

GeoDec v5.03

Report Date: September 03, 2013

Job Number: _____

Customer: Manzano, LLC

Well Name: Little Valley Federal #1

API Number: _____

Rig Name: _____

Location: Lea County, New Mexico

Block: _____

Engineer: RWJ

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 536471.800 USFT	Latitude 32.4732411 DEG
East/West 736015.900 USFT	Longitude -103.7020558 DEG
Grid Convergence: .34°	
Total Correction: +7.14°	

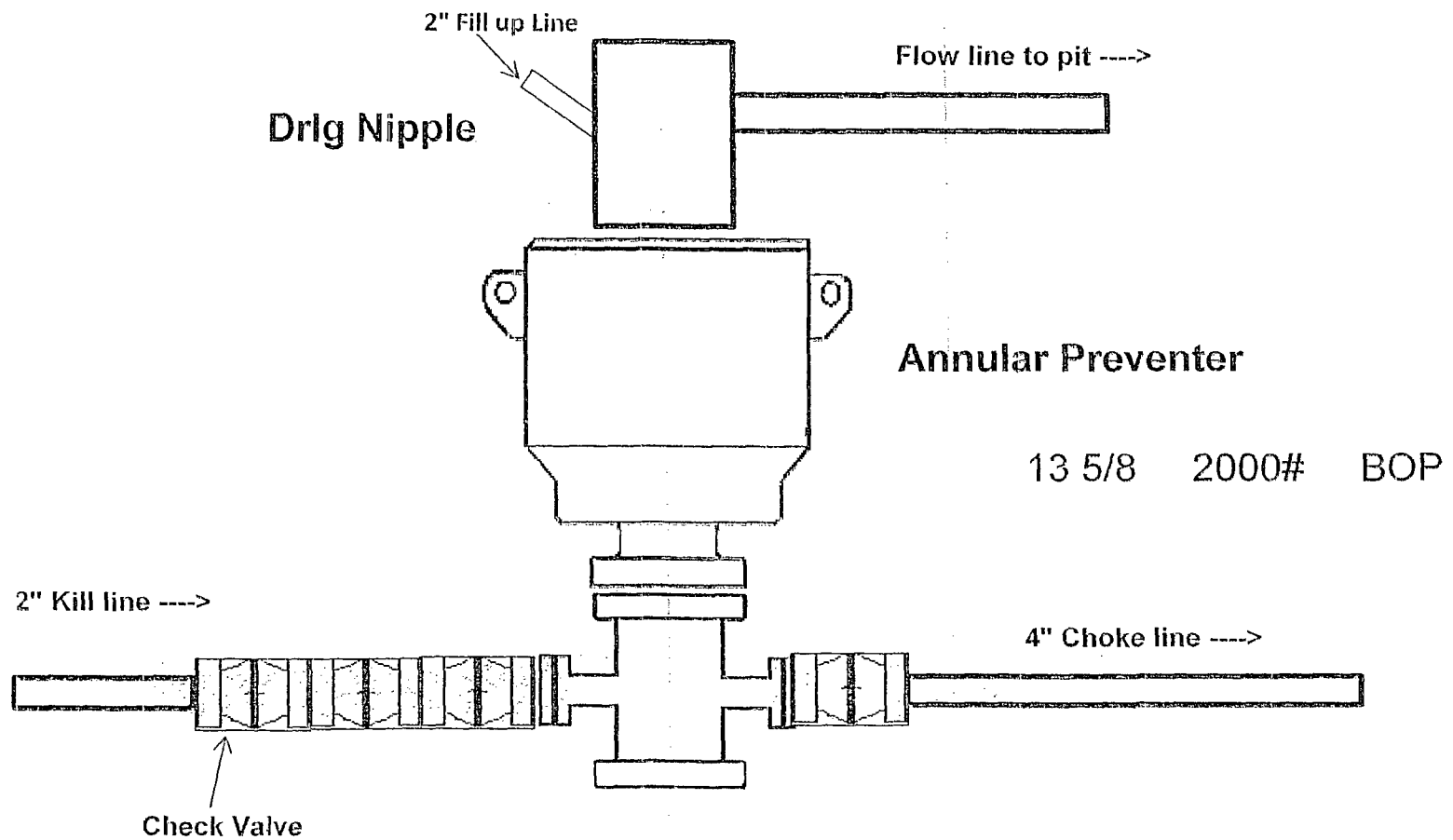
Geodetic Location WGS84	Elevation =	0.0 Meters
Latitude =	32.47324° N	32° 28 min 23.668 sec
Longitude =	103.70206° W	103° 42 min 7.401 sec

Magnetic Declination =	7.48°	[True North Offset]
Local Gravity =	.9988 g	Checksum = 6507
Local Field Strength =	48521 nT	Magnetic Vector X = 23818 nT
Magnetic Dip =	60.32°	Magnetic Vector Y = 3128 nT
Magnetic Model =	bggm2013	Magnetic Vector Z = 42157 nT
Spud Date =	Nov 15, 2013	Magnetic Vector H = 24023 nT

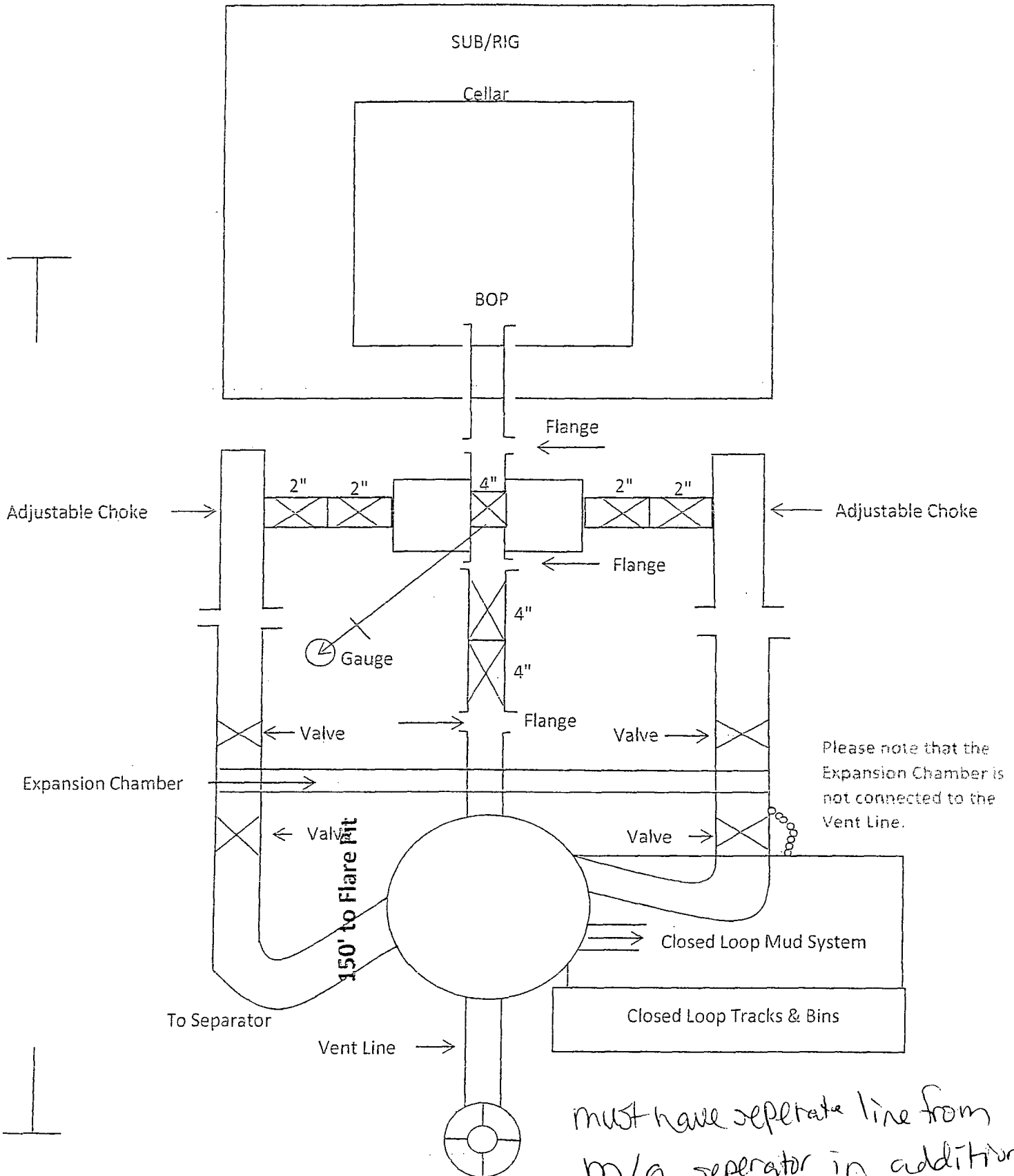
Signed: _____

Date: _____

2,000 psi BOP Schematic

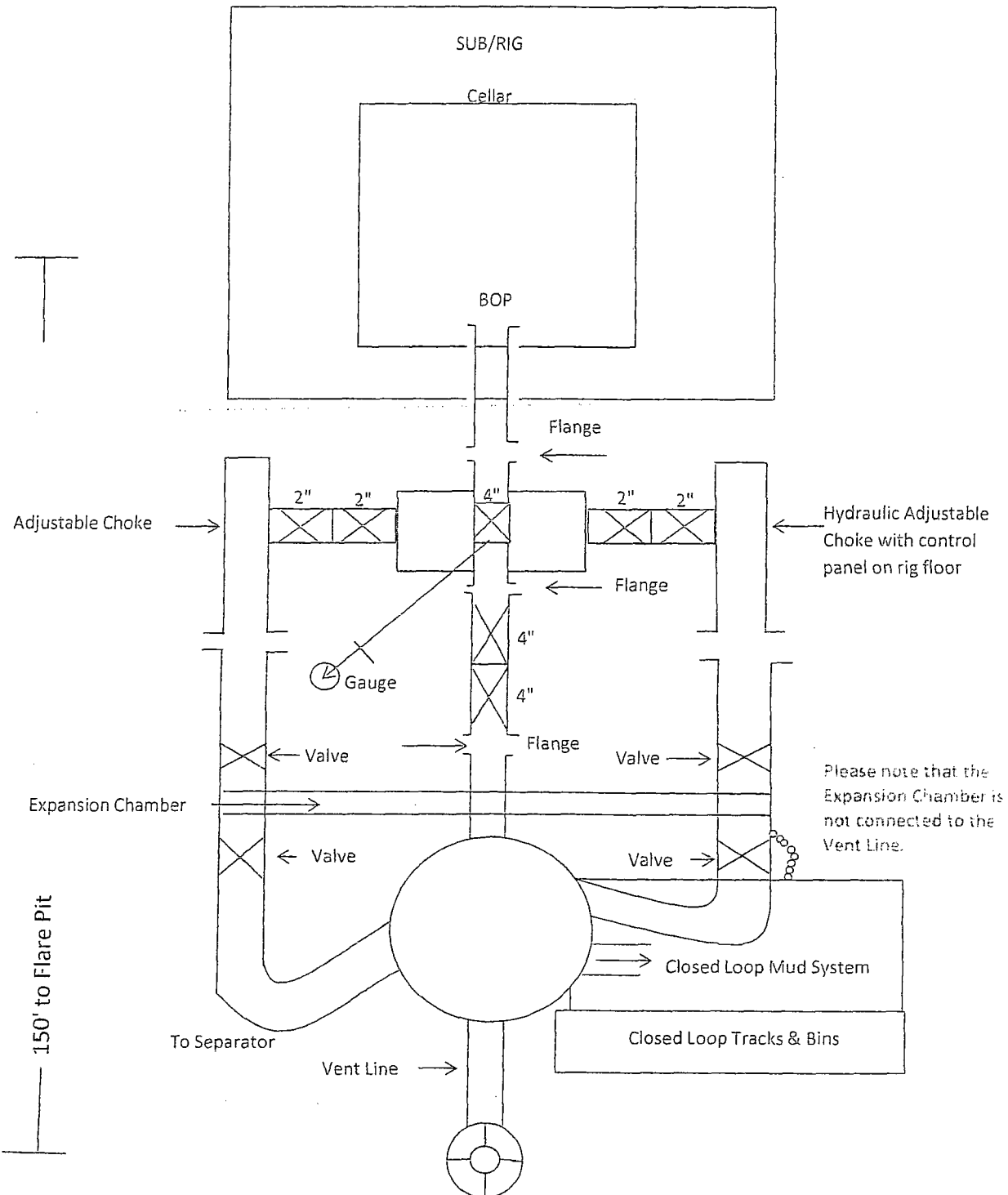


2M Choke Manifold Equipment

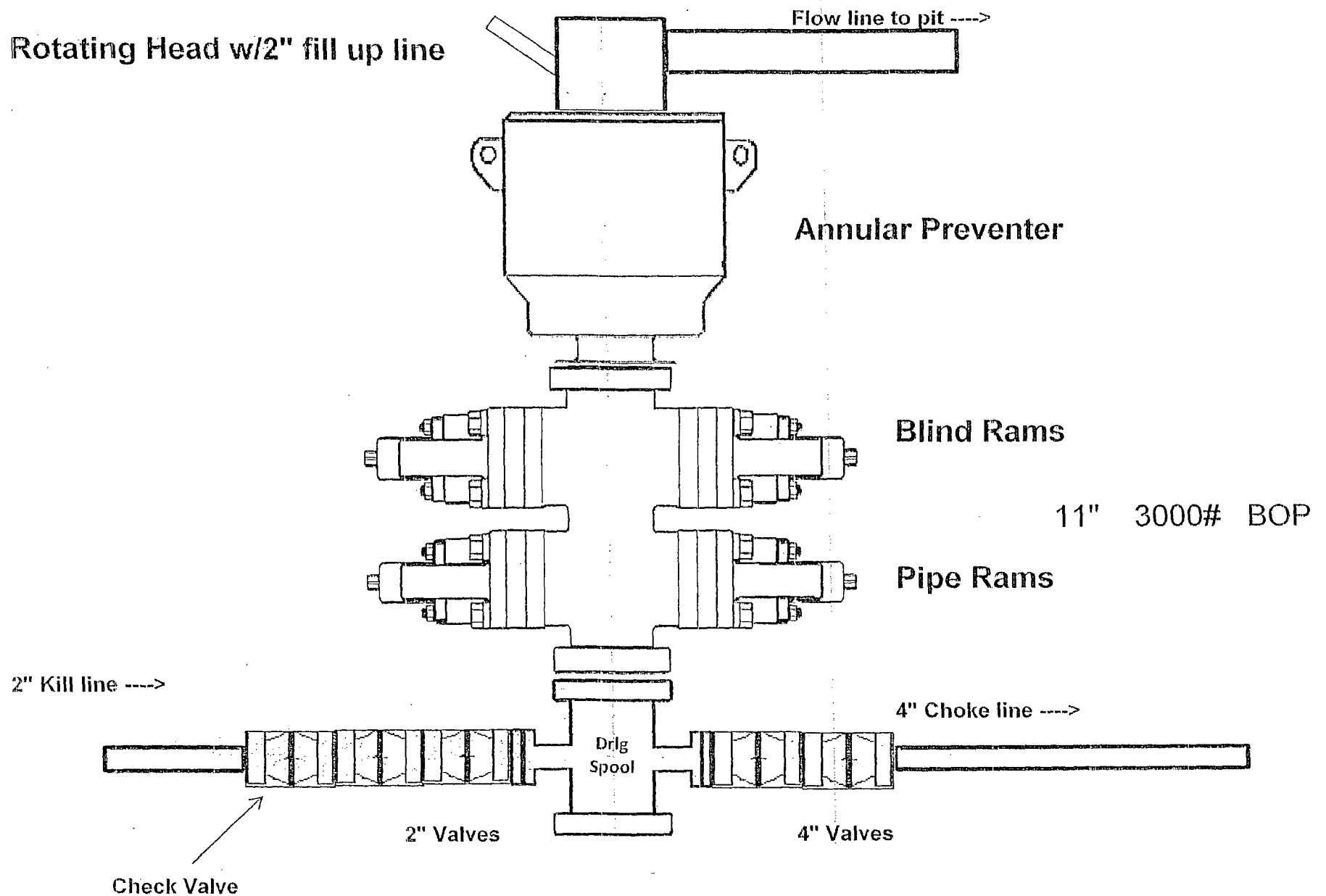


must have separate line from
m/g separator in addition
to the panic line. (same for
3m)

3M Choke Manifold Equipment



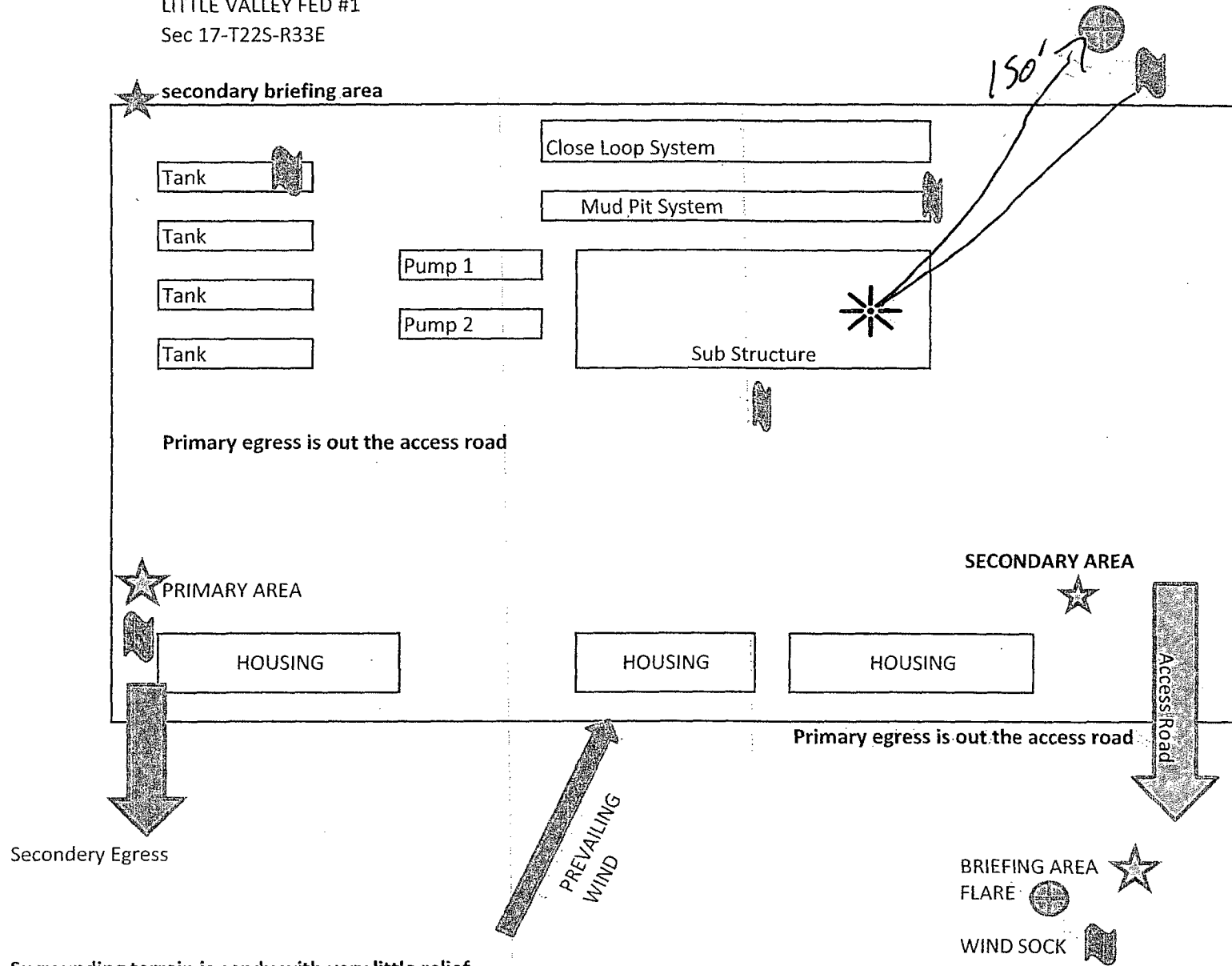
3,000 psi BOP Schematic



H2S WELL SITE DIAGRAM
DRILL RIG ORIENTATION

Manzano, LLC
LITTLE VALLEY FED #1
Sec 17-T22S-R33E

FLARE



Surrounding terrain is sandy with very little relief

Closed Loop System

