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ATS-14-205

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

APR 11 2014

Split Estate

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

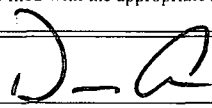
RECEIVED

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM94186
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Devon Energy Production Company, L.P. (6137)		7. If Unit or CA Agreement, Name and No. THISTLE UNIT NM88526X
3a. Address 333 West Sheridan Avenue Oklahoma City, OK 73102-5015		8. Lease Name and Well No. THISTLE UNIT 54H (30884)
3b. Phone No. (include area code) 405-552-7848		9. API Well No. 30-025-41795
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 200 FNL & 1100 FEL Unit A PP: 200 FNL & 660 FEL At proposed prod. zone 330 FSL & 660 FEL Unit P		10. Field and Pool, or Exploratory TRIPLE X; BONE SPRING (59900)
14. Distance in miles and direction from nearest town or post office* Approximately 28 miles southwest of Eunice, NM		11. Sec., T. R. M. or Blk. and Survey or Area Sec. 28-23S-33E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 200'	16. No. of acres in lease 960 acres	17. Spacing Unit dedicated to this well 160 acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. See attached map	19. Proposed Depth TVD: 11,239' MD: 15,892'	20. BLM/BIA Bond No. on file CO-1104 NMB-000801
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3700.8' GL	22. Approximate date work will start* 10/15/2014	23. Estimated duration 45 days

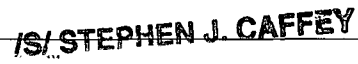
24. Attachments To be pad drilled with the Thistle Unit 60H

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 	Name (Printed/Typed) David H. Cook	Date 11/18/2013
---	---------------------------------------	--------------------

Title
Regulatory Specialist

Approved by (Signature) 	Name (Printed/Typed) STEPHEN J. CAFFEY	Date MAR 6 2014
Title FIELD MANAGER	Office 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.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

K2
04/17/14

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APR 21 2014

K2

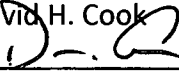
Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or Devon Energy Production Company, L.P. am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

I hereby also certify that I, or Devon Energy Production Company, L.P. have made a good faith effort to provide the surface owner with a copy of the Surface Use Plan of Operations and any Conditions of Approval that are attached to the APD.

Executed this 18th day of November, 2013.

Printed Name: David H. Cook

Signed Name: 

Position Title: Regulatory Specialist

Address: 333 W. Sheridan, OKC OK 73102

Telephone: (405)-552-7848

DRILLING PROGRAM

Devon Energy Production Company, L.P.
Thistle Unit 54H

1. **Geologic Name of Surface Formation:** Quaternary

2. **Estimated Tops of Geological Markers & Depths of Anticipated FW, Oil, or Gas:**

a. Fresh Water	400'	
b. Rustler	1,290'	Barren
c. Top of Salt	1,770'	Barren
d. Base of Salt	5,090'	Barren
e. Delaware	5,190'	Oil/Gas
f. Cherry Canyon	6,060'	Oil/Gas
g. Brushy Canyon	7,640'	Oil/gas
h. Bone Spring Lime	9,070'	Oil/gas
i. 1st Bone Spring Sand	10,065'	Oil/Gas
j. 2 nd Bone Spring Sand	10,771'	Oil/Gas
 Total Depth	 11,239' TVD	 15,892' MD

3. Pressure Control Equipment:

A 3M 13-5/8" BOP system (Double Ram and Annular preventer) will be installed and tested prior to drilling out the surface casing shoe. The BOP system used to drill the intermediate hole will be tested per BLM Onshore Oil and Gas Order 2.

A 3M 13-5/8" BOP system (Double Ram and Annular preventer) will be installed and tested prior to drilling out the intermediate casing shoe. The BOP system used to drill the production hole will be tested per BLM Onshore Oil and Gas Order 2.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

See
COA

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line); **if an H&P rig drills this well. Otherwise no flex line is needed.** The line will be kept as straight as possible with minimal turns.

Auxiliary Well Control and Monitoring Equipment:

- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.

4. Casing Program: (All casing is new and API approved.)

See
COA

Hole Size	Hole Interval, ¹⁴⁵⁰	Casing OD	Casing Interval ¹⁴⁵⁰	Weight (lb/ft)	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17-1/2"	0 - 1,325' ⁵²⁰⁰	13-3/8"	0 - 1,325' ⁵²⁰⁰	48	STC	H-40	1.28	3.02	5.06
12-1/4"	1,325-5,250'	9-5/8"	0-5,250'	40	BTC	HCK-55	1.56	1.74	4.41
8-3/4"	5,250-15,892'	5-1/2"	0-15,892'	17	BTC	P-110	1.42	2.19	2.10

Maximum Lateral TVD: 11,239'

5. Proposed mud Circulations System:

*see
COR*

Depth	Mud Weight	Viscosity (cp)	Fluid Loss	Type System
0-1,325' <i>1420'</i>	8.5-8.7	1 - 3	N/C	Fresh Water
1,325-5,250' <i>5200'</i>	9.8-10.0	1 - 3	<100	Brine
5,250-15,892'	8.4-9.0	1 - 3	<100	Fresh Water/ Cut brine

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. If abnormal pressures are encountered, electronic/mechanical mud monitoring equipment will be installed.

6. Cementing Table:

String	Number of sx	Weight lbs/gal	Water Volume g/sx	Yield cf/sx	Stage; Lead/Tail	Slurry Description
Surface	670	13.5	9.07	1.75	Lead	Class C Cement + 0.25 lbs/sack Poly-E-Flake + 4% bwoc Bentonite + 70.8% Fresh Water
	560	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake + 63.1% Fresh Water
Intermediate	1140	12.9	9.81	1.85	Lead	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 70.9 % Fresh Water
	430	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake + 63.9% Fresh Water
Production	570	11.9	12.89	2.26	Lead #1	(50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000 + 76.4% Fresh Water
	330	12.5	10.79	1.95	Lead #2	(65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake + 74.1 % Fresh Water
	1320	14.5	5.38	1.22	Tail	(50:50) Class H Cement: Poz (Fly Ash) + 1 lb/sk Sodium Chloride + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% bwoc HR-601 + 2% bwoc Bentonite + 58.8% Fresh Water

TOC for all Strings:

Surface @ 0'
Intermediate @ 0'
Production @ ~~4,750'~~ see COA

Notes:

- Cement volumes Surface 100%, Intermediate 75%, Production based on at least 25% excess
- Actual cement volumes will be adjusted based on fluid caliper and caliper log data

7. Logging, Coring, and Testing Program:

- Drill stem tests will be based on geological sample shows.
- If a drill stem test is anticipated, a procedure, equipment to be used, and safety measures will be provided via sundry notice to the BLM.
- The open hole electrical logging program will be:
 - Total Depth to Intermediate:
 - Dual Laterolog
 - Micro Laterolog with SP & Gamma Ray
 - Compensated Neutron
 - Z-Density Log with Gamma Ray and Caliper
 - Total Depth to Surface:
 - Compensated Neutron with Gamma Ray
 - No coring program is planned
 - Additional Testing will be initiated subsequent to setting the 5-1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows, and drill stem tests.

8. Potential Hazards:

- No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area, and none is anticipated to be encountered. 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 being used to drill this well. Estimated BHP: 5,000 psi, and estimated BHT: 165 degrees.
- Hydrogen Sulfide detection equipment will be in operation after drilling out the 13-3/8" casing shoe until the 5-1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13-3/8" shoe until total depth is reached.

9. Anticipated Starting Date and Duration of Operations:

- Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 32 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.



Weatherford[®]

Drilling Services

Proposal



devon

THISTLE UNIT 54H

LEA COUNTY, NM

WELL FILE: **PLAN 2**

NOVEMBER 4, 2013

Weatherford International, Ltd.

P.O. Box 61028

Midland, TX 79711 USA

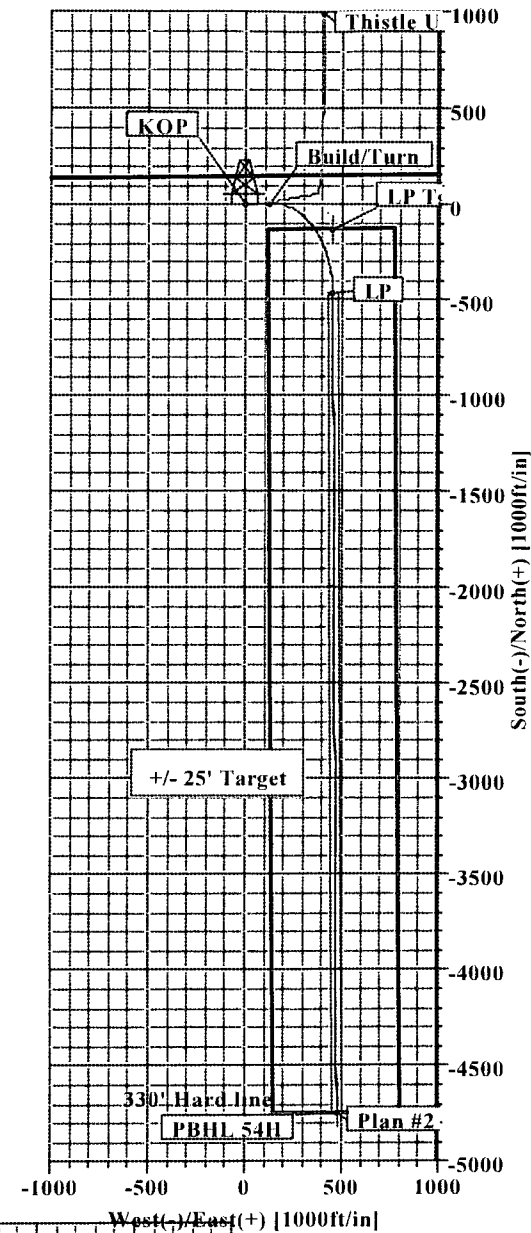
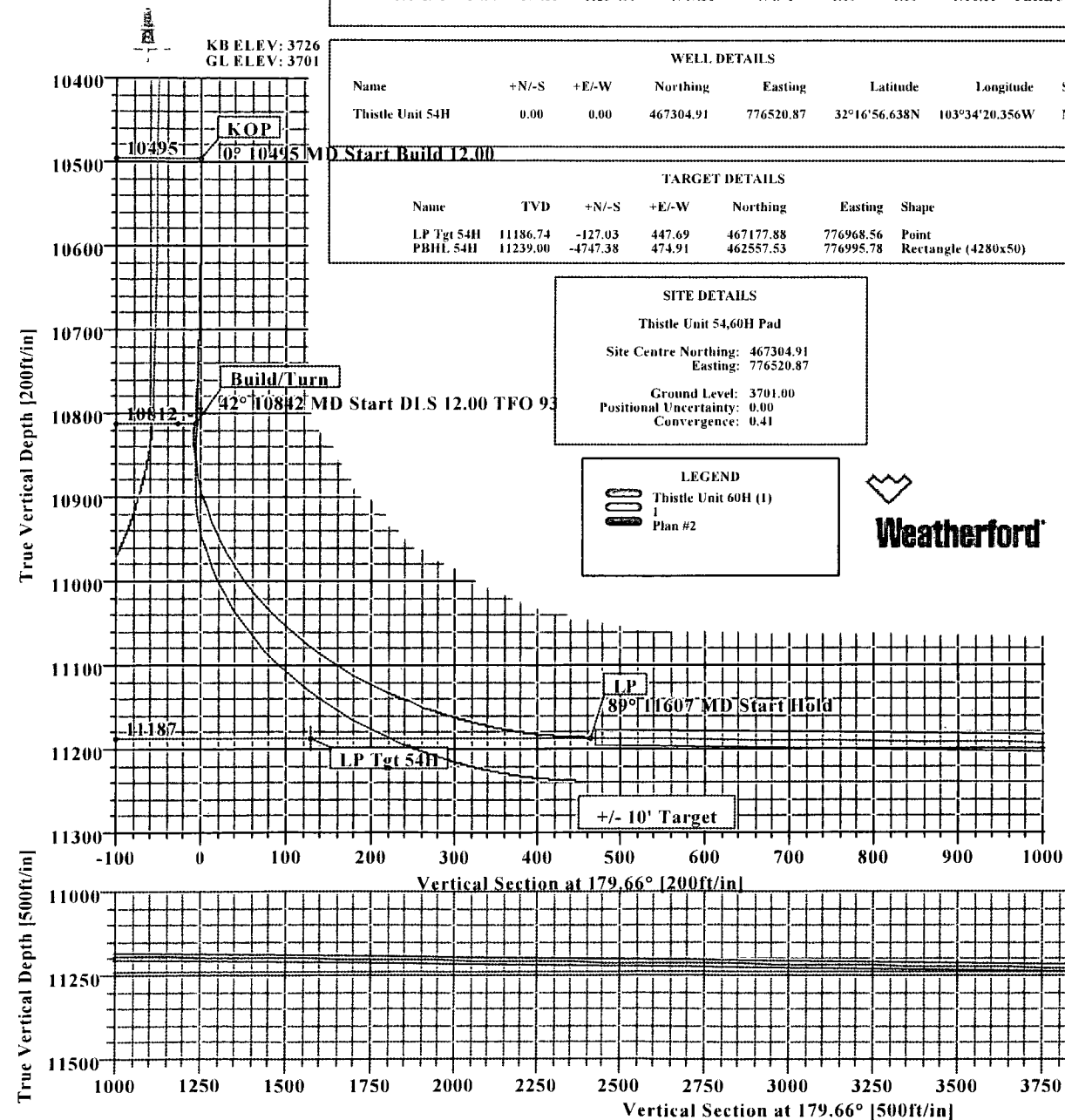
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Thistle Unit 54H
Lea County, New Mexico





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Wft Plan Report X Y's.

**Weatherford**

Company: Devon Energy Date: 11/5/2013 Time: 12:19:01 Page: 1
Field: Lea County, New Mexico (NAD 83) Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North
Site: Thistle Unit 54,60H Pad Vertical (TVD) Reference: SITE 3726.0
Well: Thistle Unit 54H Section (VS) Reference: Well (0.00N,0.00E,179.66Azi)
Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan #2 Date Composed: 11/1/2013
Principal: No Version: 1
Tied-to: From Surface

Site: Thistle Unit 54,60H Pad

Site Position: Northing: 467304.91 ft Latitude: 32 16 56.638 N
From: Map Easting: 776520.87 ft Longitude: 103 34 20.356 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3701.00 ft Grid Convergence: 0.41 deg

Well: Thistle Unit 54H Slot Name:
Well Position: +N/-S 0.00 ft Northing: 467304.91 ft Latitude: 32 16 56.638 N
+E/-W 0.00 ft Easting: 776520.87 ft Longitude: 103 34 20.356 W
Position Uncertainty: 0.00 ft

Wellpath: 1
Current Datum: SITE Height 3726.00 ft
Magnetic Data: 4/30/2014
Field Strength: 48389 nT
Vertical Section: Depth From (TVD) +N/-S
ft ft
0.00 0.00 0.00 179.66

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	
10495.40	0.00	0.00	10495.40	0.00	0.00	0.00	0.00	0.00	0.00	
10842.20	41.62	86.21	10812.50	7.97	120.25	12.00	12.00	0.00	86.21	
11606.92	89.30	179.66	11186.63	-462.79	449.52	12.00	6.23	12.22	93.05	
15891.91	89.30	179.66	11239.00	-4747.38	474.91	0.00	0.00	0.00	0.00	PBHL 54H

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
10400.00	0.00	0.00	10400.00	0.00	0.00	0.00	0.00	467304.91	776520.87	
10495.40	0.00	0.00	10495.40	0.00	0.00	0.00	0.00	467304.91	776520.87	KOP
10500.00	0.55	86.21	10500.00	0.00	0.02	0.00	12.00	467304.91	776520.89	
10600.00	12.55	86.21	10599.17	0.75	11.39	-0.69	12.00	467305.66	776532.26	
10700.00	24.55	86.21	10693.79	2.85	43.08	-2.60	12.00	467307.76	776563.95	
10800.00	36.56	86.21	10779.75	6.21	93.71	-5.65	12.00	467311.12	776614.58	
10842.20	41.62	86.21	10812.50	7.97	120.25	-7.25	12.00	467312.88	776641.12	Build/Turn
10900.00	41.72	96.65	10855.72	7.01	158.56	-6.07	12.00	467311.92	776679.43	
11000.00	44.06	113.98	10929.24	-11.05	223.62	12.37	12.00	467293.86	776744.49	
11100.00	48.75	129.27	10998.39	-49.11	284.72	50.80	12.00	467255.80	776805.59	
11200.00	55.16	142.19	11060.15	-105.54	339.17	107.55	12.00	467199.37	776860.04	
11300.00	62.72	153.08	11111.82	-177.84	384.61	180.12	12.00	467127.07	776905.48	
11400.00	71.01	162.53	11151.15	-262.88	419.05	265.36	12.00	467042.03	776939.92	
11500.00	79.74	171.05	11176.41	-356.92	440.98	359.53	12.00	466947.99	776961.85	
11600.00	88.68	179.11	11186.51	-455.87	449.44	458.53	12.00	466849.04	776970.31	
11606.92	89.30	179.66	11186.63	-462.79	449.52	465.45	12.00	466842.12	776970.39	LP
11700.00	89.30	179.66	11187.77	-555.86	450.07	558.52	0.00	466749.05	776970.94	
11800.00	89.30	179.66	11188.99	-655.85	450.66	658.51	0.00	466649.06	776971.53	
11900.00	89.30	179.66	11190.21	-755.84	451.25	758.50	0.00	466549.07	776972.12	
12000.00	89.30	179.66	11191.44	-855.83	451.85	858.50	0.00	466449.08	776972.72	
12100.00	89.30	179.66	11192.66	-955.82	452.44	958.49	0.00	466349.09	776973.31	
12200.00	89.30	179.66	11193.88	-1055.81	453.03	1058.48	0.00	466249.10	776973.90	



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Wft Plan Report X Y's.

**Weatherford**

Company: Devon Energy	Date: 11/5/2013	Time: 12:19:01	Page: 2
Field: Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North		
Site: Thistle Unit 54,60H Pad	Vertical (TVD) Reference: SITE 3726.0		
Well: Thistle Unit 54H	Section (VS) Reference: Well (0.00N,0.00E,179.66Azi)		
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	Comments
12300.00	89.30	179.66	11195.10	-1155.80	453.62	1158.47	0.00	466149.11	776974.49	
12400.00	89.30	179.66	11196.32	-1255.79	454.22	1258.47	0.00	466049.12	776975.09	
12500.00	89.30	179.66	11197.55	-1355.78	454.81	1358.46	0.00	465949.13	776975.68	
12600.00	89.30	179.66	11198.77	-1455.77	455.40	1458.45	0.00	465849.14	776976.27	
12700.00	89.30	179.66	11199.99	-1555.77	455.99	1558.44	0.00	465749.14	776976.86	
12800.00	89.30	179.66	11201.21	-1655.76	456.59	1658.44	0.00	465649.15	776977.46	
12900.00	89.30	179.66	11202.43	-1755.75	457.18	1758.43	0.00	465549.16	776978.05	
13000.00	89.30	179.66	11203.66	-1855.74	457.77	1858.42	0.00	465449.17	776978.64	
13100.00	89.30	179.66	11204.88	-1955.73	458.36	1958.41	0.00	465349.18	776979.23	
13200.00	89.30	179.66	11206.10	-2055.72	458.96	2058.41	0.00	465249.19	776979.83	
13300.00	89.30	179.66	11207.32	-2155.71	459.55	2158.40	0.00	465149.20	776980.42	
13400.00	89.30	179.66	11208.55	-2255.70	460.14	2258.39	0.00	465049.21	776981.01	
13500.00	89.30	179.66	11209.77	-2355.69	460.73	2358.38	0.00	464949.22	776981.60	
13600.00	89.30	179.66	11210.99	-2455.68	461.33	2458.38	0.00	464849.23	776982.20	
13700.00	89.30	179.66	11212.21	-2555.67	461.92	2558.37	0.00	464749.24	776982.79	
13800.00	89.30	179.66	11213.43	-2655.66	462.51	2658.36	0.00	464649.25	776983.38	
13900.00	89.30	179.66	11214.66	-2755.65	463.11	2758.35	0.00	464549.26	776983.98	
14000.00	89.30	179.66	11215.88	-2855.65	463.70	2858.35	0.00	464449.26	776984.57	
14100.00	89.30	179.66	11217.10	-2955.64	464.29	2958.34	0.00	464349.27	776985.16	
14200.00	89.30	179.66	11218.32	-3055.63	464.88	3058.33	0.00	464249.28	776985.75	
14300.00	89.30	179.66	11219.54	-3155.62	465.48	3158.32	0.00	464149.29	776986.35	
14400.00	89.30	179.66	11220.77	-3255.61	466.07	3258.32	0.00	464049.30	776986.94	
14500.00	89.30	179.66	11221.99	-3355.60	466.66	3358.31	0.00	463949.31	776987.53	
14600.00	89.30	179.66	11223.21	-3455.59	467.25	3458.30	0.00	463849.32	776988.12	
14700.00	89.30	179.66	11224.43	-3555.58	467.85	3558.29	0.00	463749.33	776988.72	
14800.00	89.30	179.66	11225.66	-3655.57	468.44	3658.29	0.00	463649.34	776989.31	
14900.00	89.30	179.66	11226.88	-3755.56	469.03	3758.28	0.00	463549.35	776989.90	
15000.00	89.30	179.66	11228.10	-3855.55	469.62	3858.27	0.00	463449.36	776990.49	
15100.00	89.30	179.66	11229.32	-3955.54	470.22	3958.26	0.00	463349.37	776991.09	
15200.00	89.30	179.66	11230.54	-4055.54	470.81	4058.26	0.00	463249.37	776991.68	
15300.00	89.30	179.66	11231.77	-4155.53	471.40	4158.25	0.00	463149.38	776992.27	
15400.00	89.30	179.66	11232.99	-4255.52	471.99	4258.24	0.00	463049.39	776992.86	
15500.00	89.30	179.66	11234.21	-4355.51	472.59	4358.24	0.00	462949.40	776993.46	
15600.00	89.30	179.66	11235.43	-4455.50	473.18	4458.23	0.00	462849.41	776994.05	
15700.00	89.30	179.66	11236.65	-4555.49	473.77	4558.22	0.00	462749.42	776994.64	
15800.00	89.30	179.66	11237.88	-4655.48	474.37	4658.21	0.00	462649.43	776995.24	
15891.91	89.30	179.66	11239.00	-4747.38	474.91	4750.11	0.00	462557.53	776995.78	PBHL 54H

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude --->	<--- Longitude --->
LP Tgt 54H			11186.74	-127.03	447.69	467177.88	776968.56	32 16 55.350 N	103 34 15.151 W
PBHL 54H -Rectangle (4280x50)	0.70	179.66	11239.00	-4747.38	474.91	462557.53	776995.78	32 16 9.629 N	103 34 15.217 W



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Wft Plan Report X Y's.



Weatherford

Company: Devon Energy	Date: 11/5/2013	Time: 12:19:01	Page: 3
Field: Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North		
Site: Thistle Unit 54,60H Pad	Vertical (TVD) Reference: SITE 3726.0		
Well: Thistle Unit 54H	Section (VS) Reference: Well (0.00N,0.00E,179.66Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Casing Points

MD	TVD	Diameter	Hole Size	Name

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Annotation

MD ft	TVD ft	
10495.40	10495.40	KOP
10842.20	10812.50	Build/Turn
11606.92	11186.63	LP
15891.91	0.00	PBHL



Weatherford

Anticollision Report

**Weatherford**

Company: Devon Energy Date: 11/5/2013 Time: 12:17:15 Page: 1
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 54,60H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North
Reference Well: Thistle Unit 54H Vertical (TVD) Reference: SITE 3726.0
Reference Wellpath: Db: Sybase

NO GLOBAL SCAN: Using user defined selection & scan criteria
Interpolation Method: MD + Stations Interval: 100.00 ft
Depth Range: 0.00 to 16080.08 ft
Maximum Radius: 10000.00 ft

Reference: Plan: Plan #2
Error Model: ISCWSA Ellipse
Scan Method: Closest Approach 3D
Error Surface: Ellipse

Plan: Plan #2 Date Composed: 11/1/2013
Principal: No Version: 1
Tied-to: From Surface

Summary

Site	Offset Wellpath Well	Wellpath	Reference MD ft	Offset MD ft	Ctr-Ctr Edge Distance ft	Separation Distance ft	Factor	Warning
Thistle Unit 54,60H	Thistle Unit 60H	1 V0 Plan: Plan #1 V1	6100.00	6098.98	50.57	23.44	1.86	

Site: Thistle Unit 54,60H Pad
Well: Thistle Unit 60H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference MD ft	TVD ft	Offset MD ft	TVD ft	Semi-Major Axis Ref ft	Offset ft	TFO-HS deg	Offset Location North ft	East ft	Ctr-Ctr Edge Distance ft	Separation Distance ft	Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	89.55	0.39	49.96	49.96			No Data
100.00	100.00	100.00	100.00	0.08	0.08	89.55	0.39	49.96	49.96	49.79	296.38	
200.00	200.00	200.00	200.00	0.31	0.31	89.55	0.39	49.96	49.96	49.34	80.83	
300.00	300.00	300.00	300.00	0.53	0.53	89.55	0.39	49.96	49.96	48.89	46.80	
400.00	400.00	400.00	400.00	0.76	0.76	89.55	0.39	49.96	49.96	48.44	32.93	
500.00	500.00	500.00	500.00	0.98	0.98	89.55	0.39	49.96	49.96	47.99	25.40	
600.00	600.00	600.00	600.00	1.21	1.21	89.55	0.39	49.96	49.96	47.55	20.68	
700.00	700.00	700.00	700.00	1.43	1.43	89.55	0.39	49.96	49.96	47.10	17.43	
800.00	800.00	800.00	800.00	1.66	1.66	89.55	0.39	49.96	49.96	46.65	15.07	
900.00	900.00	900.00	900.00	1.88	1.88	89.55	0.39	49.96	49.96	46.20	13.27	
1000.00	1000.00	1000.00	1000.00	2.11	2.11	89.55	0.39	49.96	49.96	45.75	11.86	
1100.00	1100.00	1100.00	1100.00	2.33	2.33	89.55	0.39	49.96	49.96	45.30	10.71	
1200.00	1200.00	1200.00	1200.00	2.56	2.56	89.55	0.39	49.96	49.96	44.85	9.77	
1300.00	1300.00	1300.00	1300.00	2.78	2.78	89.55	0.39	49.96	49.96	44.40	8.98	
1400.00	1400.00	1400.00	1400.00	3.01	3.01	89.55	0.39	49.96	49.96	43.95	8.31	
1500.00	1500.00	1500.00	1500.00	3.23	3.23	89.55	0.39	49.96	49.96	43.50	7.73	
1600.00	1600.00	1600.00	1600.00	3.46	3.46	89.55	0.39	49.96	49.96	43.05	7.23	
1700.00	1700.00	1700.00	1700.00	3.68	3.68	89.55	0.39	49.96	49.96	42.60	6.79	
1800.00	1800.00	1800.00	1800.00	3.91	3.91	89.55	0.39	49.96	49.96	42.15	6.40	
1900.00	1900.00	1900.00	1900.00	4.13	4.13	89.55	0.39	49.96	49.96	41.70	6.05	
2000.00	2000.00	2000.00	2000.00	4.35	4.35	89.55	0.39	49.96	49.96	41.25	5.74	
2100.00	2100.00	2100.00	2100.00	4.58	4.58	89.55	0.39	49.96	49.96	40.80	5.45	
2200.00	2200.00	2200.00	2200.00	4.80	4.80	89.55	0.39	49.96	49.96	40.35	5.20	
2300.00	2300.00	2300.00	2300.00	5.03	5.03	89.55	0.39	49.96	49.96	39.90	4.97	
2400.00	2400.00	2400.00	2400.00	5.25	5.25	89.55	0.39	49.96	49.96	39.45	4.75	
2500.00	2500.00	2500.00	2500.00	5.48	5.48	89.55	0.39	49.96	49.96	39.00	4.56	
2600.00	2600.00	2600.00	2600.00	5.70	5.70	89.55	0.39	49.96	49.96	38.55	4.38	
2700.00	2700.00	2700.00	2700.00	5.93	5.93	89.55	0.39	49.96	49.96	38.11	4.21	
2800.00	2800.00	2800.00	2800.00	6.15	6.15	89.55	0.39	49.96	49.96	37.66	4.06	
2900.00	2900.00	2900.00	2900.00	6.38	6.38	89.55	0.39	49.96	49.96	37.21	3.92	
3000.00	3000.00	3000.00	3000.00	6.60	6.60	89.55	0.39	49.96	49.96	36.76	3.78	
3100.00	3100.00	3100.00	3100.00	6.83	6.83	89.55	0.39	49.96	49.96	36.31	3.66	
3200.00	3200.00	3200.00	3200.00	7.05	7.05	89.55	0.39	49.96	49.96	35.86	3.54	
3300.00	3300.00	3300.00	3300.00	7.28	7.28	89.55	0.39	49.96	49.96	35.41	3.43	
3400.00	3400.00	3400.00	3400.00	7.50	7.50	89.55	0.39	49.96	49.96	34.96	3.33	
3500.00	3500.00	3500.00	3500.00	7.73	7.73	89.55	0.39	49.96	49.96	34.51	3.23	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 54,60H Pad
Reference Well: Thistle Unit 54H
Reference Wellpath:

Date: 11/5/2013 Time: 12:17:15
Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North
Vertical (TVD) Reference: SITE 3726.0

Page: 2

Db: Sybase

Site: Thistle Unit 54,60H Pad
Well: Thistle Unit 60H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr	Edge	Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
3600.00	3600.00	3600.00	3600.00	7.95	7.95	89.55	0.39	49.96	49.96	34.06	3.14	
3700.00	3700.00	3700.00	3700.00	8.18	8.18	89.55	0.39	49.96	49.96	33.61	3.06	
3800.00	3800.00	3800.00	3800.00	8.40	8.40	89.55	0.39	49.96	49.96	33.16	2.97	
3900.00	3900.00	3900.00	3900.00	8.63	8.63	89.55	0.39	49.96	49.96	32.71	2.90	
4000.00	4000.00	4000.00	4000.00	8.85	8.85	89.55	0.39	49.96	49.96	32.26	2.82	
4100.00	4100.00	4100.00	4100.00	9.07	9.07	89.55	0.39	49.96	49.96	31.81	2.75	
4200.00	4200.00	4200.00	4200.00	9.30	9.30	89.55	0.39	49.96	49.96	31.36	2.69	
4300.00	4300.00	4300.00	4300.00	9.52	9.52	89.55	0.39	49.96	49.96	30.91	2.62	
4400.00	4400.00	4400.00	4400.00	9.75	9.75	89.55	0.39	49.96	49.96	30.46	2.56	
4500.00	4500.00	4500.00	4500.00	9.97	9.97	89.55	0.39	49.96	49.96	30.01	2.50	
4600.00	4600.00	4600.00	4600.00	10.20	10.20	89.55	0.39	49.96	49.96	29.56	2.45	
4700.00	4700.00	4700.00	4700.00	10.42	10.42	89.55	0.39	49.96	49.96	29.11	2.40	
4800.00	4800.00	4800.00	4800.00	10.65	10.65	89.55	0.39	49.96	49.96	28.66	2.35	
4900.00	4900.00	4900.00	4900.00	10.87	10.87	89.55	0.39	49.96	49.96	28.22	2.30	
5000.00	5000.00	5000.00	5000.00	11.10	11.10	89.55	0.39	49.96	49.96	27.77	2.25	
5100.00	5100.00	5100.00	5100.00	11.32	11.32	89.55	0.39	49.96	49.96	27.32	2.21	
5200.00	5200.00	5200.00	5200.00	11.55	11.55	89.55	0.39	49.96	49.96	26.87	2.16	
5300.00	5300.00	5300.00	5300.00	11.77	11.77	89.55	0.39	49.96	49.96	26.42	2.12	
5400.00	5400.00	5400.00	5400.00	12.00	12.00	89.55	0.39	49.96	49.96	25.97	2.08	
5500.00	5500.00	5500.00	5500.00	12.22	12.22	89.55	0.39	49.96	49.96	25.52	2.04	
5600.00	5600.00	5600.00	5600.00	12.45	12.45	89.55	0.39	49.96	49.96	25.07	2.01	
5700.00	5700.00	5700.00	5700.00	12.67	12.67	89.55	0.39	49.96	49.96	24.62	1.97	
5800.00	5800.00	5800.00	5800.00	12.90	12.90	89.55	0.39	49.96	49.96	24.17	1.94	
5900.00	5900.00	5900.00	5900.00	13.12	13.12	89.55	0.39	49.96	49.96	23.72	1.90	
6000.00	6000.00	6000.00	6000.00	13.35	13.35	89.55	0.39	49.96	49.96	23.27	1.87	
6100.00	6100.00	6098.98	6098.97	13.57	13.56	89.44	0.50	50.56	50.57	23.44	1.86	
6200.00	6200.00	6197.14	6197.06	13.80	13.76	88.79	1.15	54.20	54.29	26.76	1.97	
6300.00	6300.00	6296.09	6295.79	14.02	13.96	87.82	2.31	60.68	60.87	32.92	2.18	
6400.00	6400.00	6395.85	6395.31	14.24	14.17	87.00	3.54	67.53	67.79	39.41	2.39	
6500.00	6500.00	6495.60	6494.82	14.47	14.38	86.34	4.76	74.39	74.72	45.92	2.59	
6600.00	6600.00	6595.36	6594.33	14.69	14.59	85.78	5.99	81.24	81.66	52.43	2.79	
6700.00	6700.00	6695.12	6693.85	14.92	14.80	85.32	7.21	88.09	88.60	58.94	2.99	
6800.00	6800.00	6794.87	6793.36	15.14	15.01	84.92	8.44	94.94	95.55	65.46	3.18	
6900.00	6900.00	6894.63	6892.87	15.37	15.23	84.58	9.67	101.80	102.50	71.98	3.36	
7000.00	7000.00	6994.39	6992.38	15.59	15.44	84.27	10.89	108.65	109.46	78.51	3.54	
7100.00	7100.00	7094.14	7091.90	15.82	15.66	84.01	12.12	115.50	116.42	85.04	3.71	
7200.00	7200.00	7193.90	7191.41	16.04	15.88	83.78	13.35	122.35	123.38	91.56	3.88	
7300.00	7300.00	7293.65	7290.92	16.27	16.09	83.57	14.57	129.21	130.34	98.09	4.04	
7400.00	7400.00	7393.41	7390.44	16.49	16.31	83.38	15.80	136.06	137.31	104.62	4.20	
7500.00	7500.00	7493.17	7489.95	16.72	16.54	83.21	17.02	142.91	144.27	111.16	4.36	
7600.00	7600.00	7592.92	7589.46	16.94	16.76	83.05	18.25	149.76	151.24	117.69	4.51	
7700.00	7700.00	7692.68	7688.98	17.17	16.98	82.91	19.48	156.62	158.21	124.22	4.66	
7800.00	7800.00	7792.44	7788.49	17.39	17.20	82.78	20.70	163.47	165.18	130.76	4.80	
7900.00	7900.00	7892.19	7888.00	17.62	17.43	82.66	21.93	170.32	172.15	137.29	4.94	
8000.00	8000.00	7991.95	7987.51	17.84	17.65	82.55	23.16	177.17	179.12	143.82	5.08	
8100.00	8100.00	8091.70	8087.03	18.07	17.88	82.45	24.38	184.03	186.09	150.36	5.21	
8200.00	8200.00	8191.46	8186.54	18.29	18.11	82.36	25.61	190.88	193.06	156.89	5.34	
8300.00	8300.00	8291.22	8286.05	18.52	18.34	82.27	26.84	197.73	200.03	163.42	5.46	
8400.00	8400.00	8390.97	8385.57	18.74	18.56	82.19	28.06	204.58	207.00	169.96	5.59	
8500.00	8500.00	8490.73	8485.08	18.96	18.79	82.11	29.29	211.43	213.97	176.49	5.71	
8600.00	8600.00	8590.49	8584.59	19.19	19.02	82.04	30.51	218.29	220.95	183.03	5.83	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy Date: 11/5/2013 Time: 12:17:15 Page: 3
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 54,60H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North
Reference Well: Thistle Unit 54H Vertical (TVD) Reference: SITE 3726.0
Reference Wellpath: Db: Sybase

Site: Thistle Unit 54,60H Pad
Well: Thistle Unit 60H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr Edge		Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
8700.00	8700.00	8690.24	8684.11	19.41	19.25	81.98	31.74	225.14	227.92	189.56	5.94	
8800.00	8800.00	8790.00	8783.62	19.64	19.49	81.91	32.97	231.99	234.89	196.09	6.05	
8900.00	8900.00	8889.75	8883.13	19.86	19.72	81.85	34.19	238.84	241.87	202.63	6.16	
9000.00	9000.00	8989.51	8982.65	20.09	19.95	81.80	35.42	245.70	248.84	209.16	6.27	
9100.00	9100.00	9089.27	9082.16	20.31	20.18	81.74	36.65	252.55	255.82	215.70	6.38	
9200.00	9200.00	9189.02	9181.67	20.54	20.42	81.69	37.87	259.40	262.79	222.23	6.48	
9300.00	9300.00	9288.78	9281.18	20.76	20.65	81.65	39.10	266.25	269.77	228.76	6.58	
9400.00	9400.00	9388.54	9380.70	20.99	20.89	81.60	40.32	273.11	276.74	235.30	6.68	
9500.00	9500.00	9488.29	9480.21	21.21	21.12	81.56	41.55	279.96	283.72	241.83	6.77	
9600.00	9600.00	9588.05	9579.72	21.44	21.36	81.52	42.78	286.81	290.69	248.36	6.87	
9700.00	9700.00	9687.80	9679.24	21.66	21.59	81.48	44.00	293.66	297.67	254.90	6.96	
9800.00	9800.00	9787.56	9778.75	21.89	21.83	81.44	45.23	300.52	304.64	261.43	7.05	
9900.00	9900.00	9887.32	9878.26	22.11	22.07	81.41	46.46	307.37	311.62	267.96	7.14	
10000.00	10000.00	9987.07	9977.78	22.34	22.30	81.37	47.68	314.22	318.59	274.49	7.22	
10100.00	10100.00	10086.83	10077.29	22.56	22.54	81.34	48.91	321.07	325.57	281.03	7.31	
10200.00	10200.00	10186.58	10176.80	22.79	22.78	81.31	50.14	327.92	332.55	287.56	7.39	
10300.00	10300.00	10286.34	10276.31	23.01	23.02	81.28	51.36	334.78	339.52	294.09	7.47	
10400.00	10400.00	10386.10	10375.83	23.24	23.26	81.25	52.59	341.63	346.50	300.62	7.55	
10495.40	10495.40	10481.26	10470.76	23.45	23.49	81.22	53.76	348.17	353.15	306.86	7.63	
10500.00	10500.00	10485.86	10475.34	23.46	23.50	355.01	53.81	348.48	353.45	307.14	7.63	
10525.00	10524.98	10510.84	10500.26	23.51	23.56	355.00	54.12	350.20	354.31	307.91	7.64	
10550.00	10549.88	10535.83	10525.19	23.56	23.62	354.96	54.43	351.91	353.85	307.41	7.62	
10575.00	10574.63	10560.76	10550.07	23.61	23.68	354.89	54.74	353.63	352.10	305.65	7.58	
10600.00	10599.17	10585.57	10574.81	23.66	23.74	354.78	55.04	355.33	349.05	302.63	7.52	
10625.00	10623.41	10610.18	10599.36	23.71	23.80	354.63	55.34	357.02	344.72	298.35	7.43	
10650.00	10647.31	10634.53	10623.65	23.77	23.86	354.44	55.64	358.69	339.10	292.83	7.33	
10675.00	10670.79	10658.55	10647.61	23.82	23.91	354.21	55.94	360.34	332.23	286.08	7.20	
10700.00	10693.80	10682.17	10671.18	23.88	23.97	353.92	56.23	361.97	324.12	278.12	7.05	
10725.00	10716.25	10705.33	10694.29	23.93	24.03	353.57	56.51	363.56	314.79	268.98	6.87	
10750.00	10738.10	10727.98	10716.87	24.00	24.08	353.15	56.79	365.11	304.27	258.67	6.67	
10775.00	10759.29	10750.03	10738.87	24.06	24.13	352.64	57.06	366.63	292.60	247.22	6.45	
10800.00	10779.76	10771.44	10760.23	24.13	24.19	352.02	57.33	368.10	279.80	234.67	6.20	
10825.00	10799.44	10791.54	10780.28	24.20	24.23	351.26	57.61	369.48	265.92	221.05	5.93	
10842.20	10812.50	10804.04	10792.74	24.26	24.25	350.60	58.08	370.34	255.83	211.15	5.73	
10842.21	10812.51	10804.04	10792.74	24.26	24.25	350.60	58.08	370.34	255.82	211.14	5.73	
10850.00	10818.33	10809.63	10798.31	24.28	24.26	348.62	58.39	370.72	251.18	206.43	5.61	
10875.00	10837.04	10827.46	10816.04	24.35	24.27	341.95	59.83	371.94	236.59	191.58	5.26	
10900.00	10855.73	10844.99	10833.41	24.42	24.27	334.87	61.90	373.14	222.62	177.28	4.91	
10925.00	10874.35	10861.99	10850.17	24.50	24.25	327.49	64.51	374.29	209.52	163.78	4.58	
10950.00	10892.84	10878.28	10866.13	24.57	24.22	319.98	67.57	375.39	197.63	151.45	4.28	
10975.00	10911.16	10893.70	10881.13	24.64	24.18	312.52	70.96	376.42	187.39	140.73	4.02	
11000.00	10929.25	10908.11	10895.04	24.71	24.15	305.33	74.58	377.38	179.30	132.20	3.81	
11025.00	10947.07	10921.42	10907.80	24.78	24.12	298.58	78.29	378.26	173.92	126.41	3.66	
11050.00	10964.57	10933.59	10919.36	24.85	24.10	292.41	81.99	379.06	171.76	123.91	3.59	
11075.00	10981.69	10944.56	10929.71	24.92	24.09	286.91	85.58	379.77	173.16	125.05	3.60	
11100.00	10998.40	10954.35	10938.86	24.99	24.08	282.12	88.98	380.40	178.25	129.93	3.69	
11125.00	11014.65	10962.96	10946.86	25.06	24.08	278.06	92.13	380.95	186.90	138.44	3.86	
11150.00	11030.39	10970.43	10953.75	25.13	24.09	274.74	94.98	381.42	198.79	150.21	4.09	
11175.00	11045.57	10976.81	10959.60	25.20	24.09	272.17	97.50	381.83	213.46	164.80	4.39	
11200.00	11060.17	10982.15	10964.46	25.26	24.10	270.35	99.67	382.16	230.47	181.74	4.73	
11225.00	11074.13	10986.51	10968.41	25.33	24.11	269.35	101.48	382.43	249.36	200.56	5.11	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy Date: 11/5/2013 Time: 12:17:15 Page: 4
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 54,60H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North
Reference Well: Thistle Unit 54H Vertical (TVD) Reference: SITE 3726.0
Reference Wellpath: Db: Sybase

Site: Thistle Unit 54,60H Pad
Well: Thistle Unit 60H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr Edge		Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
11250.00	11087.42	10989.94	10971.52	25.40	24.11	269.25	102.93	382.65	269.76	220.90	5.52	
11275.00	11100.00	10992.52	10973.84	25.47	24.11	270.20	104.03	382.81	291.34	242.43	5.96	
11300.00	11111.84	10994.30	10975.44	25.54	24.12	272.43	104.80	382.92	313.83	264.89	6.41	
11325.00	11122.91	10995.34	10976.38	25.61	24.12	276.28	105.25	382.98	337.02	288.11	6.89	
11350.00	11133.17	10995.70	10976.70	25.68	24.12	282.24	105.41	383.01	360.73	311.99	7.40	
11375.00	11142.60	10995.44	10976.47	25.75	24.12	290.85	105.30	382.99	384.80	336.58	7.98	
11400.00	11151.18	10994.60	10975.72	25.82	24.12	302.40	104.93	382.94	409.10	361.96	8.68	
11425.00	11158.86	10993.24	10974.49	25.89	24.12	316.29	104.34	382.85	433.54	388.09	9.54	
11450.00	11165.65	10991.39	10972.83	25.95	24.11	330.68	103.55	382.74	458.01	414.43	10.51	
11475.00	11171.52	10989.11	10970.77	26.02	24.11	343.48	102.57	382.60	482.45	440.21	11.42	
11500.00	11176.44	10986.42	10968.34	26.08	24.11	353.72	101.44	382.43	506.77	465.15	12.17	
11525.00	11180.42	10983.37	10965.57	26.14	24.10	1.48	100.17	382.24	530.93	489.39	12.78	
11550.00	11183.43	10979.98	10962.49	26.19	24.10	7.32	98.78	382.03	554.86	513.16	13.31	
11575.00	11185.47	10975.00	10957.94	26.24	24.09	11.71	96.78	381.71	578.52	536.55	13.79	
11600.00	11186.54	10972.32	10955.48	26.29	24.09	15.20	95.72	381.54	601.86	559.61	14.25	
11606.92	11186.65	10971.17	10954.43	26.30	24.09	16.02	95.27	381.47	608.25	565.93	14.37	
11700.00	11187.79	10956.80	10941.14	26.90	24.08	15.38	89.87	380.56	694.70	652.13	16.32	
11800.00	11189.01	10943.57	10928.78	27.61	24.09	14.84	85.25	379.71	788.64	745.80	18.41	
11900.00	11190.23	10932.18	10918.03	28.43	24.10	14.41	81.55	378.97	883.46	840.31	20.47	
12000.00	11191.45	10925.00	10911.21	29.34	24.11	14.15	79.35	378.50	979.00	935.53	22.52	
12100.00	11192.67	10913.61	10900.33	30.33	24.14	13.77	76.07	377.75	1075.09	1031.26	24.53	
12200.00	11193.90	10900.00	10887.23	31.40	24.17	13.34	72.49	376.84	1171.70	1127.50	26.50	
12300.00	11195.12	10900.00	10887.23	32.53	24.17	13.34	72.49	376.84	1268.61	1224.01	28.45	
12400.00	11196.34	10893.06	10880.50	33.73	24.18	13.14	70.81	376.38	1365.89	1320.88	30.35	
12500.00	11197.56	10887.58	10875.19	34.98	24.20	12.98	69.56	376.01	1463.45	1418.01	32.20	
12600.00	11198.78	10882.63	10870.36	36.27	24.21	12.85	68.47	375.68	1561.25	1515.35	34.01	
12700.00	11200.00	10875.00	10862.92	37.62	24.23	12.64	66.91	375.17	1659.27	1612.89	35.78	
12800.00	11201.23	10875.00	10862.92	39.00	24.23	12.64	66.91	375.17	1757.44	1710.57	37.49	
12900.00	11202.45	10875.00	10862.92	40.42	24.23	12.64	66.91	375.17	1855.81	1808.42	39.16	
13000.00	11203.67	10866.82	10854.90	41.87	24.24	12.44	65.36	374.62	1954.25	1906.36	40.80	
13100.00	11204.89	10863.63	10851.78	43.34	24.24	12.36	64.79	374.40	2052.85	2004.41	42.38	
13200.00	11206.11	10860.69	10848.88	44.85	24.25	12.29	64.28	374.20	2151.55	2102.56	43.92	
13300.00	11207.33	10850.00	10838.35	46.37	24.26	12.04	62.60	373.48	2250.43	2200.89	45.43	
13400.00	11208.56	10850.00	10838.35	47.92	24.26	12.04	62.60	373.48	2349.26	2299.15	46.88	
13500.00	11209.78	10850.00	10838.35	49.49	24.26	12.04	62.60	373.48	2448.20	2397.49	48.28	
13600.00	11211.00	10850.00	10838.35	51.07	24.26	12.04	62.60	373.48	2547.21	2495.90	49.64	
13700.00	11212.22	10850.00	10838.35	52.67	24.26	12.04	62.60	373.48	2646.30	2594.37	50.96	
13800.00	11213.44	10850.00	10838.35	54.29	24.26	12.04	62.60	373.48	2745.46	2692.90	52.24	
13900.00	11214.66	10850.00	10838.35	55.91	24.26	12.04	62.60	373.48	2844.67	2791.48	53.48	
14000.00	11215.89	10850.00	10838.35	57.55	24.26	12.04	62.60	373.48	2943.94	2890.10	54.68	
14100.00	11217.11	10850.00	10838.35	59.20	24.26	12.04	62.60	373.48	3043.25	2988.76	55.85	
14200.00	11218.33	10840.11	10828.57	60.86	24.27	11.82	61.26	372.81	3142.50	3087.41	57.05	
14300.00	11219.55	10838.65	10827.13	62.53	24.27	11.79	61.08	372.71	3241.86	3186.11	58.16	
14400.00	11220.77	10837.27	10825.77	64.21	24.27	11.76	60.91	372.61	3341.25	3284.85	59.24	
14500.00	11221.99	10835.96	10824.47	65.90	24.27	11.73	60.75	372.52	3440.68	3383.61	60.29	
14600.00	11223.22	10825.00	10813.60	67.59	24.27	11.50	59.59	371.77	3540.25	3482.56	61.37	
14700.00	11224.44	10825.00	10813.60	69.29	24.27	11.50	59.59	371.77	3639.70	3581.33	62.35	
14800.00	11225.66	10825.00	10813.60	71.00	24.27	11.50	59.59	371.77	3739.19	3680.12	63.31	
14900.00	11226.88	10825.00	10813.60	72.71	24.27	11.50	59.59	371.77	3838.70	3778.94	64.24	
15000.00	11228.10	10825.00	10813.60	74.43	24.27	11.50	59.59	371.77	3938.23	3877.78	65.14	
15100.00	11229.33	10825.00	10813.60	76.16	24.27	11.50	59.59	371.77	4037.79	3976.63	66.02	



Weatherford

Anticollision Report

**Weatherford**

Company: Devon Energy Date: 11/5/2013 Time: 12:17:15 Page: 5
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 54,60H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 54H, Grid North
Reference Well: Thistle Unit 54H Vertical (TVD) Reference: SITE 3726.0
Reference Wellpath: Db: Sybase

Site: Thistle Unit 54,60H Pad
Well: Thistle Unit 60H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr Edge		Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
15200.00	11230.55	10825.00	10813.60	77.88	24.27	11.50	59.59	371.77	4137.37	4075.50	66.87	
15300.00	11231.77	10825.00	10813.60	79.62	24.27	11.50	59.59	371.77	4236.97	4174.39	67.70	
15400.00	11232.99	10825.00	10813.60	81.35	24.27	11.50	59.59	371.77	4336.59	4273.29	68.51	
15500.00	11234.21	10825.00	10813.60	83.09	24.27	11.50	59.59	371.77	4436.23	4372.21	69.30	
15600.00	11235.43	10825.00	10813.60	84.84	24.27	11.50	59.59	371.77	4535.88	4471.14	70.07	
15700.00	11236.66	10825.00	10813.60	86.58	24.27	11.50	59.59	371.77	4635.54	4570.08	70.81	
15800.00	11237.88	10825.00	10813.60	88.34	24.27	11.50	59.59	371.77	4735.22	4669.03	71.54	
15891.92	11239.00	10825.00	10813.60	89.95	24.27	11.50	59.59	371.77	4826.86	4760.00	72.19	

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

GeoDec v5.03

Report Date: November 01, 2013

Job Number: _____

Customer: Devon Energy

Well Name: Thistle Unit 54H

API Number: _____

Rig Name: _____

Location: Lea County, NM

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 467304.910 USFT

Latitude 32.2824021 DEG

East/West 776520.870 USFT

Longitude -103.5723160 DEG

Grid Convergence: .41°

Total Correction: +6.94°

Geodetic Location WGS84

Elevation = 0.0 Meters

Latitude = 32.28240° N 32° 16 min 56.648 sec

Longitude = 103.57232° W 103° 34 min 20.338 sec

Magnetic Declination = 7.35° [True North Offset]

Local Gravity = .9988 g CheckSum = 6635

Local Field Strength = 48368 nT Magnetic Vector X = 23873 nT

Magnetic Dip = 60.15° Magnetic Vector Y = 3080 nT

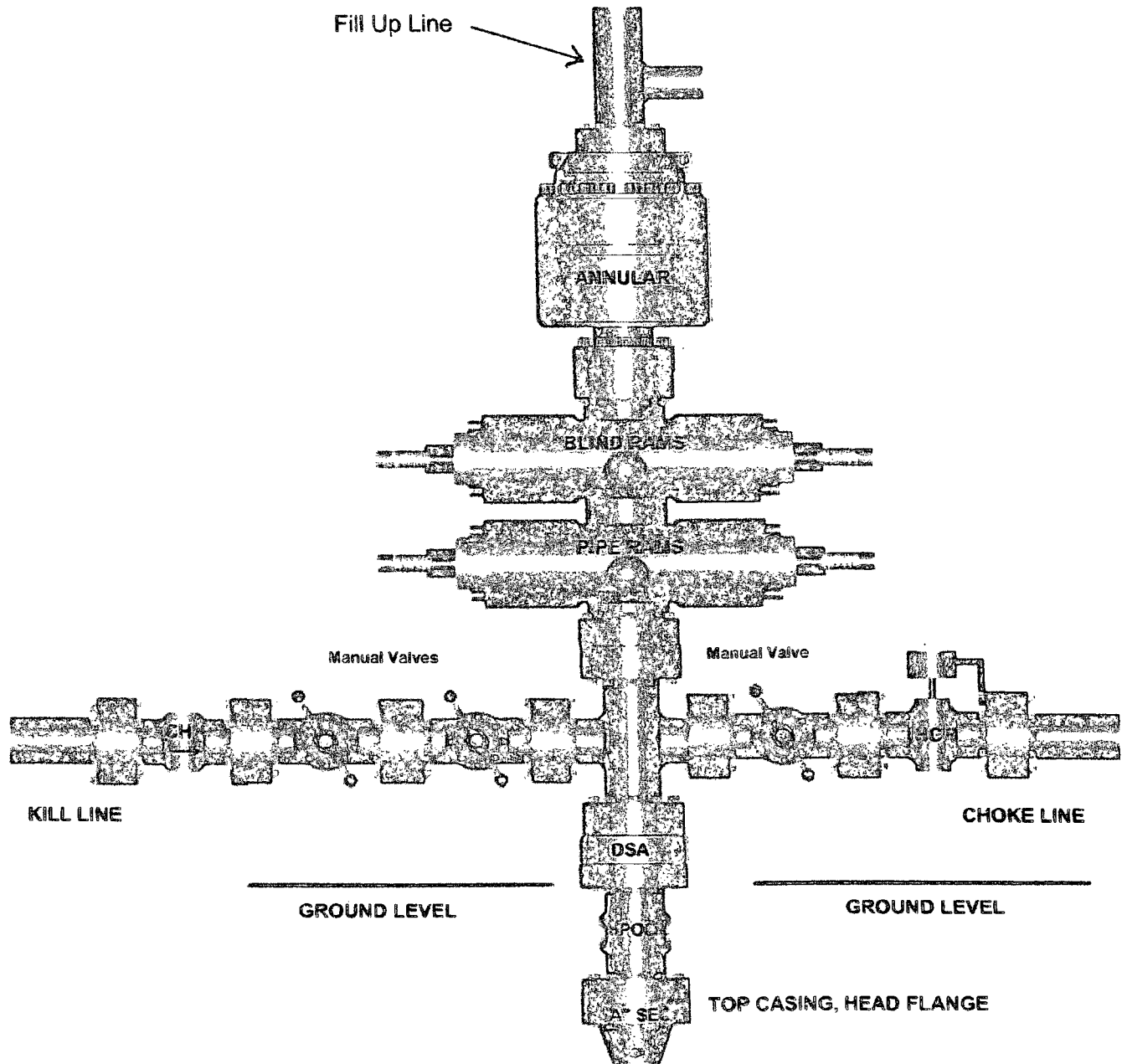
Magnetic Model = bggm2013 Magnetic Vector Z = 41953 nT

Spud Date = Apr 30, 2014 Magnetic Vector H = 24071 nT

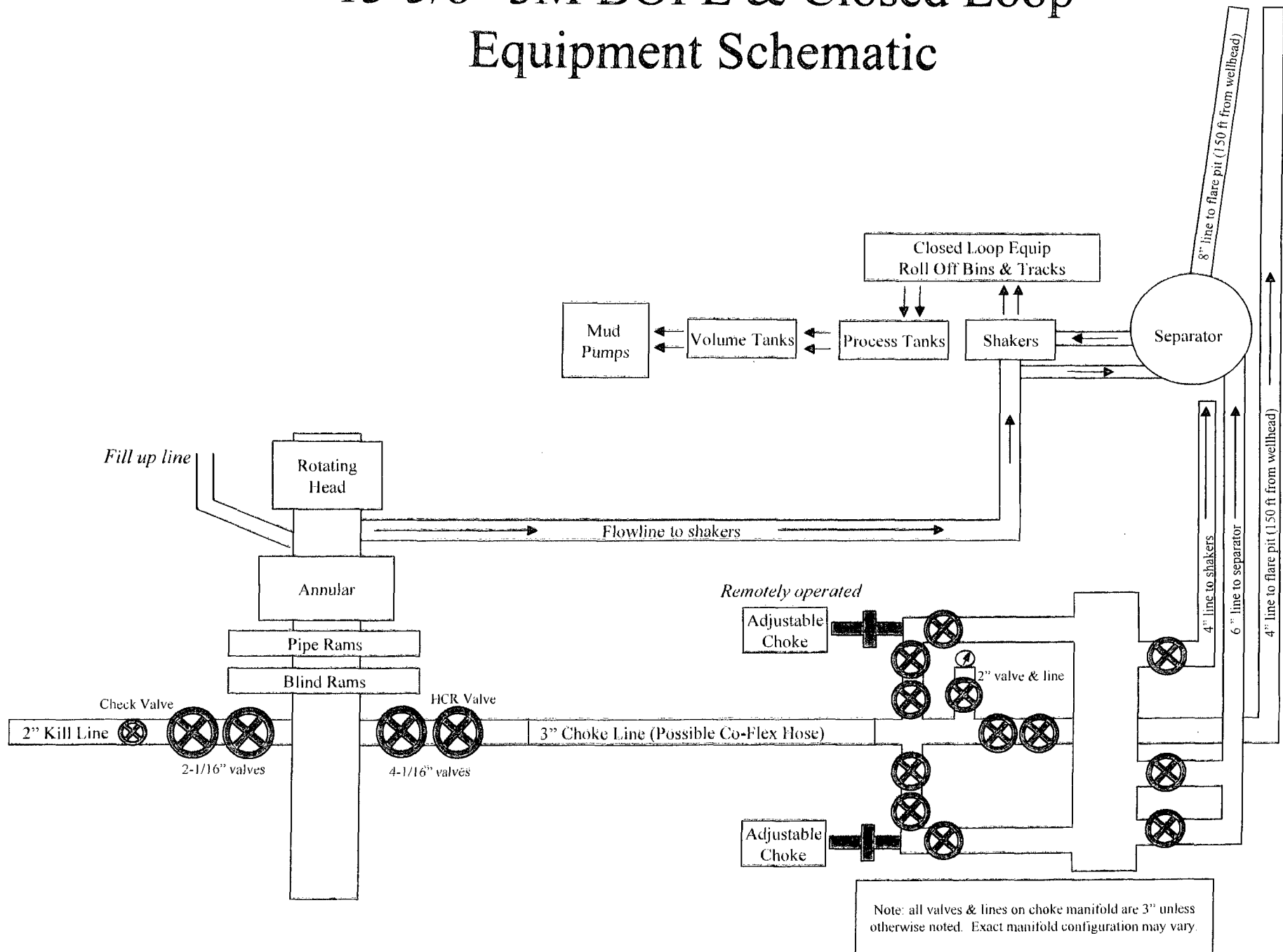
Signed: _____

Date: _____

13-5/8" x 3,000 psi BOP Stack



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



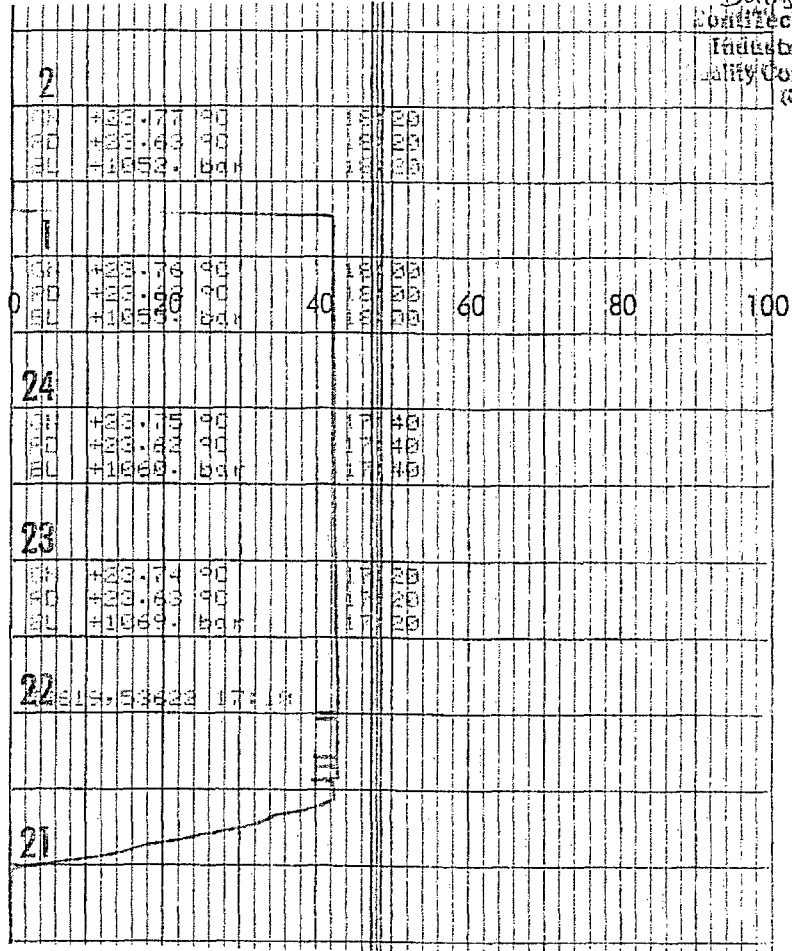
NOTES REGARDING BLOWOUT PREVENTERS

Devon Energy Production Company, L.P.
Thistle Unit 54H

1. Drilling Nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
2. Wear ring will be properly installed in head.
3. Blowout preventer and all associated filings will be in operable condition to withstand a minimum of 3000psi working pressure.
4. All fittings will be flanged.
5. A fill bore safety valve tested to a minimum of 3000psi WP with proper thread connections will be available on the rotary rig floor at all times.
6. All choke lines will be anchored to prevent movement.
7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
8. Will maintain a kelly cock attached to the kelly.
9. Hand wheels and wrenches will be properly installed and tested for safe operation.
10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.
11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 1713	
PURCHASER: ContiTech Beattie Co.				P.O. N°: 002808	
CONTITECH ORDER N°: 426127		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 53622		NOMINAL / ACTUAL LENGTH: 10,67 m			
W.P. 68,96 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature See attachment. (1 page) ↑ 10 mm = 10 Min. → 10 mm = 25 MPa					
COUPLINGS Type		Serial N°		Quality	
3" coupling with 4 1/16" Flange end		5503 2029		AISI 4130 AISI 4130	
				Heat N° N1590P 27566	
INFOCHIP INSTALLED				API Spec 16 C Temperature rate: "B"	
All metal parts are flawless				Hose conform to NACE MR 01-75	
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.					
COUNTRY OF ORIGIN HUNGARY/EU					
Date: 25. August. 2008		Inspector		Quality Control ContiTech Rubber Industrial Kft. Quality Control Dept.  	

HARTMANN &



Back
 Konitech Rubber
 Industrial Kft.
 Quality Control Dept.
 (2)



Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly it is good practice to use lifting & safety equipment but not mandatory

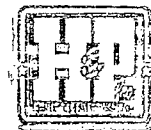
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

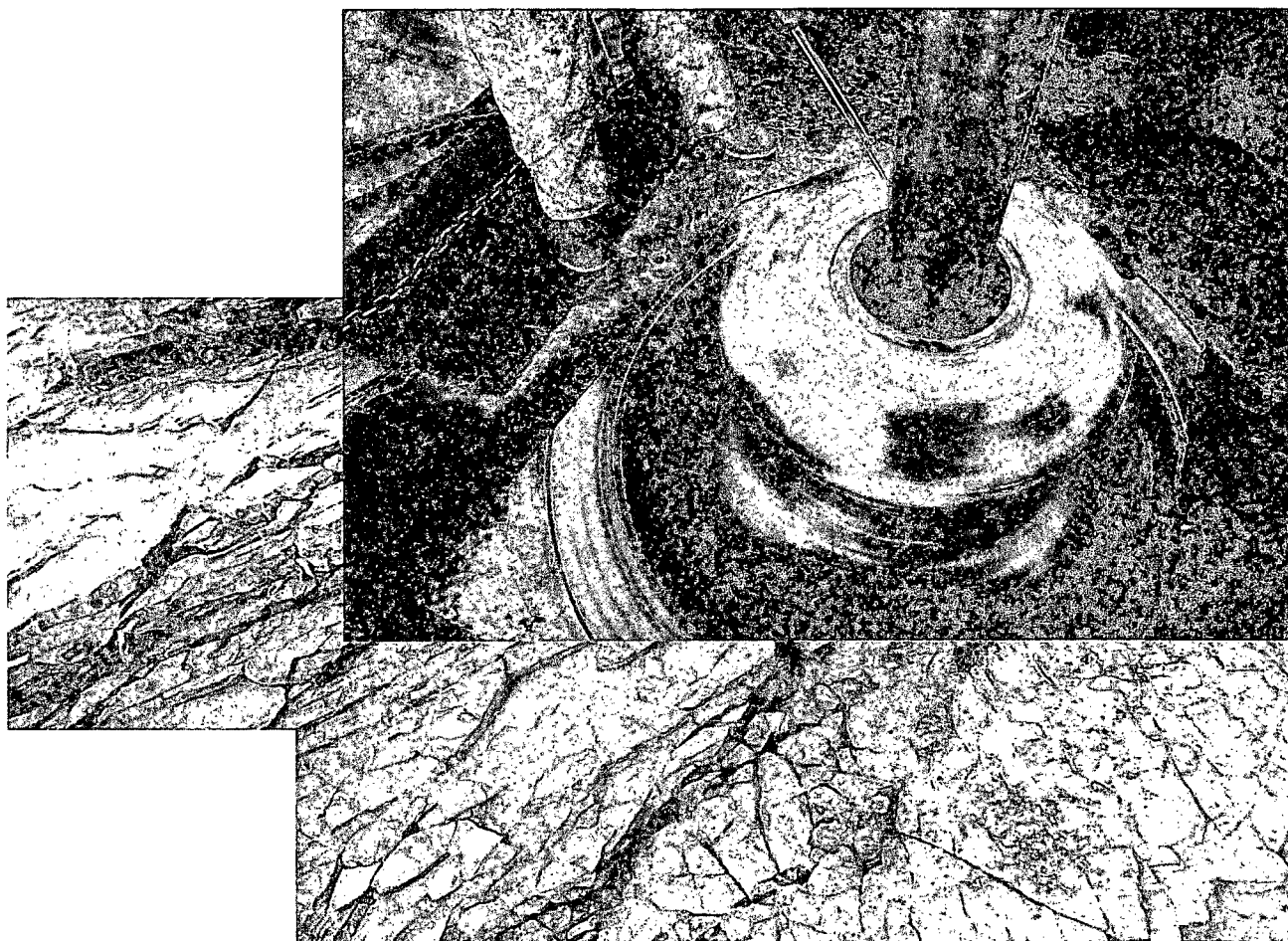
Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittnmore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com





Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
November 2013

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

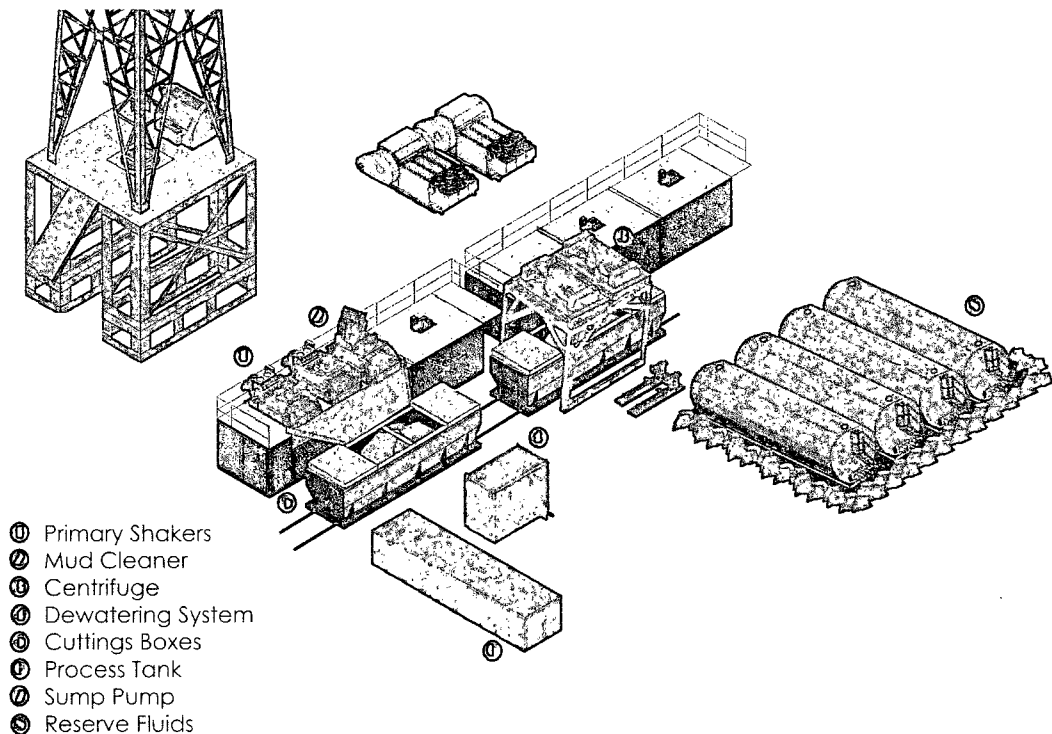
II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Closed Loop Schematic



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

H&P Flex Rig Location Layout 2 Well Pad

