

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-6170
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-0730
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

HOBBS OCD

OCT 25 2013

RECEIVED

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-41468	² Pool Code 59900	³ Pool Name TRIPLE X; BONE SPRING
⁴ Property Code 30884	⁵ Property Name THISTLE UNIT	⁶ Well Number 64H
⁷ OGRID No. 6137	⁸ Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	⁹ Elevation 3692.7

¹⁰ Surface Location

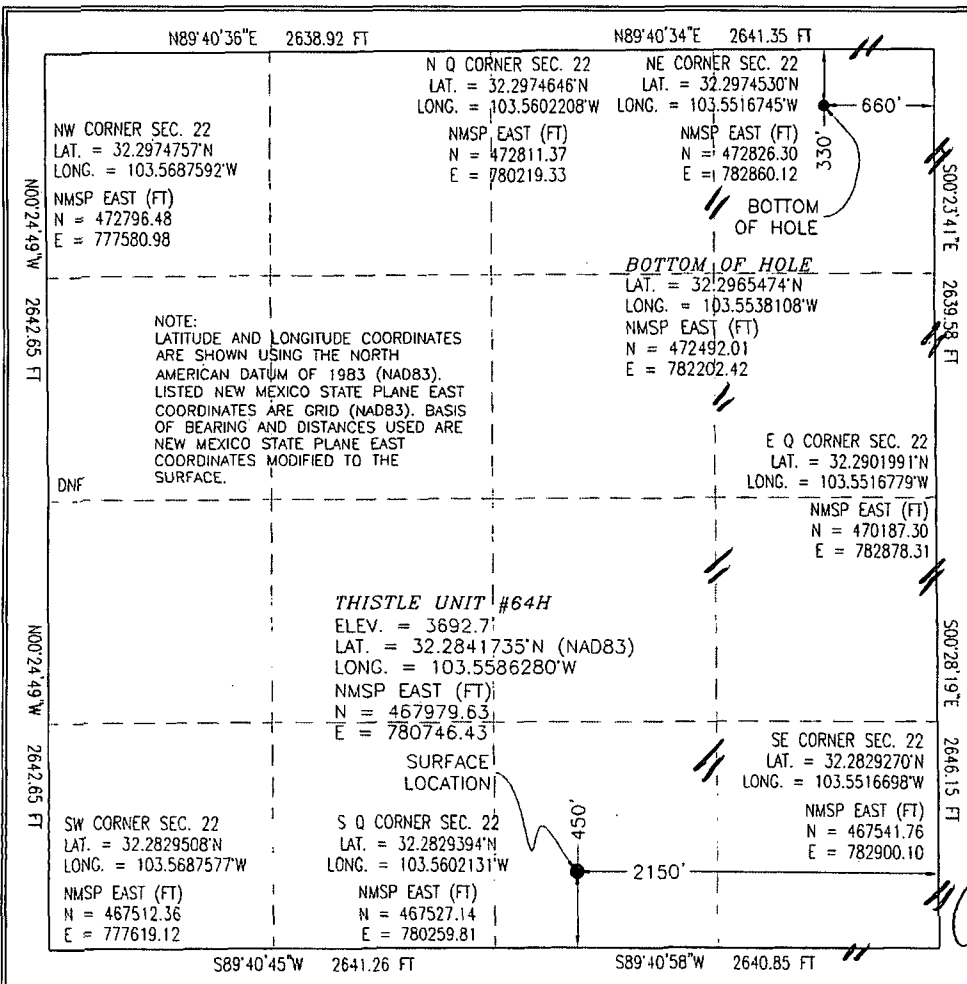
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	22	23 S	33 E		450	SOUTH	2150	EAST	LEA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	22	23 S	33 E		330	NORTH	660	EAST	LEA

¹² Dedicated Acres 160	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

10/24/2013
Signature Date

David H. Cook Regulatory Specialist

Printed Name

david.cook@dvn.com

E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

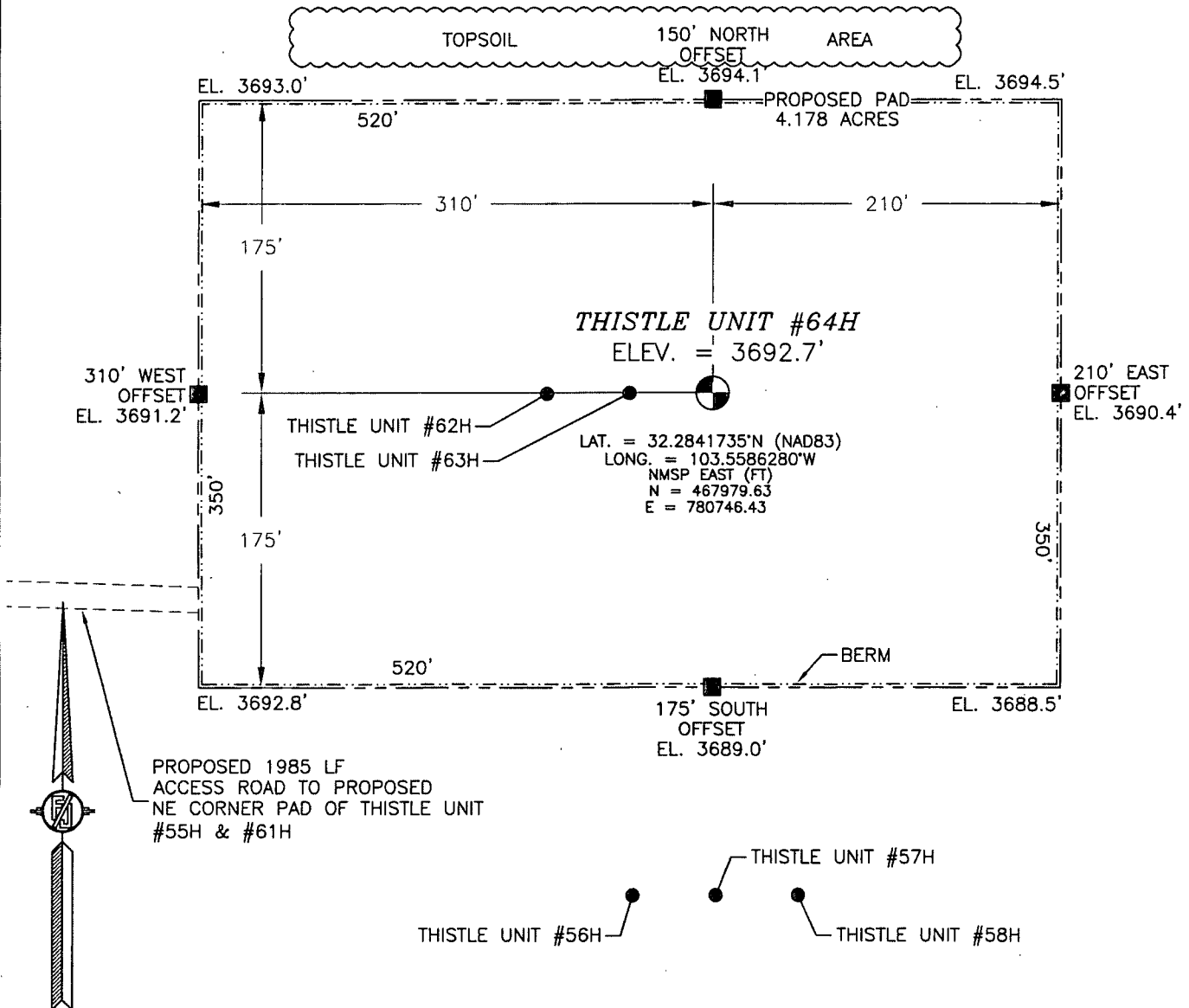
OCTOBER 2013
Date of Survey

FILMON F. JARAMILLO
Signature and Seal of Professional Surveyor
Certificate Number **12797**
SURVEY NO. 2115A

OCT 30 2013

SECTION 22, TOWNSHIP 23 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM STATE HIGHWAY 128 AND CR 21 (DELAWARE BASIN) GO NORTH ON CR 21 3.95 MILES, TURN LEFT ON PAVED ROAD (XL ROAD) AND GO WEST 3.4 MILES, TURN RIGHT AND GO NORTH 0.9 MILES, BEND LEFT AND GO NORTHWEST 0.15 MILES, TURN RIGHT AND GO NORTHEAST 0.11 MILES, BEND RIGHT AND GO EAST 375' TO A PROPOSED ROAD SURVEY AND FOLLOW FLAGS EAST 92', THEN NORTHEAST 187', THEN EAST 350', THEN EAST-SOUTHEAST 1985' TO THE SOUTHWEST EDGE OF PROPOSED PAD FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.

THISTLE UNIT #64H

LOCATED 450 FT. FROM THE SOUTH LINE
AND 2150 FT. FROM THE EAST LINE OF
SECTION 22, TOWNSHIP 23 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

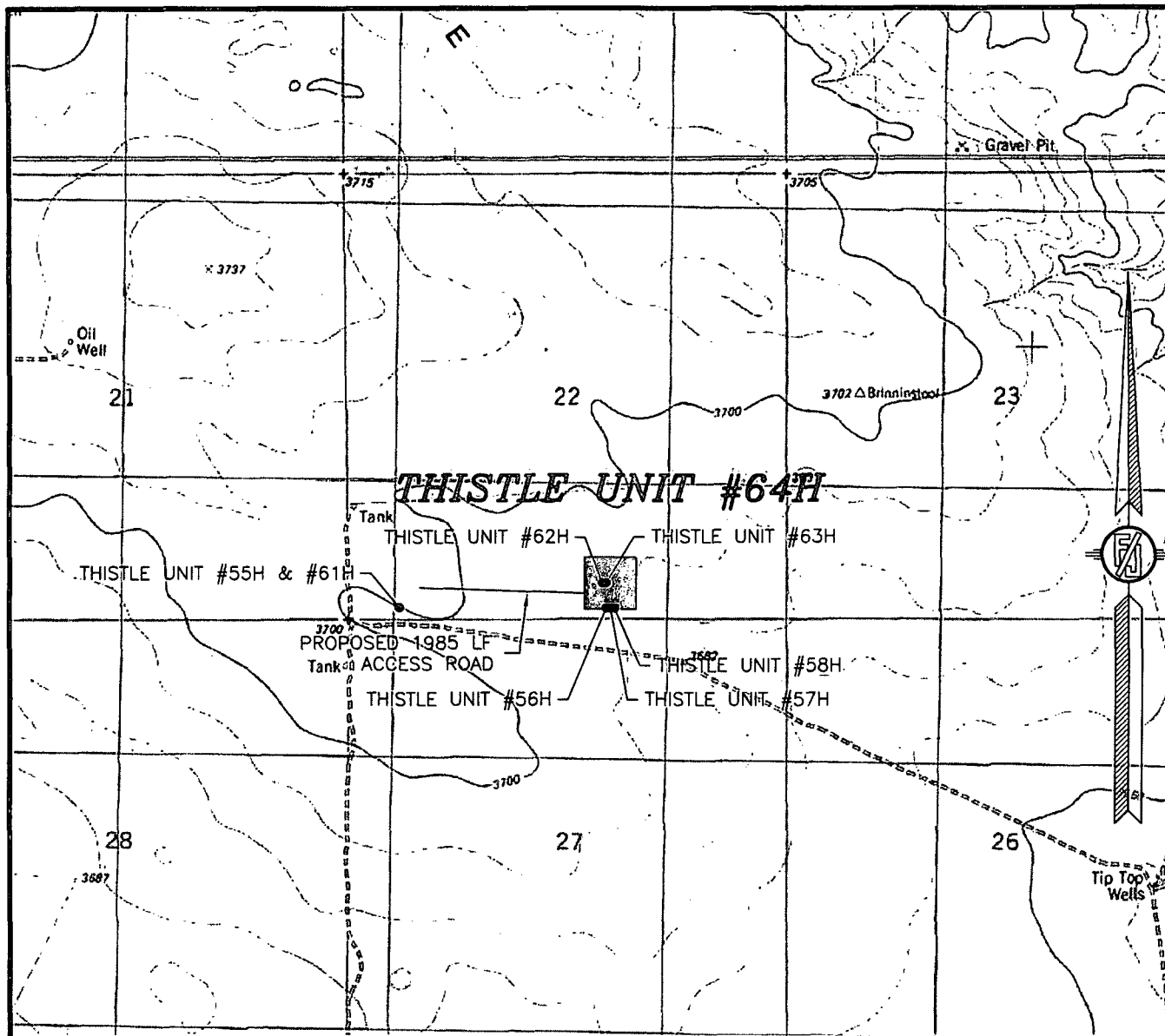
OCTOBER 10, 2013

SURVEY NO. 2115A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 22, TOWNSHIP 23 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
TIP TOP WELLS

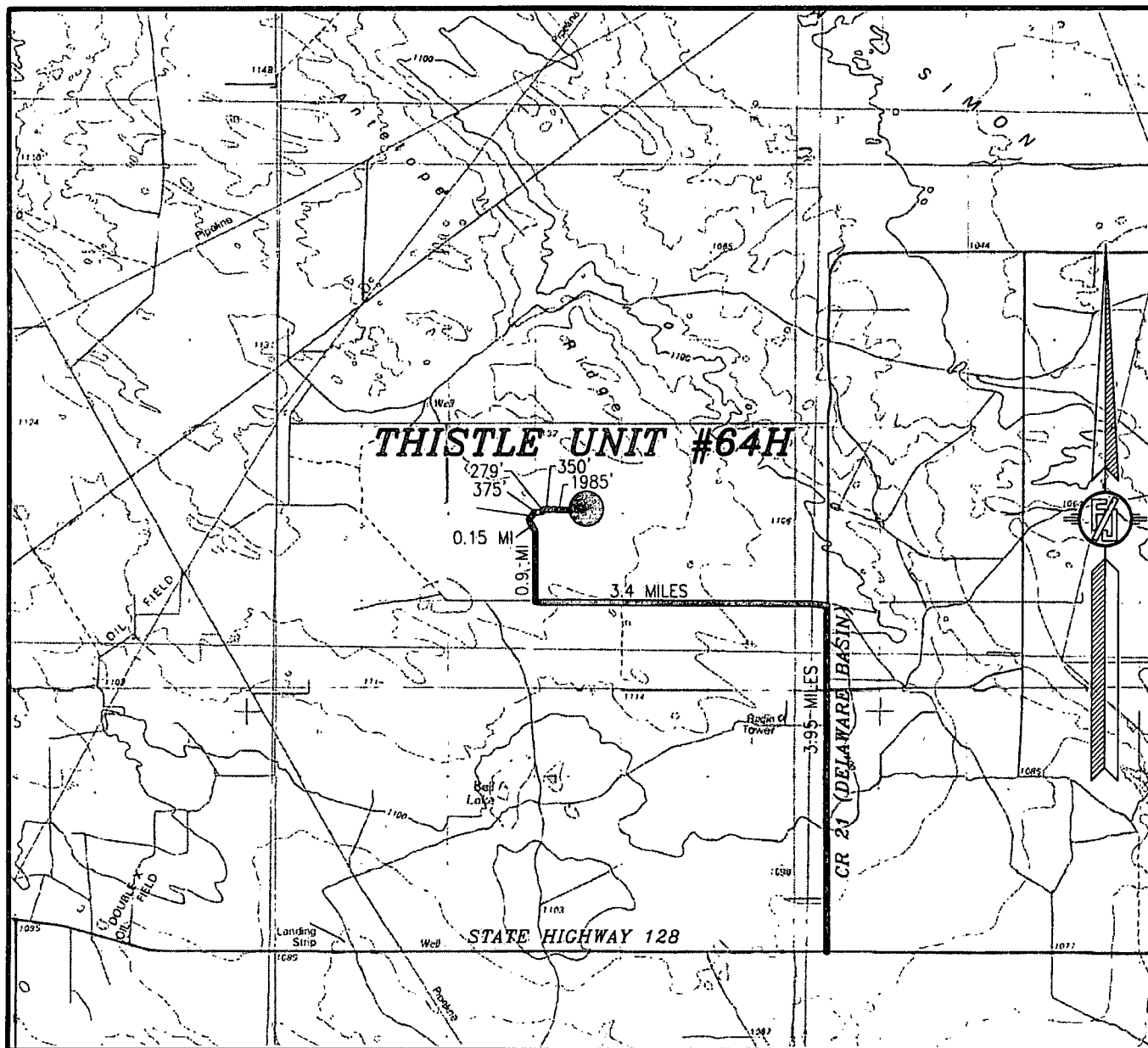
NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
THISTLE UNIT #64H
LOCATED 450 FT. FROM THE SOUTH LINE
AND 2150 FT. FROM THE EAST LINE OF
SECTION 22, TOWNSHIP 23 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

OCTOBER 10, 2013

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO SURVEY NO. 2115A

SECTION 22, TOWNSHIP 23 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

THISTLE UNIT #64H

LOCATED 450 FT. FROM THE SOUTH LINE
AND 2150 FT. FROM THE EAST LINE OF
SECTION 22, TOWNSHIP 23 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

OCTOBER 10, 2013

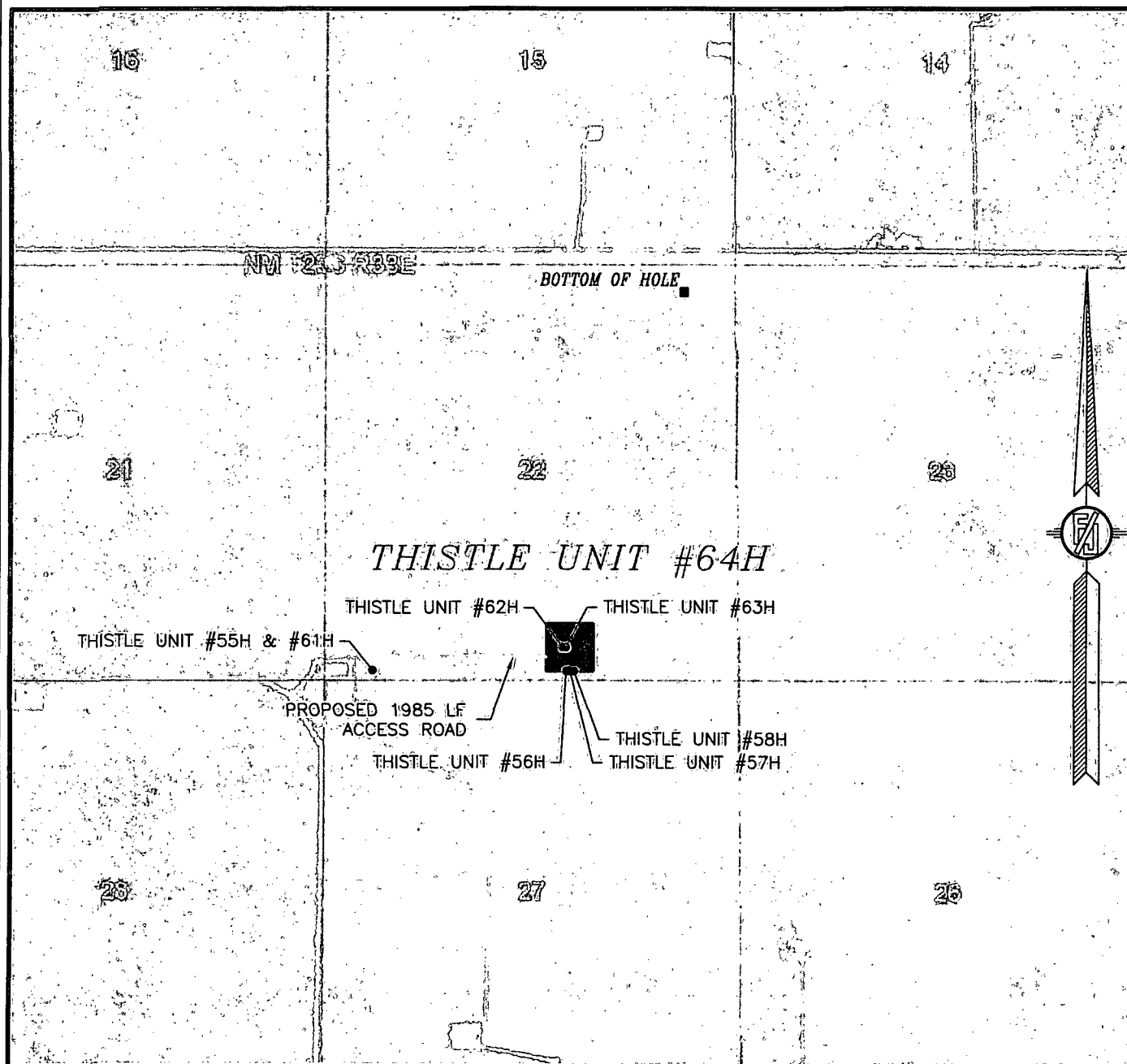
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FROM STATE HIGHWAY 128 AND CR 21 (DELAWARE BASIN) GO NORTH ON CR 21 3.95 MILES, TURN LEFT ON PAVED ROAD (XL ROAD) AND GO WEST 3.4 MILES, TURN RIGHT AND GO NORTH 0.9 MILES, BEND LEFT AND GO NORTHWEST 0.15 MILES, TURN RIGHT AND GO NORTHEAST 0.11 MILES, BEND RIGHT AND GO EAST 375' TO A PROPOSED ROAD SURVEY AND FOLLOW FLAGS EAST 92', THEN NORTHEAST 187', THEN EAST 350', THEN EAST-SOUTHEAST 1985' TO THE SOUTHWEST EDGE OF PROPOSED PAD FOR THIS LOCATION.

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341

SURVEY NO. 2115A
CARLSBAD, NEW MEXICO

SECTION 22, TOWNSHIP 23 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
MARCH 2012

DEVON ENERGY PRODUCTION COMPANY, L.P.

THISTLE UNIT #64H

LOCATED 450 FT. FROM THE SOUTH LINE
AND 2150 FT. FROM THE EAST LINE OF
SECTION 22, TOWNSHIP 23 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

OCTOBER 10, 2013

SURVEY NO. 2115A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO



Weatherford®

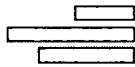
HOBBS OCD

OCT 25 2013

RECEIVED

Drilling Services

Proposal



devon

THISTLE UNIT 64H

LEA COUNTY, NM

WELL FILE: **PLAN 1**

OCTOBER 17, 2013

Weatherford International, Ltd.

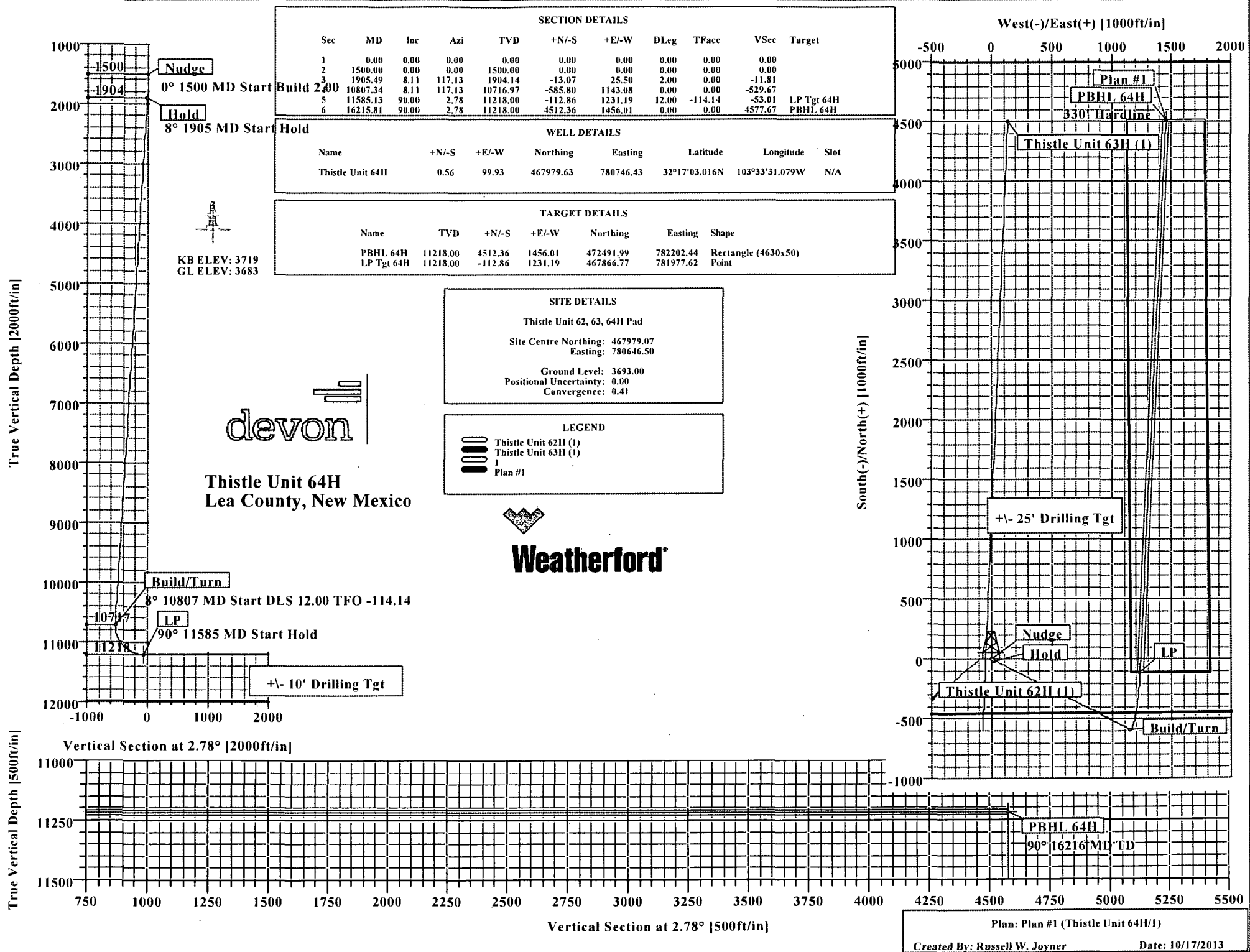
P.O. Box 61028

Midland, TX 79711 USA

+1.432.561.8892 Main

+1.432.561.8895 Fax

www.weatherford.com





Weatherford

Wft Plan Report X Y's.

**Weatherford**

Company: Devon Energy Date: 10/17/2013 Time: 15:09:36 Page: 1
Field: Lea County, New Mexico (NAD 83) Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Site: Thistle Unit 62, 63, 64H Pad Vertical (TVD) Reference: SITE 3718.0
Well: Thistle Unit 64H Section (VS) Reference: Well (0.00N,0.00E,2.78Azi)
Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan #1 Date Composed: 10/7/2013
Principal: Yes Version: 1
Tied-to: From Surface

Site: Thistle Unit 62, 63, 64H Pad

Site Position: Northing: 467979.07 ft Latitude: 32 17 3.017 N
From: Map Easting: 780646.50 ft Longitude: 103 33 32.243 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3693.00 ft Grid Convergence: 0.41 deg

Well: Thistle Unit 64H Slot Name:
Well Position: +N/-S 0.56 ft Northing: 467979.63 ft Latitude: 32 17 3.016 N
+E/-W 99.93 ft Easting: 780746.43 ft Longitude: 103 33 31.079 W
Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface
Current Datum: SITE Height 3718.00 ft Tie-on Depth: 0.00 ft
Magnetic Data: 12/10/2013 Above System Datum: Mean Sea Level
Field Strength: 48430 nT Declination: 7.28 deg
Vertical Section: Depth From (TVD) +N/-S Mag Dip Angle: 60.18 deg
ft ft ft deg
0.00 0.00 0.00 2.78

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	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1905.49	8.11	117.13	1904.14	-13.07	25.50	2.00	2.00	0.00	0.00	
10807.34	8.11	117.13	10716.97	-585.80	1143.08	0.00	0.00	0.00	0.00	
11585.13	90.00	2.78	11218.00	-112.86	1231.19	12.00	10.53	-14.70	-114.14	LP Tgt 64H
16215.81	90.00	2.78	11218.00	4512.36	1456.01	0.00	0.00	0.00	0.00	PBHL 64H

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
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	467979.63	780746.43	Nudge
1600.00	2.00	117.13	1599.98	-0.80	1.55	-0.72	2.00	467978.83	780747.98	
1700.00	4.00	117.13	1699.84	-3.18	6.21	-2.88	2.00	467976.45	780752.64	
1800.00	6.00	117.13	1799.45	-7.16	13.97	-6.47	2.00	467972.47	780760.40	
1900.00	8.00	117.13	1898.70	-12.72	24.81	-11.50	2.00	467966.91	780771.24	
1905.49	8.11	117.13	1904.14	-13.07	25.50	-11.81	2.00	467966.56	780771.93	Hold
2000.00	8.11	117.13	1997.70	-19.15	37.36	-17.31	0.00	467960.48	780783.79	
2100.00	8.11	117.13	2096.70	-25.58	49.92	-23.13	0.00	467954.05	780796.35	
2200.00	8.11	117.13	2195.70	-32.01	62.47	-28.95	0.00	467947.62	780808.90	
2300.00	8.11	117.13	2294.70	-38.45	75.03	-34.76	0.00	467941.18	780821.46	
2400.00	8.11	117.13	2393.70	-44.88	87.58	-40.58	0.00	467934.75	780834.01	
2500.00	8.11	117.13	2492.70	-51.32	100.13	-46.40	0.00	467928.31	780846.56	
2600.00	8.11	117.13	2591.70	-57.75	112.69	-52.22	0.00	467921.88	780859.12	
2700.00	8.11	117.13	2690.70	-64.18	125.24	-58.03	0.00	467915.45	780871.67	
2800.00	8.11	117.13	2789.70	-70.62	137.80	-63.85	0.00	467909.01	780884.23	
2900.00	8.11	117.13	2888.70	-77.05	150.35	-69.67	0.00	467902.58	780896.78	
3000.00	8.11	117.13	2987.70	-83.49	162.91	-75.49	0.00	467896.14	780909.34	
3100.00	8.11	117.13	3086.70	-89.92	175.46	-81.30	0.00	467889.71	780921.89	
3200.00	8.11	117.13	3185.70	-96.35	188.02	-87.12	0.00	467883.28	780934.45	
3300.00	8.11	117.13	3284.70	-102.79	200.57	-92.94	0.00	467876.84	780947.00	
3400.00	8.11	117.13	3383.70	-109.22	213.12	-98.76	0.00	467870.41	780959.55	



Weatherford

Wft Plan Report X Y's.

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 64H
Wellpath: 1

Date: 10/17/2013 Time: 15:09:36 Page: 2
Co-ordinate(N/E) Reference: Well: Thistle Unit 64H, Grid North
Vertical (TVD) Reference: SITE 3718.0
Section (VS) Reference: Well (0.00N,0.00E,2.78Azi)
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
3500.00	8.11	117.13	3482.70	-115.65	225.68	-104.57	0.00	467863.98	780972.11	
3600.00	8.11	117.13	3581.70	-122.09	238.23	-110.39	0.00	467857.54	780984.66	
3700.00	8.11	117.13	3680.70	-128.52	250.79	-116.21	0.00	467851.11	780997.22	
3800.00	8.11	117.13	3779.70	-134.96	263.34	-122.02	0.00	467844.67	781009.77	
3900.00	8.11	117.13	3878.70	-141.39	275.90	-127.84	0.00	467838.24	781022.33	
4000.00	8.11	117.13	3977.70	-147.82	288.45	-133.66	0.00	467831.81	781034.88	
4100.00	8.11	117.13	4076.70	-154.26	301.01	-139.48	0.00	467825.37	781047.44	
4200.00	8.11	117.13	4175.70	-160.69	313.56	-145.29	0.00	467818.94	781059.99	
4300.00	8.11	117.13	4274.70	-167.12	326.12	-151.11	0.00	467812.51	781072.55	
4400.00	8.11	117.13	4373.70	-173.56	338.67	-156.93	0.00	467806.07	781085.10	
4500.00	8.11	117.13	4472.70	-179.99	351.22	-162.75	0.00	467799.64	781097.65	
4600.00	8.11	117.13	4571.70	-186.43	363.78	-168.56	0.00	467793.20	781110.21	
4700.00	8.11	117.13	4670.70	-192.86	376.33	-174.38	0.00	467786.77	781122.76	
4800.00	8.11	117.13	4769.70	-199.29	388.89	-180.20	0.00	467780.34	781135.32	
4900.00	8.11	117.13	4868.70	-205.73	401.44	-186.02	0.00	467773.90	781147.87	
5000.00	8.11	117.13	4967.70	-212.16	414.00	-191.83	0.00	467767.47	781160.43	
5100.00	8.11	117.13	5066.70	-218.60	426.55	-197.65	0.00	467761.03	781172.98	
5200.00	8.11	117.13	5165.70	-225.03	439.11	-203.47	0.00	467754.60	781185.54	
5285.15	8.11	117.13	5250.00	-230.51	449.80	-208.42	0.00	467749.12	781196.23	9 5/8"
5300.00	8.11	117.13	5264.70	-231.46	451.66	-209.28	0.00	467748.17	781198.09	
5400.00	8.11	117.13	5363.70	-237.90	464.22	-215.10	0.00	467741.73	781210.65	
5500.00	8.11	117.13	5462.70	-244.33	476.77	-220.92	0.00	467735.30	781223.20	
5600.00	8.11	117.13	5561.70	-250.76	489.32	-226.74	0.00	467728.87	781235.75	
5700.00	8.11	117.13	5660.70	-257.20	501.88	-232.55	0.00	467722.43	781248.31	
5800.00	8.11	117.13	5759.70	-263.63	514.43	-238.37	0.00	467716.00	781260.86	
5900.00	8.11	117.13	5858.70	-270.07	526.99	-244.19	0.00	467709.56	781273.42	
6000.00	8.11	117.13	5957.70	-276.50	539.54	-250.01	0.00	467703.13	781285.97	
6100.00	8.11	117.13	6056.70	-282.93	552.10	-255.82	0.00	467696.70	781298.53	
6200.00	8.11	117.13	6155.70	-289.37	564.65	-261.64	0.00	467690.26	781311.08	
6300.00	8.11	117.13	6254.70	-295.80	577.21	-267.46	0.00	467683.83	781323.64	
6400.00	8.11	117.13	6353.70	-302.24	589.76	-273.28	0.00	467677.39	781336.19	
6500.00	8.11	117.13	6452.70	-308.67	602.31	-279.09	0.00	467670.96	781348.74	
6600.00	8.11	117.13	6551.70	-315.10	614.87	-284.91	0.00	467664.53	781361.30	
6700.00	8.11	117.13	6650.70	-321.54	627.42	-290.73	0.00	467658.09	781373.85	
6800.00	8.11	117.13	6749.70	-327.97	639.98	-296.55	0.00	467651.66	781386.41	
6900.00	8.11	117.13	6848.70	-334.40	652.53	-302.36	0.00	467645.23	781398.96	
7000.00	8.11	117.13	6947.70	-340.84	665.09	-308.18	0.00	467638.79	781411.52	
7100.00	8.11	117.13	7046.70	-347.27	677.64	-314.00	0.00	467632.36	781424.07	
7200.00	8.11	117.13	7145.70	-353.71	690.20	-319.81	0.00	467625.92	781436.63	
7300.00	8.11	117.13	7244.70	-360.14	702.75	-325.63	0.00	467619.49	781449.18	
7400.00	8.11	117.13	7343.70	-366.57	715.31	-331.45	0.00	467613.06	781461.74	
7500.00	8.11	117.13	7442.70	-373.01	727.86	-337.27	0.00	467606.62	781474.29	
7600.00	8.11	117.13	7541.70	-379.44	740.41	-343.08	0.00	467600.19	781486.84	
7700.00	8.11	117.13	7640.70	-385.88	752.97	-348.90	0.00	467593.75	781499.40	
7800.00	8.11	117.13	7739.70	-392.31	765.52	-354.72	0.00	467587.32	781511.95	
7900.00	8.11	117.13	7838.70	-398.74	778.08	-360.54	0.00	467580.89	781524.51	
8000.00	8.11	117.13	7937.70	-405.18	790.63	-366.35	0.00	467574.45	781537.06	
8100.00	8.11	117.13	8036.70	-411.61	803.19	-372.17	0.00	467568.02	781549.62	
8200.00	8.11	117.13	8135.70	-418.04	815.74	-377.99	0.00	467561.59	781562.17	
8300.00	8.11	117.13	8234.70	-424.48	828.30	-383.81	0.00	467555.15	781574.73	
8400.00	8.11	117.13	8333.70	-430.91	840.85	-389.62	0.00	467548.72	781587.28	
8500.00	8.11	117.13	8432.70	-437.35	853.41	-395.44	0.00	467542.28	781599.84	
8600.00	8.11	117.13	8531.70	-443.78	865.96	-401.26	0.00	467535.85	781612.39	

Company: Devon Energy Field: Lea County, New Mexico (NAD 83) Site: Thistle Unit 62, 63, 64H Pad Well: Thistle Unit 64H Wellpath: 1	Date: 10/17/2013 Time: 15:09:36 Page: 3 Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North Vertical (TVD) Reference: SITE 3718.0 Section (VS) Reference: Well (0.00N,0.00E,2.78Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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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
8700.00	8.11	117.13	8630.70	-450.21	878.51	-407.07	0.00	467529.42	781624.94	
8800.00	8.11	117.13	8729.70	-456.65	891.07	-412.89	0.00	467522.98	781637.50	
8900.00	8.11	117.13	8828.70	-463.08	903.62	-418.71	0.00	467516.55	781650.05	
9000.00	8.11	117.13	8927.70	-469.52	916.18	-424.53	0.00	467510.11	781662.61	
9100.00	8.11	117.13	9026.70	-475.95	928.73	-430.34	0.00	467503.68	781675.16	
9200.00	8.11	117.13	9125.70	-482.38	941.29	-436.16	0.00	467497.25	781687.72	
9300.00	8.11	117.13	9224.70	-488.82	953.84	-441.98	0.00	467490.81	781700.27	
9400.00	8.11	117.13	9323.70	-495.25	966.40	-447.80	0.00	467484.38	781712.83	
9500.00	8.11	117.13	9422.70	-501.68	978.95	-453.61	0.00	467477.95	781725.38	
9600.00	8.11	117.13	9521.70	-508.12	991.51	-459.43	0.00	467471.51	781737.94	
9700.00	8.11	117.13	9620.70	-514.55	1004.06	-465.25	0.00	467465.08	781750.49	
9800.00	8.11	117.13	9719.70	-520.99	1016.61	-471.07	0.00	467458.64	781763.04	
9900.00	8.11	117.13	9818.70	-527.42	1029.17	-476.88	0.00	467452.21	781775.60	
10000.00	8.11	117.13	9917.70	-533.85	1041.72	-482.70	0.00	467445.78	781788.15	
10100.00	8.11	117.13	10016.70	-540.29	1054.28	-488.52	0.00	467439.34	781800.71	
10200.00	8.11	117.13	10115.70	-546.72	1066.83	-494.34	0.00	467432.91	781813.26	
10300.00	8.11	117.13	10214.70	-553.15	1079.39	-500.15	0.00	467426.48	781825.82	
10400.00	8.11	117.13	10313.70	-559.59	1091.94	-505.97	0.00	467420.04	781838.37	
10500.00	8.11	117.13	10412.70	-566.02	1104.50	-511.79	0.00	467413.61	781850.93	
10600.00	8.11	117.13	10511.70	-572.46	1117.05	-517.60	0.00	467407.17	781863.48	
10700.00	8.11	117.13	10610.70	-578.89	1129.60	-523.42	0.00	467400.74	781876.03	
10800.00	8.11	117.13	10709.70	-585.32	1142.16	-529.24	0.00	467394.31	781888.59	
10807.34	8.11	117.13	10716.97	-585.80	1143.08	-529.67	0.00	467393.83	781889.51	Build/Turn
10900.00	10.72	46.06	10808.64	-582.79	1155.14	-526.08	12.00	467396.84	781901.57	
11000.00	21.07	22.47	10904.78	-559.64	1168.76	-502.29	12.00	467419.99	781915.19	
11100.00	32.55	14.52	10993.91	-516.83	1182.43	-458.87	12.00	467462.80	781928.86	
11200.00	44.28	10.43	11072.14	-456.24	1195.54	-397.72	12.00	467523.39	781941.97	
11300.00	56.11	7.79	11136.05	-380.51	1207.53	-321.50	12.00	467599.12	781953.96	
11400.00	67.98	5.79	11182.85	-292.95	1217.87	-233.54	12.00	467686.68	781964.30	
11500.00	79.87	4.11	11210.49	-197.39	1226.11	-137.69	12.00	467782.24	781972.54	
11585.13	90.00	2.78	11218.00	-112.86	1231.19	-53.01	12.00	467866.77	781977.62	LP Tgt 64H
11600.00	90.00	2.78	11218.00	-98.01	1231.91	-38.14	0.00	467881.62	781978.34	
11700.00	90.00	2.78	11218.00	1.87	1236.77	61.86	0.00	467981.50	781983.20	
11800.00	90.00	2.78	11218.00	101.76	1241.62	161.86	0.00	468081.39	781988.05	
11900.00	90.00	2.78	11218.00	201.64	1246.48	261.86	0.00	468181.27	781992.91	
12000.00	90.00	2.78	11218.00	301.52	1251.33	361.86	0.00	468281.15	781997.76	
12100.00	90.00	2.78	11218.00	401.40	1256.19	461.86	0.00	468381.03	782002.62	
12200.00	90.00	2.78	11218.00	501.28	1261.04	561.86	0.00	468480.91	782007.47	
12300.00	90.00	2.78	11218.00	601.17	1265.90	661.86	0.00	468580.80	782012.33	
12400.00	90.00	2.78	11218.00	701.05	1270.75	761.86	0.00	468680.68	782017.18	
12500.00	90.00	2.78	11218.00	800.93	1275.61	861.86	0.00	468780.56	782022.04	
12600.00	90.00	2.78	11218.00	900.81	1280.46	961.86	0.00	468880.44	782026.89	
12700.00	90.00	2.78	11218.00	1000.69	1285.32	1061.86	0.00	468980.32	782031.75	
12800.00	90.00	2.78	11218.00	1100.58	1290.17	1161.86	0.00	469080.21	782036.60	
12900.00	90.00	2.78	11218.00	1200.46	1295.03	1261.86	0.00	469180.09	782041.46	
13000.00	90.00	2.78	11218.00	1300.34	1299.88	1361.86	0.00	469279.97	782046.31	
13100.00	90.00	2.78	11218.00	1400.22	1304.74	1461.86	0.00	469379.85	782051.17	
13200.00	90.00	2.78	11218.00	1500.10	1309.59	1561.86	0.00	469479.73	782056.02	
13300.00	90.00	2.78	11218.00	1599.99	1314.45	1661.86	0.00	469579.62	782060.88	
13400.00	90.00	2.78	11218.00	1699.87	1319.30	1761.86	0.00	469679.50	782065.73	
13500.00	90.00	2.78	11218.00	1799.75	1324.16	1861.86	0.00	469779.38	782070.59	
13600.00	90.00	2.78	11218.00	1899.63	1329.01	1961.86	0.00	469879.26	782075.44	



Weatherford

Wft Plan Report X Y's.

**Weatherford**

Company: Devon Energy Date: 10/17/2013 Time: 15:09:36 Page: 4
Field: Lea County, New Mexico (NAD 83) Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Site: Thistle Unit 62, 63, 64H Pad Vertical (TVD) Reference: SITE 3718.0
Well: Thistle Unit 64H Section (VS) Reference: Well (0.00N,0.00E,2.78Azi)
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
13700.00	90.00	2.78	11218.00	1999.52	1333.87	2061.86	0.00	469979.15	782080.30	
13800.00	90.00	2.78	11218.00	2099.40	1338.72	2161.86	0.00	470079.03	782085.15	
13900.00	90.00	2.78	11218.00	2199.28	1343.58	2261.86	0.00	470178.91	782090.01	
14000.00	90.00	2.78	11218.00	2299.16	1348.43	2361.86	0.00	470278.79	782094.86	
14100.00	90.00	2.78	11218.00	2399.04	1353.29	2461.86	0.00	470378.67	782099.72	
14200.00	90.00	2.78	11218.00	2498.93	1358.14	2561.86	0.00	470478.56	782104.57	
14300.00	90.00	2.78	11218.00	2598.81	1363.00	2661.86	0.00	470578.44	782109.43	
14400.00	90.00	2.78	11218.00	2698.69	1367.85	2761.86	0.00	470678.32	782114.28	
14500.00	90.00	2.78	11218.00	2798.57	1372.71	2861.86	0.00	470778.20	782119.14	
14600.00	90.00	2.78	11218.00	2898.45	1377.56	2961.86	0.00	470878.08	782123.99	
14700.00	90.00	2.78	11218.00	2998.34	1382.42	3061.86	0.00	470977.97	782128.85	
14800.00	90.00	2.78	11218.00	3098.22	1387.27	3161.86	0.00	471077.85	782133.70	
14900.00	90.00	2.78	11218.00	3198.10	1392.13	3261.86	0.00	471177.73	782138.56	
15000.00	90.00	2.78	11218.00	3297.98	1396.98	3361.86	0.00	471277.61	782143.41	
15100.00	90.00	2.78	11218.00	3397.86	1401.84	3461.86	0.00	471377.49	782148.27	
15200.00	90.00	2.78	11218.00	3497.75	1406.69	3561.86	0.00	471477.38	782153.12	
15300.00	90.00	2.78	11218.00	3597.63	1411.55	3661.86	0.00	471577.26	782157.98	
15400.00	90.00	2.78	11218.00	3697.51	1416.40	3761.86	0.00	471677.14	782162.83	
15500.00	90.00	2.78	11218.00	3797.39	1421.26	3861.86	0.00	471777.02	782167.69	
15600.00	90.00	2.78	11218.00	3897.27	1426.11	3961.86	0.00	471876.90	782172.54	
15700.00	90.00	2.78	11218.00	3997.16	1430.97	4061.86	0.00	471976.79	782177.40	
15800.00	90.00	2.78	11218.00	4097.04	1435.82	4161.86	0.00	472076.67	782182.25	
15900.00	90.00	2.78	11218.00	4196.92	1440.68	4261.86	0.00	472176.55	782187.11	
16000.00	90.00	2.78	11218.00	4296.80	1445.53	4361.86	0.00	472276.43	782191.96	
16100.00	90.00	2.78	11218.00	4396.68	1450.39	4461.86	0.00	472376.31	782196.82	
16200.00	90.00	2.78	11218.00	4496.57	1455.24	4561.86	0.00	472476.20	782201.67	
16215.81	90.00	2.78	11218.00	4512.36	1456.01	4577.67	0.00	472491.99	782202.44	PBHL 64H

Targets

Name	Description		TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
	Dip.	Dir.						Deg	Min	Sec	Deg	Min	Sec
PBHL 64H -Rectangle (4630x50)			11218.00	4512.36	1456.01	472491.99	782202.44	32	17	47.561 N	103	33	13.737 W
LP Tgt 64H			11218.00	-112.86	1231.19	467866.77	781977.62	32	17	1.811 N	103	33	16.747 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
5285.15	5250.00	9.625	12.250	9 5/8"

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Annotation

MD ft	TVD ft	
1500.00	1500.00	Nudge
1905.49	1904.14	Hold
10807.34	10716.96	Build/Turn



Weatherford

Wft Plan Report X Y's.



Weatherford

Company: Devon Energy	Date: 10/17/2013	Time: 15:09:36	Page: 5
Field: Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North		
Site: Thistle Unit 62, 63, 64H Pad	Vertical (TVD) Reference: SITE 3718.0		
Well: Thistle Unit 64H	Section (VS) Reference: Well (0.00N,0.00E,2.78Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature Db: Sybase		

Annotation

MD ft	TVD ft	
11585.13	11218.00	LP
16215.81	11218.00	PBHL



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy Date: 10/17/2013 Time: 15:17:28 Page: 1
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Reference Well: Thistle Unit 64H Vertical (TVD) Reference: SITE 3718.0
Reference Wellpath: Db: Sybase

NO GLOBAL SCAN: Using user defined selection & scan criteria Reference: Plan: Plan #1
Interpolation Method: MD + Stations Interval: 100.00 ft Error Model: ISCWSA Ellipse
Depth Range: 0.00 to 16215.81 ft Scan Method: Closest Approach 3D
Maximum Radius: 40000.00 ft Error Surface: Ellipse

Plan: Plan #1 Date Composed: 10/7/2013
Principal: Yes 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 62, 63,	Thistle Unit 62H	1 V0 Plan: Plan #1 V1	1700.00	1699.84	106.17	98.88	14.55	
Thistle Unit 62, 63,	Thistle Unit 63H	1 V0 Plan: Plan #1 V1	1600.00	1599.98	51.50	44.61	7.47	

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 62H
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	269.68	-0.56	-99.93	99.93			No Data
100.00	100.00	100.00	100.00	0.08	0.08	269.68	-0.56	-99.93	99.93	99.76	592.80	
200.00	200.00	200.00	200.00	0.31	0.31	269.68	-0.56	-99.93	99.93	99.31	161.67	
300.00	300.00	300.00	300.00	0.53	0.53	269.68	-0.56	-99.93	99.93	98.86	93.60	
400.00	400.00	400.00	400.00	0.76	0.76	269.68	-0.56	-99.93	99.93	98.41	65.87	
500.00	500.00	500.00	500.00	0.98	0.98	269.68	-0.56	-99.93	99.93	97.96	50.81	
600.00	600.00	600.00	600.00	1.21	1.21	269.68	-0.56	-99.93	99.93	97.52	41.36	
700.00	700.00	700.00	700.00	1.43	1.43	269.68	-0.56	-99.93	99.93	97.07	34.87	
800.00	800.00	800.00	800.00	1.66	1.66	269.68	-0.56	-99.93	99.93	96.62	30.14	
900.00	900.00	900.00	900.00	1.88	1.88	269.68	-0.56	-99.93	99.93	96.17	26.54	
1000.00	1000.00	1000.00	1000.00	2.11	2.11	269.68	-0.56	-99.93	99.93	95.72	23.71	
1100.00	1100.00	1100.00	1100.00	2.33	2.33	269.68	-0.56	-99.93	99.93	95.27	21.43	
1200.00	1200.00	1200.00	1200.00	2.56	2.56	269.68	-0.56	-99.93	99.93	94.82	19.54	
1300.00	1300.00	1300.00	1300.00	2.78	2.78	269.68	-0.56	-99.93	99.93	94.37	17.96	
1400.00	1400.00	1400.00	1400.00	3.01	3.01	269.68	-0.56	-99.93	99.93	93.92	16.62	
1500.00	1500.00	1500.00	1500.00	3.23	3.23	269.68	-0.56	-99.93	99.93	93.47	15.46	
1600.00	1599.98	1599.98	1599.98	3.44	3.46	152.99	-0.56	-99.93	101.48	94.59	14.73	
1700.00	1699.84	1699.84	1699.84	3.63	3.68	154.23	-0.56	-99.93	106.17	98.88	14.55	
1800.00	1799.45	1799.45	1799.45	3.83	3.90	156.06	-0.56	-99.93	114.09	106.38	14.81	
1900.00	1898.70	1898.70	1898.70	4.05	4.13	158.24	-0.56	-99.93	125.33	117.22	15.45	
1905.49	1904.14	1904.14	1904.14	4.06	4.14	158.36	-0.56	-99.93	126.05	117.91	15.49	
2000.00	1997.70	1997.70	1997.70	4.28	4.35	160.39	-0.56	-99.93	138.54	130.00	16.22	
2100.00	2096.70	2096.70	2096.70	4.53	4.57	162.18	-0.56	-99.93	151.92	142.95	16.94	
2200.00	2195.70	2195.70	2195.70	4.79	4.79	163.67	-0.56	-99.93	165.42	156.01	17.59	
2300.00	2294.70	2294.70	2294.70	5.07	5.02	164.94	-0.56	-99.93	179.01	169.17	18.19	
2400.00	2393.70	2393.70	2393.70	5.35	5.24	166.03	-0.56	-99.93	192.68	182.39	18.74	
2500.00	2492.70	2492.70	2492.70	5.63	5.46	166.98	-0.56	-99.93	206.40	195.68	19.24	
2600.00	2591.70	2591.70	2591.70	5.93	5.68	167.80	-0.56	-99.93	220.18	209.00	19.71	
2700.00	2690.70	2690.70	2690.70	6.23	5.91	168.53	-0.56	-99.93	233.99	222.37	20.14	
2800.00	2789.70	2789.70	2789.70	6.53	6.13	169.18	-0.56	-99.93	247.84	235.77	20.54	
2900.00	2888.70	2888.70	2888.70	6.84	6.35	169.76	-0.56	-99.93	261.71	249.19	20.91	
3000.00	2987.70	2987.70	2987.70	7.15	6.57	170.28	-0.56	-99.93	275.61	262.64	21.25	
3100.00	3086.70	3086.70	3086.70	7.46	6.80	170.75	-0.56	-99.93	289.53	276.10	21.57	
3200.00	3185.70	3185.70	3185.70	7.77	7.02	171.18	-0.56	-99.93	303.46	289.59	21.87	
3300.00	3284.70	3284.70	3284.70	8.09	7.24	171.57	-0.56	-99.93	317.41	303.08	22.15	
3400.00	3383.70	3383.70	3383.70	8.41	7.46	171.93	-0.56	-99.93	331.38	316.59	22.41	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad
Reference Well: Thistle Unit 64H
Reference Wellpath:

Date: 10/17/2013 Time: 15:17:28
Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Vertical (TVD) Reference: SITE 3718.0

Page: 2

Db: Sybase

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 62H
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		
3500.00	3482.70	3482.70	3482.70	8.73	7.69	172.26	-0.56	-99.93	345.35	330.11	22.66	
3600.00	3581.70	3581.70	3581.70	9.06	7.91	172.56	-0.56	-99.93	359.34	343.64	22.89	
3700.00	3680.70	3680.70	3680.70	9.38	8.13	172.84	-0.56	-99.93	373.33	357.18	23.11	
3800.00	3779.70	3779.70	3779.70	9.71	8.36	173.10	-0.56	-99.93	387.34	370.72	23.31	
3900.00	3878.70	3878.70	3878.70	10.04	8.58	173.34	-0.56	-99.93	401.35	384.27	23.50	
4000.00	3977.70	3977.70	3977.70	10.36	8.80	173.57	-0.56	-99.93	415.36	397.83	23.69	
4100.00	4076.70	4076.70	4076.70	10.69	9.02	173.78	-0.56	-99.93	429.39	411.39	23.86	
4200.00	4175.70	4175.70	4175.70	11.02	9.25	173.98	-0.56	-99.93	443.41	424.96	24.03	
4300.00	4274.70	4274.70	4274.70	11.35	9.47	174.16	-0.56	-99.93	457.45	438.53	24.18	
4400.00	4373.70	4373.70	4373.70	11.69	9.69	174.34	-0.56	-99.93	471.49	452.11	24.33	
4500.00	4472.70	4472.70	4472.70	12.02	9.91	174.50	-0.56	-99.93	485.53	465.69	24.47	
4600.00	4571.70	4571.70	4571.70	12.35	10.14	174.66	-0.56	-99.93	499.57	479.27	24.61	
4700.00	4670.70	4670.70	4670.70	12.69	10.36	174.80	-0.56	-99.93	513.62	492.86	24.74	
4800.00	4769.70	4769.70	4769.70	13.02	10.58	174.94	-0.56	-99.93	527.67	506.45	24.86	
4900.00	4868.70	4868.70	4868.70	13.35	10.80	175.07	-0.56	-99.93	541.73	520.04	24.98	
5000.00	4967.70	4967.70	4967.70	13.69	11.03	175.20	-0.56	-99.93	555.78	533.63	25.09	
5100.00	5066.70	5066.70	5066.70	14.03	11.25	175.32	-0.56	-99.93	569.84	547.23	25.20	
5200.00	5165.70	5165.70	5165.70	14.36	11.47	175.43	-0.56	-99.93	583.91	560.83	25.30	
5300.00	5264.70	5264.70	5264.70	14.70	11.69	175.54	-0.56	-99.93	597.97	574.43	25.40	
5400.00	5363.70	5362.49	5362.49	15.03	11.91	175.64	-0.58	-99.95	612.05	588.05	25.50	
5500.00	5462.70	5452.52	5452.50	15.37	12.08	175.58	-1.74	-101.33	627.02	602.61	25.69	
5600.00	5561.70	5542.03	5541.89	15.71	12.24	175.29	-4.71	-104.84	643.41	618.59	25.93	
5700.00	5660.70	5630.87	5630.42	16.05	12.40	174.81	-9.44	-110.44	661.24	636.02	26.22	
5800.00	5759.70	5718.87	5717.85	16.38	12.56	174.15	-15.86	-118.05	680.57	654.95	26.56	
5900.00	5858.70	5805.87	5803.95	16.72	12.73	173.34	-23.92	-127.58	701.46	675.43	26.95	
6000.00	5957.70	5897.13	5893.88	17.06	12.91	172.36	-33.93	-139.42	723.82	697.36	27.35	
6100.00	6056.70	5993.68	5988.97	17.40	13.12	171.36	-44.74	-152.23	746.59	719.67	27.73	
6200.00	6155.70	6090.24	6084.06	17.74	13.33	170.41	-55.56	-165.03	769.57	742.18	28.10	
6300.00	6254.70	6186.79	6179.15	18.08	13.54	169.53	-66.37	-177.83	792.73	764.87	28.45	
6400.00	6353.70	6283.35	6274.23	18.42	13.77	168.69	-77.19	-190.63	816.07	787.73	28.79	
6500.00	6452.70	6379.90	6369.32	18.75	14.00	167.90	-88.00	-203.43	839.57	810.74	29.12	
6600.00	6551.70	6476.45	6464.41	19.09	14.24	167.15	-98.82	-216.24	863.21	833.89	29.44	
6700.00	6650.70	6573.01	6559.50	19.43	14.48	166.44	-109.64	-229.04	886.99	857.17	29.75	
6800.00	6749.70	6669.56	6654.58	19.77	14.73	165.76	-120.45	-241.84	910.89	880.57	30.04	
6900.00	6848.70	6766.11	6749.67	20.11	14.98	165.12	-131.27	-254.64	934.90	904.07	30.33	
7000.00	6947.70	6862.67	6844.76	20.45	15.24	164.52	-142.08	-267.44	959.02	927.68	30.61	
7100.00	7046.70	6959.22	6939.85	20.79	15.51	163.94	-152.90	-280.24	983.23	951.38	30.87	
7200.00	7145.70	7055.77	7034.94	21.13	15.78	163.39	-163.71	-293.05	1007.54	975.17	31.13	
7300.00	7244.70	7152.33	7130.02	21.47	16.05	162.87	-174.53	-305.85	1031.93	999.04	31.38	
7400.00	7343.70	7248.88	7225.11	21.81	16.33	162.37	-185.34	-318.65	1056.39	1022.98	31.62	
7500.00	7442.70	7345.43	7320.20	22.15	16.61	161.89	-196.16	-331.45	1080.93	1047.00	31.85	
7600.00	7541.70	7441.99	7415.29	22.50	16.90	161.43	-206.97	-344.25	1105.54	1071.08	32.08	
7700.00	7640.70	7538.54	7510.38	22.84	17.19	160.99	-217.79	-357.05	1130.22	1095.22	32.30	
7800.00	7739.70	7635.09	7605.46	23.18	17.48	160.58	-228.61	-369.86	1154.95	1119.42	32.51	
7900.00	7838.70	7731.65	7700.55	23.52	17.78	160.18	-239.42	-382.66	1179.73	1143.67	32.71	
8000.00	7937.70	7828.20	7795.64	23.86	18.07	159.79	-250.24	-395.46	1204.57	1167.98	32.91	
8100.00	8036.70	7924.75	7890.73	24.20	18.38	159.42	-261.05	-408.26	1229.46	1192.33	33.11	
8200.00	8135.70	8021.31	7985.81	24.54	18.68	159.07	-271.87	-421.06	1254.40	1216.72	33.29	
8300.00	8234.70	8117.86	8080.90	24.88	18.99	158.73	-282.68	-433.86	1279.38	1241.16	33.47	
8400.00	8333.70	8214.41	8175.99	25.22	19.30	158.40	-293.50	-446.67	1304.40	1265.63	33.65	
8500.00	8432.70	8310.97	8271.08	25.57	19.61	158.08	-304.31	-459.47	1329.46	1290.15	33.82	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad
Reference Well: Thistle Unit 64H
Reference Wellpath:

Date: 10/17/2013 Time: 15:17:28
Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Vertical (TVD) Reference: SITE 3718.0

Db: Sybase

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 62H
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		
8600.00	8531.70	8407.52	8366.17	25.91	19.93	157.78	-315.13	-472.27	1354.55	1314.70	33.99	
8700.00	8630.70	8504.07	8461.25	26.25	20.25	157.49	-325.95	-485.07	1379.68	1339.28	34.15	
8800.00	8729.70	8600.63	8556.34	26.59	20.57	157.20	-336.76	-497.87	1404.84	1363.89	34.31	
8900.00	8828.70	8697.18	8651.43	26.93	20.89	156.93	-347.58	-510.67	1430.04	1388.54	34.46	
9000.00	8927.70	8793.73	8746.52	27.27	21.21	156.67	-358.39	-523.48	1455.26	1413.21	34.61	
9100.00	9026.70	8890.29	8841.61	27.61	21.54	156.41	-369.21	-536.28	1480.51	1437.91	34.75	
9200.00	9125.70	8986.84	8936.69	27.96	21.86	156.17	-380.02	-549.08	1505.79	1462.63	34.90	
9300.00	9224.70	9083.39	9031.78	28.30	22.19	155.93	-390.84	-561.88	1531.09	1487.38	35.03	
9400.00	9323.70	9179.95	9126.87	28.64	22.52	155.70	-401.65	-574.68	1556.41	1512.16	35.17	
9500.00	9422.70	9276.50	9221.96	28.98	22.85	155.48	-412.47	-587.48	1581.76	1536.95	35.30	
9600.00	9521.70	9373.05	9317.04	29.32	23.19	155.26	-423.28	-600.29	1607.13	1561.76	35.42	
9700.00	9620.70	9469.61	9412.13	29.67	23.52	155.05	-434.10	-613.09	1632.52	1586.60	35.55	
9800.00	9719.70	9566.16	9507.22	30.01	23.86	154.85	-444.92	-625.89	1657.94	1611.45	35.67	
9900.00	9818.70	9662.71	9602.31	30.35	24.19	154.66	-455.73	-638.69	1683.37	1636.33	35.79	
10000.00	9917.70	9759.27	9697.40	30.69	24.53	154.47	-466.55	-651.49	1708.81	1661.22	35.90	
10100.00	10016.70	9855.82	9792.48	31.03	24.87	154.28	-477.36	-664.29	1734.28	1686.12	36.01	
10200.00	10115.70	9952.37	9887.57	31.38	25.21	154.10	-488.18	-677.10	1759.76	1711.04	36.12	
10300.00	10214.70	10048.93	9982.66	31.72	25.56	153.93	-498.99	-689.90	1785.26	1735.98	36.23	
10400.00	10313.70	10145.48	10077.75	32.06	25.90	153.76	-509.81	-702.70	1810.77	1760.93	36.33	
10500.00	10412.70	10242.03	10172.84	32.40	26.24	153.59	-520.62	-715.50	1836.30	1785.90	36.44	
10600.00	10511.70	10338.59	10267.92	32.75	26.59	153.43	-531.44	-728.30	1861.84	1810.88	36.54	
10700.00	10610.70	10435.14	10363.01	33.09	26.93	153.28	-542.25	-741.10	1887.39	1835.87	36.63	
10800.00	10709.70	10531.69	10458.10	33.43	27.28	153.12	-553.07	-753.91	1912.96	1860.87	36.73	
10807.34	10716.97	10538.78	10465.08	33.46	27.31	153.11	-553.86	-754.85	1914.83	1862.71	36.74	
10825.00	10734.46	10555.81	10481.85	33.50	27.37	168.49	-555.77	-757.10	1919.37	1867.22	36.81	
10850.00	10759.25	10579.80	10505.47	33.49	27.45	191.98	-558.46	-760.28	1925.82	1873.66	36.92	
10875.00	10784.00	10603.59	10528.91	33.43	27.54	211.89	-561.12	-763.44	1932.32	1880.14	37.03	
10900.00	10808.64	10627.13	10552.09	33.30	27.62	226.04	-563.76	-766.56	1938.84	1886.65	37.15	
10925.00	10833.10	10650.34	10574.95	33.12	27.71	235.69	-566.36	-769.64	1945.39	1893.19	37.27	
10950.00	10857.33	10673.17	10597.42	32.87	27.79	242.46	-568.92	-772.66	1951.96	1899.75	37.39	
10975.00	10881.24	10695.54	10619.46	32.57	27.87	247.40	-571.42	-775.63	1958.54	1906.33	37.51	
11000.00	10904.78	10717.41	10640.99	32.22	27.95	251.16	-573.87	-778.53	1965.13	1912.92	37.64	
11025.00	10927.87	10738.70	10661.96	31.83	28.03	254.13	-576.26	-781.35	1971.73	1919.53	37.77	
11050.00	10950.47	10759.36	10682.31	31.39	28.10	256.55	-578.57	-784.09	1978.35	1926.15	37.90	
11075.00	10972.50	10778.58	10701.24	30.92	28.17	258.58	-580.70	-786.64	1984.98	1932.78	38.03	
11100.00	10993.91	10795.78	10718.22	30.43	28.21	260.35	-582.14	-788.96	1991.64	1939.47	38.18	
11125.00	11014.63	10813.22	10735.48	29.92	28.23	261.90	-582.98	-791.35	1998.34	1946.21	38.33	
11150.00	11034.61	10830.93	10753.01	29.43	28.24	263.27	-583.17	-793.83	2005.05	1952.99	38.52	
11175.00	11053.80	10848.93	10770.82	28.96	28.23	264.50	-582.70	-796.39	2011.76	1959.73	38.67	
11200.00	11072.14	10867.28	10788.94	28.53	28.19	265.60	-581.52	-799.03	2018.47	1966.51	38.85	
11225.00	11089.58	10886.02	10807.38	28.16	28.13	266.60	-579.60	-801.77	2025.16	1973.24	39.00	
11250.00	11106.08	10905.20	10826.15	27.85	28.04	267.51	-576.87	-804.61	2031.81	1979.91	39.14	
11275.00	11121.58	10924.89	10845.28	27.61	27.94	268.34	-573.28	-807.55	2038.42	1986.53	39.29	
11300.00	11136.05	10945.15	10864.79	27.43	27.80	269.09	-568.76	-810.61	2044.97	1993.13	39.45	
11325.00	11149.45	10966.07	10884.71	27.29	27.64	269.77	-563.22	-813.79	2051.45	1999.64	39.60	
11350.00	11161.74	10987.76	10905.08	27.18	27.46	270.38	-556.55	-817.11	2057.84	2006.06	39.74	
11375.00	11172.88	11010.33	10925.92	27.10	27.25	270.93	-548.63	-820.57	2064.14	2012.39	39.89	
11400.00	11182.85	11033.91	10947.27	27.04	27.01	271.41	-539.29	-824.20	2070.32	2018.59	40.03	
11425.00	11191.62	11058.69	10969.16	27.00	26.76	271.81	-528.35	-828.00	2076.37	2024.67	40.16	
11450.00	11199.16	11084.85	10991.63	26.97	26.49	272.16	-515.56	-832.01	2082.27	2030.59	40.29	
11475.00	11205.46	11112.64	11014.68	26.96	26.22	272.42	-500.64	-836.23	2088.01	2036.35	40.42	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad
Reference Well: Thistle Unit 64H
Reference Wellpath:

Date: 10/17/2013 Time: 15:17:28
Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Vertical (TVD) Reference: SITE 3718.0

Page: 4

Db: Sybase

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 62H
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		
11500.00	11210.49	11142.34	11038.32	26.95	25.96	272.62	-483.21	-840.70	2093.56	2041.92	40.54	
11525.00	11214.25	11174.32	11062.48	26.95	25.72	272.73	-462.82	-845.43	2098.91	2047.28	40.65	
11550.00	11216.72	11208.97	11087.06	26.96	25.52	272.76	-438.93	-850.44	2104.02	2052.39	40.75	
11575.00	11217.89	11246.79	11111.83	26.98	25.36	272.70	-410.86	-855.75	2108.87	2057.24	40.84	
11585.13	11218.00	11263.15	11121.84	26.99	25.30	272.66	-398.12	-857.98	2110.75	2059.11	40.88	
11600.00	11218.00	11288.63	11136.55	27.00	25.23	272.25	-377.60	-861.38	2113.45	2061.80	40.92	
11700.00	11218.00	11512.11	11214.15	27.17	25.05	270.10	-171.60	-885.55	2129.40	2077.52	41.05	
11800.00	11218.00	11649.49	11218.00	27.45	25.20	270.00	-34.70	-894.84	2140.81	2088.53	40.95	
11900.00	11218.00	11748.86	11218.00	27.85	25.45	270.00	64.47	-901.17	2152.03	2099.16	40.71	
12000.00	11218.00	11848.23	11218.00	28.36	25.82	270.00	163.64	-907.51	2163.24	2109.54	40.29	
12100.00	11218.00	11947.60	11218.00	28.96	26.31	270.00	262.80	-913.84	2174.45	2119.69	39.71	
12200.00	11218.00	12046.97	11218.00	29.66	26.91	270.00	361.97	-920.17	2185.66	2129.62	39.00	
12300.00	11218.00	12146.34	11218.00	30.45	27.63	270.00	461.14	-926.51	2196.87	2139.35	38.19	
12400.00	11218.00	12245.71	11218.00	31.32	28.44	270.00	560.31	-932.84	2208.08	2148.88	37.30	
12500.00	11218.00	12345.08	11218.00	32.27	29.34	270.00	659.47	-939.18	2219.30	2158.25	36.35	
12600.00	11218.00	12444.45	11218.00	33.28	30.33	270.00	758.64	-945.51	2230.51	2167.45	35.37	
12700.00	11218.00	12543.82	11218.00	34.36	31.39	270.00	857.81	-951.84	2241.72	2176.52	34.38	
12800.00	11218.00	12643.19	11218.00	35.50	32.52	270.00	956.98	-958.18	2252.93	2185.45	33.39	
12900.00	11218.00	12742.56	11218.00	36.69	33.71	270.00	1056.14	-964.51	2264.14	2194.26	32.40	
13000.00	11218.00	12841.93	11218.00	37.93	34.96	270.00	1155.31	-970.84	2275.35	2202.97	31.44	
13100.00	11218.00	12941.30	11218.00	39.21	36.25	270.00	1254.48	-977.18	2286.56	2211.59	30.50	
13200.00	11218.00	13040.67	11218.00	40.53	37.60	270.00	1353.65	-983.51	2297.78	2220.12	29.59	
13300.00	11218.00	13140.04	11218.00	41.89	38.98	270.00	1452.81	-989.85	2308.99	2228.57	28.71	
13400.00	11218.00	13239.41	11218.00	43.28	40.40	270.00	1551.98	-996.18	2320.20	2236.96	27.87	
13500.00	11218.00	13338.78	11218.00	44.70	41.85	270.00	1651.15	-1002.51	2331.41	2245.28	27.07	
13600.00	11218.00	13438.14	11218.00	46.15	43.33	270.00	1750.32	-1008.85	2342.62	2253.55	26.30	
13700.00	11218.00	13537.51	11218.00	47.62	44.83	270.00	1849.48	-1015.18	2353.83	2261.76	25.57	
13800.00	11218.00	13636.88	11218.00	49.12	46.36	270.00	1948.65	-1021.51	2365.05	2269.93	24.87	
13900.00	11218.00	13736.25	11218.00	50.64	47.92	270.00	2047.82	-1027.85	2376.26	2278.06	24.20	
14000.00	11218.00	13835.62	11218.00	52.17	49.49	270.00	2146.99	-1034.18	2387.47	2286.15	23.56	
14100.00	11218.00	13934.99	11218.00	53.73	51.08	270.00	2246.15	-1040.52	2398.68	2294.21	22.96	
14200.00	11218.00	14034.36	11218.00	55.29	52.68	270.00	2345.32	-1046.85	2409.89	2302.23	22.38	
14300.00	11218.00	14133.73	11218.00	56.88	54.30	270.00	2444.49	-1053.18	2421.10	2310.23	21.84	
14400.00	11218.00	14233.10	11218.00	58.48	55.94	270.00	2543.66	-1059.52	2432.31	2318.20	21.31	
14500.00	11218.00	14332.47	11218.00	60.09	57.58	270.00	2642.82	-1065.85	2443.53	2326.14	20.82	
14600.00	11218.00	14431.84	11218.00	61.71	59.24	270.00	2741.99	-1072.18	2454.74	2334.06	20.34	
14700.00	11218.00	14531.21	11218.00	63.34	60.91	270.00	2841.16	-1078.52	2465.95	2341.97	19.89	
14800.00	11218.00	14630.58	11218.00	64.98	62.59	270.00	2940.33	-1084.85	2477.16	2349.85	19.46	
14900.00	11218.00	14729.95	11218.00	66.63	64.27	270.00	3039.49	-1091.18	2488.37	2357.72	19.05	
15000.00	11218.00	14829.32	11218.00	68.29	65.97	270.00	3138.66	-1097.52	2499.58	2365.57	18.65	
15100.00	11218.00	14928.69	11218.00	69.95	67.67	270.00	3237.83	-1103.85	2510.80	2373.40	18.27	
15200.00	11218.00	15028.06	11218.00	71.63	69.38	270.00	3337.00	-1110.19	2522.01	2381.23	17.91	
15300.00	11218.00	15127.43	11218.00	73.31	71.09	270.00	3436.16	-1116.52	2533.22	2389.03	17.57	
15400.00	11218.00	15226.80	11218.00	74.99	72.81	270.00	3535.33	-1122.85	2544.43	2396.83	17.24	
15500.00	11218.00	15326.17	11218.00	76.69	74.54	270.00	3634.50	-1129.19	2555.64	2404.62	16.92	
15600.00	11218.00	15425.53	11218.00	78.39	76.27	270.00	3733.67	-1135.52	2566.85	2412.39	16.62	
15700.00	11218.00	15524.90	11218.00	80.09	78.01	270.00	3832.83	-1141.85	2578.06	2420.16	16.33	
15800.00	11218.00	15624.27	11218.00	81.80	79.75	270.00	3932.00	-1148.19	2589.28	2427.92	16.05	
15900.00	11218.00	15723.64	11218.00	83.51	81.50	270.00	4031.17	-1154.52	2600.49	2435.66	15.78	
16000.00	11218.00	15823.01	11218.00	85.23	83.25	270.00	4130.34	-1160.86	2611.70	2443.40	15.52	
16100.00	11218.00	15922.38	11218.00	86.95	85.00	270.00	4229.50	-1167.19	2622.91	2451.14	15.27	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy Date: 10/17/2013 Time: 15:17:28 Page: 5
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Reference Well: Thistle Unit 64H Vertical (TVD) Reference: SITE 3718.0
Reference Wellpath: Db: Sybase

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 62H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference MD ft	Reference TVD ft	Offset MD ft	Offset TVD ft	Semi-Major Axis Ref ft	Semi-Major Axis Offset ft	Semi-Major Axis TFO-HS deg	Offset Location North ft	Offset Location East ft	Ctr-Ctr Edge Distance ft	Separation Distance ft	Warning
16200.00	11218.00	16021.75	11218.00	88.67	86.76	270.00	4328.67	-1173.52	2634.12	2458.86	15.03
16215.81	11218.00	16037.46	11218.00	88.94	87.04	270.00	4344.35	-1174.52	2635.89	2460.08	14.99

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 63H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference MD ft	Reference TVD ft	Offset MD ft	Offset TVD ft	Semi-Major Axis Ref ft	Semi-Major Axis Offset ft	Semi-Major Axis TFO-HS deg	Offset Location North ft	Offset Location East ft	Ctr-Ctr Edge Distance ft	Separation Distance ft	Warning
0.00	0.00	0.00	0.00	0.00	0.00	269.68	-0.28	-49.94	49.94		No Data
100.00	100.00	100.00	100.00	0.08	0.08	269.68	-0.28	-49.94	49.94	49.77	
200.00	200.00	200.00	200.00	0.31	0.31	269.68	-0.28	-49.94	49.94	49.32	
300.00	300.00	300.00	300.00	0.53	0.53	269.68	-0.28	-49.94	49.94	48.87	
400.00	400.00	400.00	400.00	0.76	0.76	269.68	-0.28	-49.94	49.94	48.42	32.92
500.00	500.00	500.00	500.00	0.98	0.98	269.68	-0.28	-49.94	49.94	47.97	25.39
600.00	600.00	600.00	600.00	1.21	1.21	269.68	-0.28	-49.94	49.94	47.52	20.67
700.00	700.00	700.00	700.00	1.43	1.43	269.68	-0.28	-49.94	49.94	47.08	17.43
800.00	800.00	800.00	800.00	1.66	1.66	269.68	-0.28	-49.94	49.94	46.63	15.06
900.00	900.00	900.00	900.00	1.88	1.88	269.68	-0.28	-49.94	49.94	46.18	13.27
1000.00	1000.00	1000.00	1000.00	2.11	2.11	269.68	-0.28	-49.94	49.94	45.73	11.85
1100.00	1100.00	1100.00	1100.00	2.33	2.33	269.68	-0.28	-49.94	49.94	45.28	10.71
1200.00	1200.00	1200.00	1200.00	2.56	2.56	269.68	-0.28	-49.94	49.94	44.83	9.77
1300.00	1300.00	1300.00	1300.00	2.78	2.78	269.68	-0.28	-49.94	49.94	44.38	8.98
1400.00	1400.00	1400.00	1400.00	3.01	3.01	269.68	-0.28	-49.94	49.94	43.93	8.31
1500.00	1500.00	1500.00	1500.00	3.23	3.23	269.68	-0.28	-49.94	49.94	43.48	7.73
1600.00	1599.98	1599.98	1599.98	3.44	3.46	153.43	-0.28	-49.94	51.50	44.61	7.47
1700.00	1699.84	1699.84	1699.84	3.63	3.68	155.77	-0.28	-49.94	56.23	48.93	7.71
1800.00	1799.45	1799.45	1799.45	3.83	3.90	158.90	-0.28	-49.94	64.28	56.57	8.34
1900.00	1898.70	1898.70	1898.70	4.05	4.13	162.15	-0.28	-49.94	75.78	67.67	9.34
1905.49	1904.14	1904.14	1904.14	4.06	4.14	162.32	-0.28	-49.94	76.51	68.38	9.41
2000.00	1997.70	1997.70	1997.70	4.28	4.35	164.92	-0.28	-49.94	89.32	80.78	10.46
2100.00	2096.70	2096.70	2096.70	4.53	4.57	166.96	-0.28	-49.94	103.01	94.05	11.49
2200.00	2195.70	2195.70	2195.70	4.79	4.79	168.52	-0.28	-49.94	116.80	107.41	12.43
2300.00	2294.70	2294.70	2294.70	5.07	5.02	169.75	-0.28	-49.94	130.66	120.83	13.29
2400.00	2393.70	2393.70	2393.70	5.35	5.24	170.74	-0.28	-49.94	144.57	134.30	14.07
2500.00	2492.70	2492.70	2492.70	5.63	5.46	171.56	-0.28	-49.94	158.51	147.80	14.79
2600.00	2591.70	2591.70	2591.70	5.93	5.68	172.25	-0.28	-49.94	172.48	161.32	15.46
2700.00	2690.70	2690.70	2690.70	6.23	5.91	172.84	-0.28	-49.94	186.47	174.87	16.07
2800.00	2789.70	2789.70	2789.70	6.53	6.13	173.34	-0.28	-49.94	200.48	188.43	16.63
2900.00	2888.70	2888.70	2888.70	6.84	6.35	173.78	-0.28	-49.94	214.50	202.00	17.16
3000.00	2987.70	2987.70	2987.70	7.15	6.57	174.16	-0.28	-49.94	228.53	215.58	17.64
3100.00	3086.70	3086.70	3086.70	7.46	6.80	174.50	-0.28	-49.94	242.57	229.17	18.09
3200.00	3185.70	3185.70	3185.70	7.77	7.02	174.80	-0.28	-49.94	256.62	242.76	18.52
3300.00	3284.70	3284.70	3284.70	8.09	7.24	175.07	-0.28	-49.94	270.67	256.36	18.91
3400.00	3383.70	3383.70	3383.70	8.41	7.46	175.31	-0.28	-49.94	284.73	269.96	19.28
3500.00	3482.70	3482.70	3482.70	8.73	7.69	175.54	-0.28	-49.94	298.79	283.57	19.62
3600.00	3581.70	3581.70	3581.70	9.06	7.91	175.74	-0.28	-49.94	312.86	297.18	19.95
3700.00	3680.70	3680.70	3680.70	9.38	8.13	175.92	-0.28	-49.94	326.93	310.79	20.26
3800.00	3779.70	3779.70	3779.70	9.71	8.36	176.09	-0.28	-49.94	341.00	324.41	20.54
3900.00	3878.70	3878.70	3878.70	10.04	8.58	176.24	-0.28	-49.94	355.08	338.02	20.82
4000.00	3977.70	3977.70	3977.70	10.36	8.80	176.39	-0.28	-49.94	369.16	351.64	21.07



Weatherford Anticollision Report

**Weatherford®**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad
Reference Well: Thistle Unit 64H
Reference Wellpath:

Date: 10/17/2013 Time: 15:17:28
Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Vertical (TVD) Reference: SITE 3718.0

Page: 6

Db: Sybase

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 63H
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		
4100.00	4076.70	4076.70	4076.70	10.69	9.02	176.52	-0.28	-49.94	383.24	365.26	21.32	
4200.00	4175.70	4175.70	4175.70	11.02	9.25	176.64	-0.28	-49.94	397.32	378.89	21.55	
4300.00	4274.70	4274.70	4274.70	11.35	9.47	176.76	-0.28	-49.94	411.41	392.51	21.77	
4400.00	4373.70	4373.70	4373.70	11.69	9.69	176.87	-0.28	-49.94	425.49	406.13	21.98	
4500.00	4472.70	4472.70	4472.70	12.02	9.91	176.97	-0.28	-49.94	439.58	419.76	22.18	
4600.00	4571.70	4571.70	4571.70	12.35	10.14	177.06	-0.28	-49.94	453.67	433.39	22.37	
4700.00	4670.70	4670.70	4670.70	12.69	10.36	177.15	-0.28	-49.94	467.76	447.01	22.55	
4800.00	4769.70	4769.70	4769.70	13.02	10.58	177.23	-0.28	-49.94	481.85	460.64	22.72	
4900.00	4868.70	4868.70	4868.70	13.35	10.80	177.31	-0.28	-49.94	495.94	474.27	22.89	
5000.00	4967.70	4967.70	4967.70	13.69	11.03	177.39	-0.28	-49.94	510.03	487.90	23.04	
5100.00	5066.70	5066.70	5066.70	14.03	11.25	177.46	-0.28	-49.94	524.12	501.53	23.20	
5200.00	5165.70	5165.70	5165.70	14.36	11.47	177.52	-0.28	-49.94	538.22	515.16	23.34	
5300.00	5264.70	5264.70	5264.70	14.70	11.69	177.59	-0.28	-49.94	552.31	528.79	23.48	
5400.00	5363.70	5364.82	5364.82	15.03	11.91	177.64	-0.32	-49.94	566.39	542.41	23.61	
5500.00	5462.70	5472.10	5472.06	15.37	12.10	177.47	-2.88	-50.05	579.59	555.17	23.74	
5600.00	5561.70	5579.52	5579.27	15.71	12.28	176.94	-9.46	-50.32	591.40	566.56	23.81	
5700.00	5660.70	5686.09	5685.32	16.05	12.46	176.08	-19.94	-50.75	601.91	576.65	23.82	
5800.00	5759.70	5785.12	5783.70	16.38	12.63	175.18	-31.24	-51.22	612.00	586.31	23.82	
5900.00	5858.70	5884.15	5882.08	16.72	12.81	174.30	-42.53	-51.68	622.24	596.11	23.82	
6000.00	5957.70	5983.17	5980.46	17.06	12.99	173.46	-53.83	-52.15	632.61	606.05	23.81	
6100.00	6056.70	6082.20	6078.84	17.40	13.18	172.64	-65.13	-52.62	643.12	616.11	23.81	
6200.00	6155.70	6181.23	6177.22	17.74	13.37	171.84	-76.42	-53.08	653.76	626.30	23.80	
6300.00	6254.70	6280.26	6275.60	18.08	13.56	171.08	-87.72	-53.55	664.52	636.59	23.80	
6400.00	6353.70	6379.28	6373.98	18.42	13.76	170.33	-99.01	-54.01	675.39	647.00	23.79	
6500.00	6452.70	6478.31	6472.36	18.75	13.96	169.61	-110.31	-54.48	686.38	657.52	23.78	
6600.00	6551.70	6577.34	6570.74	19.09	14.17	168.91	-121.60	-54.95	697.47	668.13	23.77	
6700.00	6650.70	6676.37	6669.12	19.43	14.38	168.24	-132.90	-55.41	708.65	678.83	23.76	
6800.00	6749.70	6775.39	6767.50	19.77	14.59	167.58	-144.19	-55.88	719.94	689.63	23.75	
6900.00	6848.70	6874.42	6865.88	20.11	14.81	166.95	-155.49	-56.35	731.31	700.51	23.74	
7000.00	6947.70	6973.45	6964.26	20.45	15.03	166.33	-166.79	-56.81	742.77	711.47	23.73	
7100.00	7046.70	7072.48	7062.64	20.79	15.25	165.74	-178.08	-57.28	754.31	722.51	23.72	
7200.00	7145.70	7171.50	7161.02	21.13	15.48	165.16	-189.38	-57.74	765.93	733.63	23.71	
7300.00	7244.70	7270.53	7259.40	21.47	15.70	164.60	-200.67	-58.21	777.63	744.82	23.70	
7400.00	7343.70	7369.56	7357.78	21.81	15.93	164.05	-211.97	-58.68	789.40	756.07	23.69	
7500.00	7442.70	7468.59	7456.16	22.15	16.17	163.52	-223.26	-59.14	801.24	767.39	23.67	
7600.00	7541.70	7567.61	7554.54	22.50	16.40	163.01	-234.56	-59.61	813.14	778.77	23.66	
7700.00	7640.70	7666.64	7652.92	22.84	16.64	162.51	-245.85	-60.08	825.10	790.22	23.65	
7800.00	7739.70	7765.67	7751.30	23.18	16.88	162.02	-257.15	-60.54	837.13	801.72	23.64	
7900.00	7838.70	7864.70	7849.68	23.52	17.12	161.55	-268.44	-61.01	849.21	813.27	23.63	
8000.00	7937.70	7963.72	7948.06	23.86	17.37	161.10	-279.74	-61.47	861.35	824.87	23.61	
8100.00	8036.70	8062.75	8046.44	24.20	17.61	160.65	-291.04	-61.94	873.54	836.53	23.60	
8200.00	8135.70	8161.78	8144.82	24.54	17.86	160.22	-302.33	-62.41	885.79	848.23	23.59	
8300.00	8234.70	8260.81	8243.20	24.88	18.11	159.80	-313.63	-62.87	898.08	859.98	23.58	
8400.00	8333.70	8359.83	8341.58	25.22	18.36	159.39	-324.92	-63.34	910.41	871.78	23.56	
8500.00	8432.70	8458.86	8439.96	25.57	18.61	158.99	-336.22	-63.80	922.80	883.62	23.55	
8600.00	8531.70	8557.89	8538.34	25.91	18.87	158.60	-347.51	-64.27	935.22	895.49	23.54	
8700.00	8630.70	8656.92	8636.72	26.25	19.12	158.22	-358.81	-64.74	947.69	907.41	23.53	
8800.00	8729.70	8755.94	8735.10	26.59	19.38	157.85	-370.10	-65.20	960.20	919.36	23.52	
8900.00	8828.70	8854.97	8833.48	26.93	19.64	157.50	-381.40	-65.67	972.74	931.36	23.50	
9000.00	8927.70	8954.00	8931.86	27.27	19.90	157.15	-392.70	-66.14	985.32	943.38	23.49	
9100.00	9026.70	9053.03	9030.24	27.61	20.16	156.80	-403.99	-66.60	997.94	955.44	23.48	



Weatherford Anticollision Report

**Weatherford®**

Company: Devon Energy Date: 10/17/2013 Time: 15:17:28 Page: 7
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Reference Well: Thistle Unit 64H Vertical (TVD) Reference: SITE 3718.0
Reference Wellpath#: Db: Sybase

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 63H
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		
9200.00	9125.70	9152.05	9128.62	27.96	20.42	156.47	-415.29	-67.07	1010.59	967.53	23.47	
9300.00	9224.70	9251.08	9227.00	28.30	20.69	156.15	-426.58	-67.53	1023.27	979.66	23.46	
9400.00	9323.70	9350.11	9325.38	28.64	20.95	155.83	-437.88	-68.00	1035.99	991.81	23.45	
9500.00	9422.70	9449.14	9423.76	28.98	21.22	155.52	-449.17	-68.47	1048.73	1003.99	23.44	
9600.00	9521.70	9548.16	9522.14	29.32	21.48	155.22	-460.47	-68.93	1061.51	1016.20	23.43	
9700.00	9620.70	9647.19	9620.52	29.67	21.75	154.93	-471.76	-69.40	1074.31	1028.44	23.42	
9800.00	9719.70	9746.22	9718.90	30.01	22.02	154.64	-483.06	-69.86	1087.14	1040.70	23.41	
9900.00	9818.70	9845.25	9817.28	30.35	22.29	154.36	-494.36	-70.33	1100.00	1052.99	23.40	
10000.00	9917.70	9944.27	9915.66	30.69	22.56	154.09	-505.65	-70.80	1112.88	1065.30	23.39	
10100.00	10016.70	10043.30	10014.04	31.03	22.83	153.82	-516.95	-71.26	1125.79	1077.64	23.38	
10200.00	10115.70	10142.33	10112.42	31.38	23.11	153.56	-528.24	-71.73	1138.72	1089.99	23.37	
10300.00	10214.70	10241.36	10210.80	31.72	23.38	153.30	-539.54	-72.20	1151.67	1102.37	23.36	
10400.00	10313.70	10340.38	10309.18	32.06	23.65	153.05	-550.83	-72.66	1164.64	1114.78	23.35	
10500.00	10412.70	10439.41	10407.56	32.40	23.93	152.81	-562.13	-73.13	1177.64	1127.20	23.35	
10600.00	10511.70	10538.44	10505.94	32.75	24.20	152.57	-573.42	-73.59	1190.66	1139.64	23.34	
10700.00	10610.70	10637.47	10604.32	33.09	24.48	152.33	-584.72	-74.06	1203.70	1152.10	23.33	
10800.00	10709.70	10738.95	10705.19	33.43	24.76	152.12	-595.91	-74.52	1216.74	1164.56	23.32	
10807.34	10716.97	10747.30	10713.52	33.46	24.78	152.12	-596.45	-74.54	1217.68	1165.47	23.32	
10825.00	10734.46	10767.37	10733.57	33.50	24.82	167.25	-597.17	-74.57	1219.94	1167.68	23.35	
10850.00	10759.25	10795.77	10761.97	33.49	24.87	190.43	-596.74	-74.56	1223.14	1170.84	23.39	
10875.00	10784.00	10824.15	10790.26	33.43	24.91	210.08	-594.62	-74.47	1226.33	1174.01	23.44	
10900.00	10808.64	10852.49	10818.34	33.30	24.94	224.01	-590.84	-74.31	1229.52	1177.19	23.50	
10925.00	10833.10	10880.77	10846.10	33.12	24.96	233.47	-585.41	-74.09	1232.69	1180.37	23.56	
10950.00	10857.33	10909.00	10873.43	32.87	24.96	240.08	-578.37	-73.80	1235.82	1183.53	23.63	
10975.00	10881.24	10937.16	10900.22	32.57	24.96	244.89	-569.75	-73.44	1238.92	1186.67	23.71	
11000.00	10904.78	10965.24	10926.39	32.22	24.96	248.56	-559.59	-73.02	1241.97	1189.77	23.79	
11025.00	10927.87	10993.22	10951.84	31.83	24.94	251.45	-547.96	-72.54	1244.98	1192.83	23.88	
11050.00	10950.47	11021.12	10976.48	31.39	24.92	253.81	-534.90	-72.00	1247.92	1195.84	23.97	
11075.00	10972.50	11048.90	11000.22	30.92	24.89	255.77	-520.49	-71.41	1250.79	1198.79	24.06	
11100.00	10993.91	11076.57	11022.99	30.43	24.85	257.45	-504.79	-70.76	1253.59	1201.67	24.15	
11125.00	11014.63	11104.12	11044.72	29.92	24.81	258.91	-487.87	-70.06	1256.30	1204.47	24.24	
11150.00	11034.61	11131.54	11065.34	29.43	24.77	260.19	-469.82	-69.32	1258.92	1207.18	24.33	
11175.00	11053.80	11158.83	11084.80	28.96	24.72	261.33	-450.71	-68.53	1261.45	1209.80	24.42	
11200.00	11072.14	11185.98	11103.05	28.53	24.67	262.36	-430.63	-67.70	1263.88	1212.31	24.51	
11225.00	11089.58	11212.99	11120.04	28.16	24.63	263.28	-409.66	-66.84	1266.20	1214.72	24.59	
11250.00	11106.08	11239.84	11135.72	27.85	24.58	264.13	-387.88	-65.94	1268.40	1217.00	24.68	
11275.00	11121.58	11266.55	11150.08	27.61	24.53	264.90	-365.39	-65.01	1270.49	1219.16	24.75	
11300.00	11136.05	11293.09	11163.09	27.43	24.49	265.60	-342.27	-64.06	1272.45	1221.19	24.82	
11325.00	11149.45	11319.48	11174.73	27.29	24.45	266.24	-318.61	-63.08	1274.28	1223.08	24.89	
11350.00	11161.74	11345.71	11184.98	27.18	24.41	266.83	-294.50	-62.08	1275.97	1224.83	24.95	
11375.00	11172.88	11371.77	11193.83	27.10	24.38	267.37	-270.01	-61.07	1277.53	1226.43	25.00	
11400.00	11182.85	11397.67	11201.30	27.04	24.35	267.86	-245.23	-60.05	1278.94	1227.88	25.05	
11425.00	11191.62	11423.41	11207.37	27.00	24.33	268.31	-220.25	-59.02	1280.21	1229.18	25.09	
11450.00	11199.16	11448.97	11212.07	26.97	24.31	268.71	-195.14	-57.98	1281.33	1230.32	25.12	
11475.00	11205.46	11474.38	11215.39	26.96	24.30	269.07	-169.98	-56.95	1282.30	1231.29	25.14	
11500.00	11210.49	11499.61	11217.36	26.95	24.30	269.39	-144.85	-55.91	1283.11	1232.10	25.15	
11525.00	11214.25	11524.69	11218.00	26.95	24.30	269.67	-119.81	-54.88	1283.76	1232.74	25.16	
11550.00	11216.72	11549.56	11218.00	26.96	24.32	269.87	-94.96	-53.85	1284.26	1233.21	25.15	
11575.00	11217.89	11574.52	11218.00	26.98	24.33	269.98	-70.01	-52.82	1284.60	1233.50	25.14	
11585.13	11218.00	11584.65	11218.00	26.99	24.34	270.00	-59.89	-52.40	1284.69	1233.57	25.13	
11600.00	11218.00	11599.52	11218.00	27.00	24.35	270.00	-45.03	-51.79	1284.79	1233.66	25.13	



Weatherford Anticollision Report

**Weatherford**

Company: Devon Energy Date: 10/17/2013 Time: 15:17:28 Page: 8
Field: Lea County, New Mexico (NAD 83)
Reference Site: Thistle Unit 62, 63, 64H Pad Co-ordinate(NE) Reference: Well: Thistle Unit 64H, Grid North
Reference Well: Thistle Unit 64H Vertical (TVD) Reference: SITE 3718.0
Reference Wellpath: Db: Sybase

Site: Thistle Unit 62, 63, 64H Pad
Well: Thistle Unit 63H
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
11700.00	11218.00	11699.52	11218.00	27.17	24.53	270.00	54.88	-47.67	1285.53	1234.08	24.99	
11800.00	11218.00	11799.52	11218.00	27.45	24.85	270.00	154.79	-43.54	1286.26	1234.25	24.73	
11900.00	11218.00	11899.51	11218.00	27.85	25.29	270.00	254.70	-39.42	1286.99	1234.18	24.37	
12000.00	11218.00	11999.51	11218.00	28.36	25.86	270.00	354.61	-35.30	1287.72	1233.87	23.91	
12100.00	11218.00	12099.51	11218.00	28.96	26.53	270.00	454.53	-31.17	1288.46	1233.34	23.38	
12200.00	11218.00	12199.51	11218.00	29.66	27.31	270.00	554.44	-27.05	1289.19	1232.61	22.79	
12300.00	11218.00	12299.50	11218.00	30.45	28.19	270.00	654.35	-22.93	1289.92	1231.69	22.15	
12400.00	11218.00	12399.50	11218.00	31.32	29.15	270.00	754.26	-18.81	1290.66	1230.59	21.49	
12500.00	11218.00	12499.50	11218.00	32.27	30.19	270.00	854.18	-14.68	1291.39	1229.34	20.81	
12600.00	11218.00	12599.49	11218.00	33.28	31.30	270.00	954.09	-10.56	1292.12	1227.94	20.13	
12700.00	11218.00	12699.49	11218.00	34.36	32.48	270.00	1054.00	-6.44	1292.85	1226.41	19.46	
12800.00	11218.00	12799.49	11218.00	35.50	33.71	270.00	1153.91	-2.31	1293.59	1224.77	18.80	
12900.00	11218.00	12899.49	11218.00	36.69	34.99	270.00	1253.82	1.81	1294.32	1223.02	18.15	
13000.00	11218.00	12999.48	11218.00	37.93	36.32	270.00	1353.74	5.93	1295.05	1221.17	17.53	
13100.00	11218.00	13099.48	11218.00	39.21	37.69	270.00	1453.65	10.06	1295.78	1219.24	16.93	
13200.00	11218.00	13199.48	11218.00	40.53	39.09	270.00	1553.56	14.18	1296.52	1217.24	16.35	
13300.00	11218.00	13299.48	11218.00	41.89	40.53	270.00	1653.47	18.30	1297.25	1215.16	15.80	
13400.00	11218.00	13399.47	11218.00	43.28	42.00	270.00	1753.39	22.42	1297.98	1213.02	15.28	
13500.00	11218.00	13499.47	11218.00	44.70	43.49	270.00	1853.30	26.55	1298.71	1210.83	14.78	
13600.00	11218.00	13599.47	11218.00	46.15	45.01	270.00	1953.21	30.67	1299.45	1208.58	14.30	
13700.00	11218.00	13699.46	11218.00	47.62	46.55	270.00	2053.12	34.79	1300.18	1206.29	13.85	
13800.00	11218.00	13799.46	11218.00	49.12	48.11	270.00	2153.04	38.92	1300.91	1203.96	13.42	
13900.00	11218.00	13899.46	11218.00	50.64	49.68	270.00	2252.95	43.04	1301.64	1201.59	13.01	
14000.00	11218.00	13999.46	11218.00	52.17	51.27	270.00	2352.86	47.16	1302.38	1199.18	12.62	
14100.00	11218.00	14099.45	11218.00	53.73	52.88	270.00	2452.77	51.29	1303.11	1196.75	12.25	
14200.00	11218.00	14199.45	11218.00	55.29	54.50	270.00	2552.68	55.41	1303.84	1194.28	11.90	
14300.00	11218.00	14299.45	11218.00	56.88	56.13	270.00	2652.60	59.53	1304.58	1191.79	11.57	
14400.00	11218.00	14399.45	11218.00	58.48	57.77	270.00	2752.51	63.65	1305.31	1189.28	11.25	
14500.00	11218.00	14499.44	11218.00	60.09	59.42	270.00	2852.42	67.78	1306.04	1186.74	10.95	
14600.00	11218.00	14599.44	11218.00	61.71	61.08	270.00	2952.33	71.90	1306.77	1184.19	10.66	
14700.00	11218.00	14699.44	11218.00	63.34	62.75	270.00	3052.25	76.02	1307.51	1181.61	10.39	
14800.00	11218.00	14799.44	11218.00	64.98	64.43	270.00	3152.16	80.15	1308.24	1179.02	10.12	
14900.00	11218.00	14899.43	11218.00	66.63	66.12	270.00	3252.07	84.27	1308.97	1176.41	9.87	
15000.00	11218.00	14999.43	11218.00	68.29	67.81	270.00	3351.98	88.39	1309.70	1173.78	9.64	
15100.00	11218.00	15099.43	11218.00	69.95	69.51	270.00	3451.90	92.52	1310.44	1171.15	9.41	
15200.00	11218.00	15199.42	11218.00	71.63	71.21	270.00	3551.81	96.64	1311.17	1168.50	9.19	
15300.00	11218.00	15299.42	11218.00	73.31	72.92	270.00	3651.72	100.76	1311.90	1165.84	8.98	
15400.00	11218.00	15399.42	11218.00	74.99	74.63	270.00	3751.63	104.88	1312.63	1163.16	8.78	
15500.00	11218.00	15499.42	11218.00	76.69	76.35	270.00	3851.54	109.01	1313.37	1160.48	8.59	
15600.00	11218.00	15599.41	11218.00	78.39	78.08	270.00	3951.46	113.13	1314.10	1157.79	8.41	
15700.00	11218.00	15699.41	11218.00	80.09	79.80	270.00	4051.37	117.25	1314.83	1155.08	8.23	
15800.00	11218.00	15799.41	11218.00	81.80	81.53	270.00	4151.28	121.38	1315.56	1152.37	8.06	
15900.00	11218.00	15899.41	11218.00	83.51	83.27	270.00	4251.19	125.50	1316.30	1149.66	7.90	
16000.00	11218.00	15999.40	11218.00	85.23	85.01	270.00	4351.11	129.62	1317.03	1146.93	7.74	
16100.00	11218.00	16099.40	11218.00	86.95	86.75	270.00	4451.02	133.75	1317.76	1144.20	7.59	
16200.00	11218.00	16153.35	11218.00	88.67	87.69	270.00	4504.92	135.97	1319.30	1143.07	7.49	
16215.81	11218.00	16153.35	11218.00	88.94	87.69	270.00	4504.92	135.97	1320.06	1143.55	7.48	

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

GeoDec v5.03

Report Date: October 17, 2013

Job Number: _____

Customer: Devon Energy

Well Name: Thistle Unit 64H

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 467979.630 USFT

Latitude 32.2841735 DEG

East/West 780746.430 USFT

Longitude -103.5586280 DEG

Grid Convergence: .41°

Total Correction: +6.98°

Geodetic Location WGS84

Elevation = 0.0 Meters

Latitude = 32.28417° N 32° 17 min 3.025 sec

Longitude = 103.55863° W 103° 33 min 31.061 sec

Magnetic Declination = 7.39° [True North Offset]

Local Gravity = .9988 g CheckSum = 6680

Local Field Strength = 48416 nT Magnetic Vector X = 23883 nT

Magnetic Dip = 60.17° Magnetic Vector Y = 3097 nT

Magnetic Model = bggm2013 Magnetic Vector Z = 42001 nT

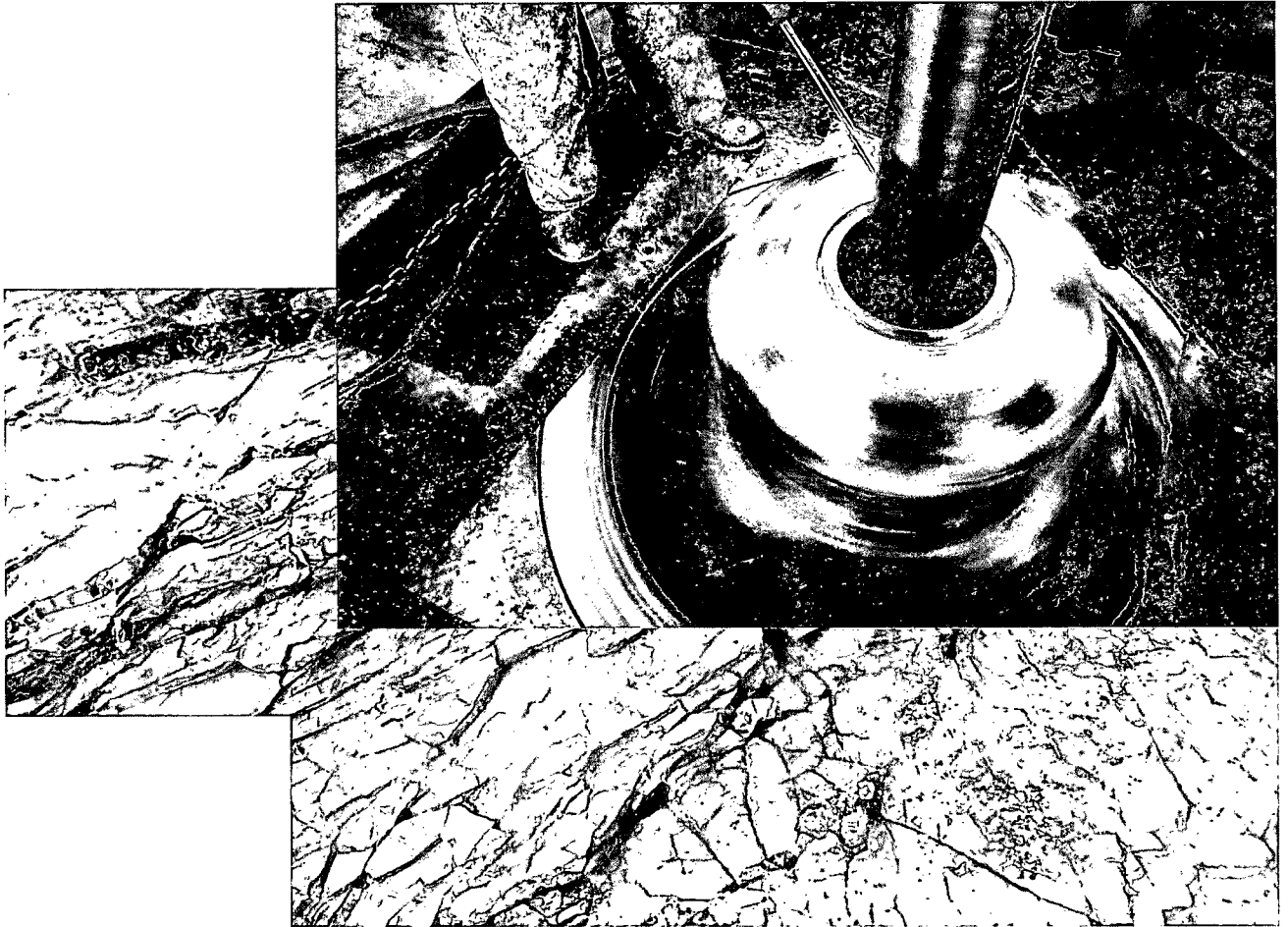
Spud Date = Dec 10, 2013 Magnetic Vector H = 24083 nT

Signed: _____

Date: _____



Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
August 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.

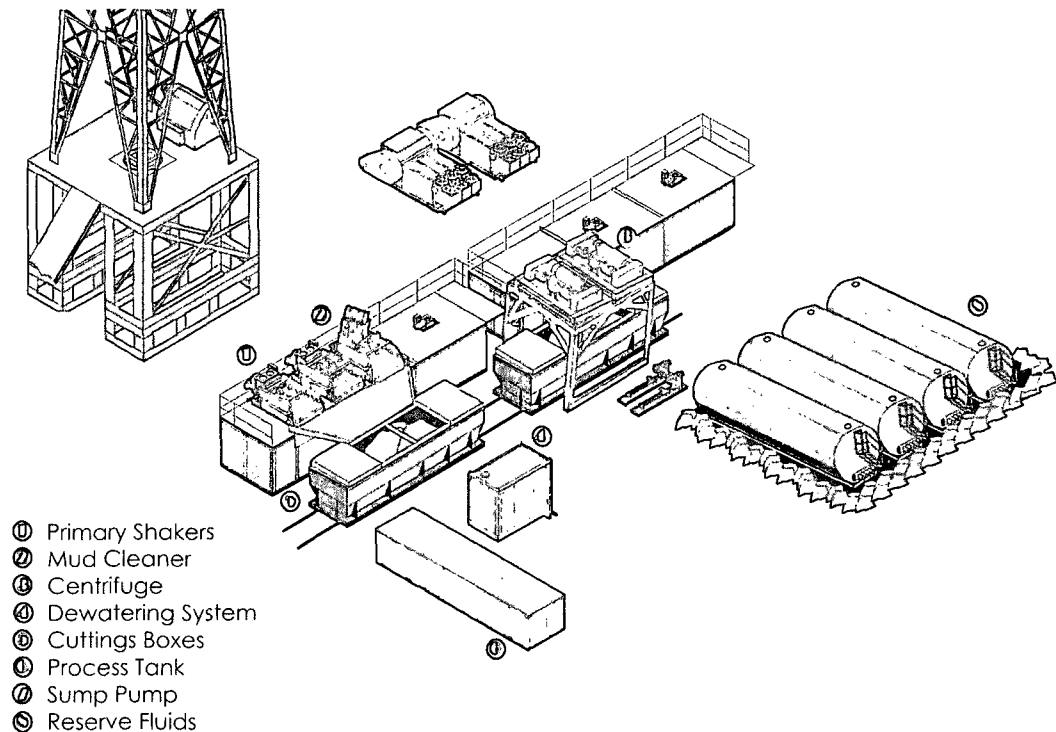
II. Operations and Maintenance Plan

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.