

30 015 40771



Company: Bopco
 Lease/Well: Poker Lake Unit/No. 321H
 Location: 20 miles East of Malaga
 Rig Name: McVay 5
 State/County: New Mexico/Eddy
 Latitude: 32.24, Longitude: -103.89
 GRID North is 0.24 Degrees East of True North
 VS-Azi: 0.00 Degrees



Depth Reference : RKB = 19.5 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: ...lake unit 321h_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 1/7/2014 / 14:33

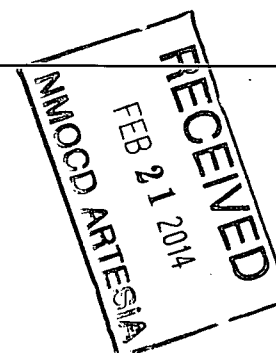
Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Gene Heiss

Poker Lake Unit No. 321H / API 30-015-40771



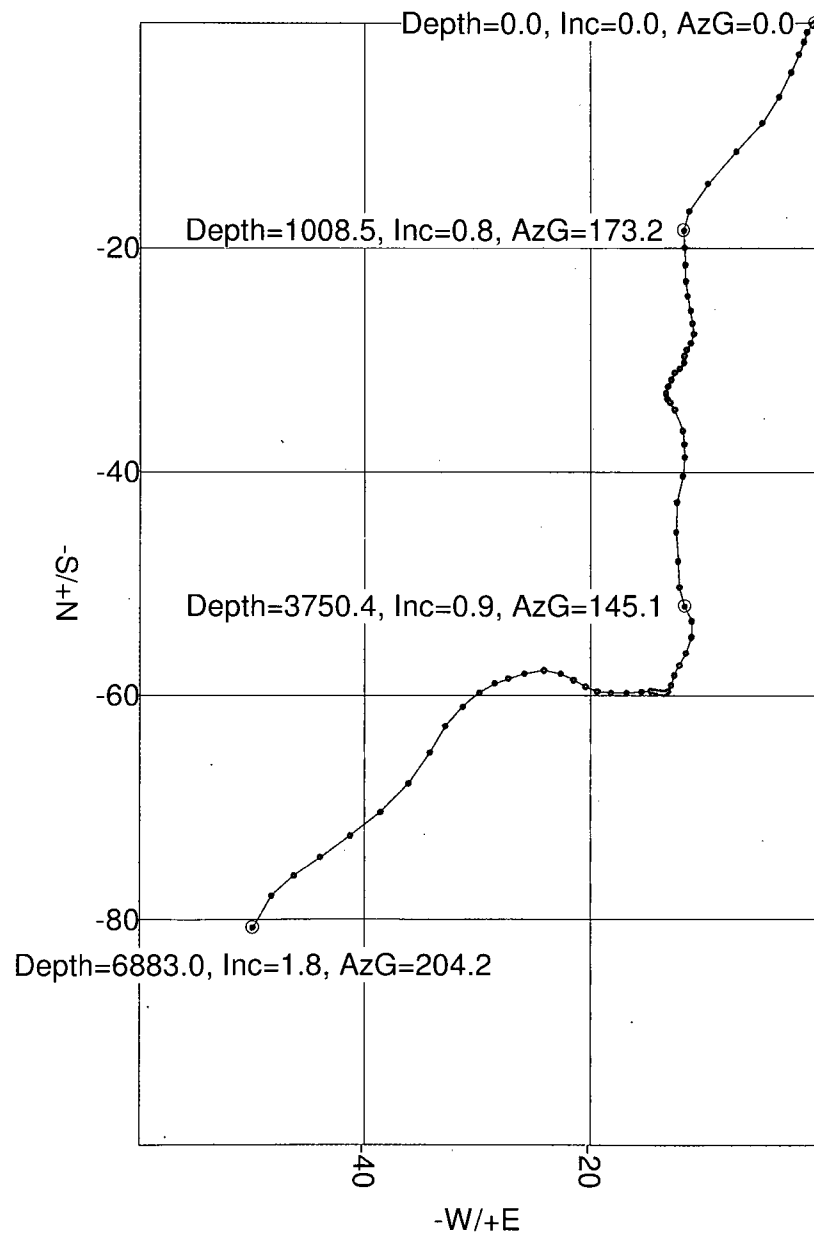
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
62.95	0.55	228.31	62.95	-0.20	-0.23	-0.20	0.30	228.31	0.87
157.50	0.41	202.33	157.50	-0.82	-0.69	-0.82	1.07	220.28	0.27
252.05	0.67	192.86	252.04	-1.67	-0.95	-1.67	1.92	209.53	0.28
346.60	0.80	207.60	346.58	-2.79	-1.37	-2.79	3.11	206.22	0.24
441.15	1.33	204.07	441.12	-4.37	-2.12	-4.37	4.86	205.92	0.57
535.70	1.61	207.13	535.64	-6.56	-3.18	-6.56	7.29	205.86	0.31
630.25	1.74	219.26	630.15	-8.85	-4.69	-8.85	10.02	207.93	0.40
724.80	2.40	224.39	724.63	-11.38	-6.99	-11.38	13.35	211.55	0.73
819.35	2.25	218.41	819.11	-14.25	-9.52	-14.25	17.14	213.76	0.30
913.90	1.42	207.51	913.61	-16.74	-11.22	-16.74	20.15	213.83	0.95
1008.45	0.82	173.25	1008.14	-18.45	-11.68	-18.45	21.83	212.34	0.92
1103.00	0.97	179.19	1102.68	-19.92	-11.59	-19.92	23.04	210.18	0.19
1197.55	0.92	178.85	1197.22	-21.48	-11.56	-21.48	24.39	208.29	0.06
1292.10	0.82	179.02	1291.75	-22.91	-11.53	-22.91	25.65	206.72	0.11
1386.65	0.83	164.72	1386.29	-24.25	-11.34	-24.25	26.77	205.07	0.22
1481.20	0.74	175.36	1480.84	-25.52	-11.11	-25.52	27.83	203.53	0.18
1575.75	0.69	163.55	1575.38	-26.68	-10.90	-26.68	28.82	202.23	0.16
1670.30	0.51	188.88	1669.92	-27.64	-10.80	-27.64	29.68	201.35	0.34
1764.85	0.49	204.35	1764.47	-28.43	-11.04	-28.43	30.49	201.22	0.14
1859.40	0.41	219.84	1859.02	-29.06	-11.42	-29.06	31.22	201.46	0.15

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1953.95	0.35	177.62	1953.56	-29.61	-11.63	-29.61	31.81	201.44	0.30
2048.50	0.38	195.46	2048.11	-30.20	-11.70	-30.20	32.38	201.18	0.12
2143.05	0.39	230.12	2142.66	-30.70	-12.03	-30.70	32.97	201.39	0.24
2237.60	0.35	227.97	2237.21	-31.10	-12.49	-31.10	33.51	201.88	0.04
2332.15	0.48	196.74	2331.76	-31.68	-12.82	-31.68	34.17	202.03	0.27
2426.70	0.39	209.50	2426.30	-32.34	-13.09	-32.34	34.89	202.04	0.14
2521.25	0.35	181.54	2520.85	-32.91	-13.26	-32.91	35.48	201.95	0.19
2615.80	0.31	151.80	2615.40	-33.42	-13.15	-33.42	35.91	201.47	0.18
2710.35	0.27	134.22	2709.95	-33.80	-12.87	-33.80	36.17	200.84	0.10
2804.90	0.57	152.74	2804.50	-34.38	-12.49	-34.38	36.57	199.97	0.35
2994.00	0.66	165.97	2993.59	-36.26	-11.80	-36.26	38.13	198.02	0.09
3088.55	0.79	179.00	3088.13	-37.44	-11.65	-37.44	39.21	197.29	0.22
3183.10	0.71	174.95	3182.67	-38.67	-11.59	-38.67	40.37	196.69	0.10
3277.65	1.34	191.44	3277.21	-40.34	-11.76	-40.34	42.02	196.25	0.73
3372.20	1.57	193.31	3371.72	-42.68	-12.28	-42.68	44.41	196.05	0.24
3466.75	1.68	172.43	3466.24	-45.31	-12.39	-45.31	46.97	195.30	0.63
3561.30	1.52	178.88	3560.75	-47.93	-12.18	-47.93	49.46	194.26	0.25
3655.85	1.31	176.66	3655.27	-50.27	-12.10	-50.27	51.70	193.53	0.23
3750.40	0.94	145.06	3749.80	-51.99	-11.59	-51.99	53.26	192.57	0.75
3844.95	0.88	166.26	3844.34	-53.33	-10.97	-53.33	54.45	191.62	0.36
3939.50	0.95	197.01	3938.88	-54.78	-11.03	-54.78	55.88	191.38	0.52
4034.05	0.82	198.87	4033.42	-56.17	-11.48	-56.17	57.33	191.55	0.15
4128.60	0.67	220.99	4127.96	-57.23	-12.05	-57.23	58.48	191.89	0.34
4223.15	0.62	193.37	4222.51	-58.14	-12.53	-58.14	59.48	192.17	0.33
4317.70	0.50	200.44	4317.05	-59.03	-12.80	-59.03	60.40	192.23	0.15
4412.25	0.29	215.12	4411.60	-59.61	-13.08	-59.61	61.03	192.38	0.24
4506.80	0.26	281.32	4506.15	-59.77	-13.43	-59.77	61.26	192.66	0.32
4601.35	0.26	278.44	4600.70	-59.70	-13.85	-59.70	61.28	193.06	0.01
4695.90	0.24	284.84	4695.25	-59.61	-14.25	-59.61	61.29	193.44	0.03
4790.45	0.26	274.30	4789.80	-59.55	-14.65	-59.55	61.32	193.83	0.05
4885.00	0.71	261.34	4884.34	-59.62	-15.44	-59.62	61.59	194.52	0.49
4979.55	0.89	269.19	4978.88	-59.72	-16.76	-59.72	62.02	195.67	0.22
5074.10	0.83	268.90	5073.42	-59.74	-18.18	-59.74	62.45	196.92	0.06
5168.65	0.64	286.16	5167.96	-59.61	-19.37	-59.61	62.68	198.00	0.31
5263.20	0.72	299.78	5262.51	-59.17	-20.39	-59.17	62.58	199.01	0.19
5357.75	0.77	296.49	5357.05	-58.59	-21.48	-58.59	62.40	200.13	0.07
5452.30	0.80	296.94	5451.59	-58.00	-22.63	-58.00	62.26	201.32	0.03
5546.85	1.11	269.60	5546.13	-57.71	-24.13	-57.71	62.56	202.69	0.57
5641.40	1.07	250.71	5640.66	-58.01	-25.88	-58.01	63.52	204.05	0.38
5735.95	0.70	257.71	5735.20	-58.43	-27.29	-58.43	64.49	205.03	0.41
5830.50	0.89	242.56	5829.74	-58.89	-28.51	-58.89	65.43	205.83	0.30
5925.05	1.03	234.04	5924.28	-59.73	-29.85	-59.73	66.77	206.55	0.21

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
6019.60	1.28	226.65	6018.81	-60.95	-31.30	-60.95	68.51	207.18	0.30
6114.15	1.53	217.27	6113.33	-62.67	-32.83	-62.67	70.75	207.64	0.36
6208.70	1.87	204.15	6207.84	-65.08	-34.22	-65.08	73.53	207.74	0.54
6303.25	2.18	222.94	6302.33	-67.80	-36.07	-67.80	76.80	208.02	0.77
6397.80	2.16	226.15	6396.81	-70.35	-38.58	-70.35	80.23	208.74	0.13
6492.35	2.10	236.97	6491.30	-72.52	-41.31	-72.52	83.47	209.67	0.43
6586.90	1.84	231.54	6585.79	-74.41	-43.95	-74.41	86.42	210.57	0.33
6681.45	1.61	239.51	6680.30	-76.03	-46.29	-76.03	89.01	211.33	0.35
6776.00	1.72	216.71	6774.81	-77.84	-48.28	-77.84	91.60	211.81	0.71
6883.00	1.85	204.16	6881.76	-80.71	-49.95	-80.71	94.91	211.75	0.38



Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Gene Heiss
Poker Lake Unit No. 321H / API 30-015-40771



VES Survey Date: 12/11/2013

Weatherford

Evaluation, Drilling & Intervention

10000 West County Rd. 116

P.O. Box 61028

Midland, TX USA 79711

Tel. (432) 561-8892 Fax (432) 561-8895

BOPCO, LP
PO Box 2760
Midland, TX 79702

Date: December 27, 2013

Attention: Brian Braun

Re: BOPCO, LP
Well: Poker Lake Unit 321H
Eddy County, New Mexico

Enclosed, please find the original survey performed on the referenced well by Precision Energy Services, Inc. (P-5 No. 676004), a Weatherford company. Other information required by your office is as follows:

Name & Title Of Surveyor	Well Number	Surveyed Depths	Dates Performed	Type of Survey
David Geerdes	321H	6916 MD	12/11/2013	Measurement
MWD Supervisor		16051 MD	12/27/2013	While Drilling

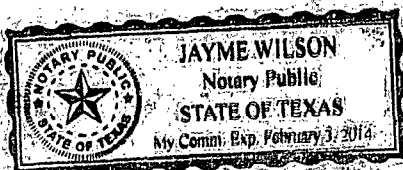
A notarized plan vs. actual is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Jesse Aguilar
MWD Ops Coordinator

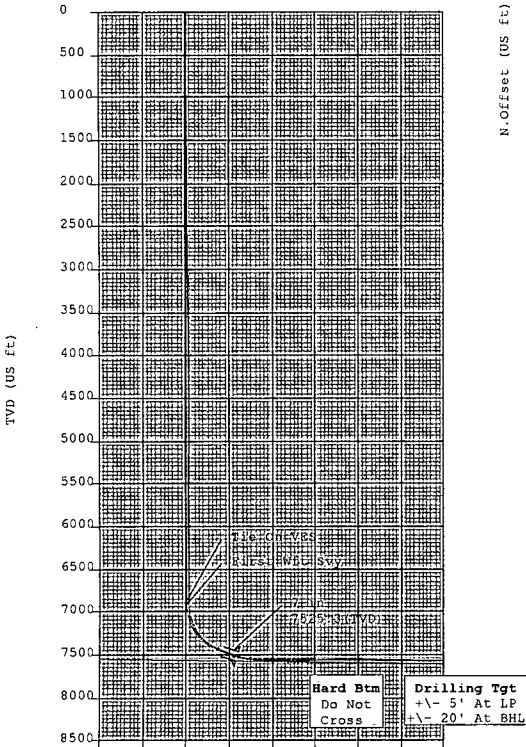
On this, the 3rd day of January, 2014, before me a notary public, the undersigned officer, personally appeared Jesse Aguilar, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

In witness hereof, I hereunto set my hand and official seal.

Notary Public

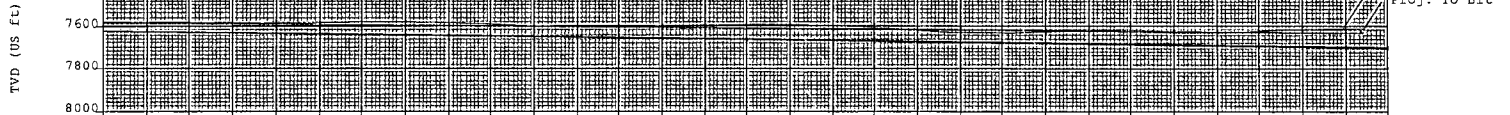


BOPCO, L.P.
Poker Lake Unit 321H
Eddy Co, NM



-1000-500 0 500 1000 1500 2000 2500 3000

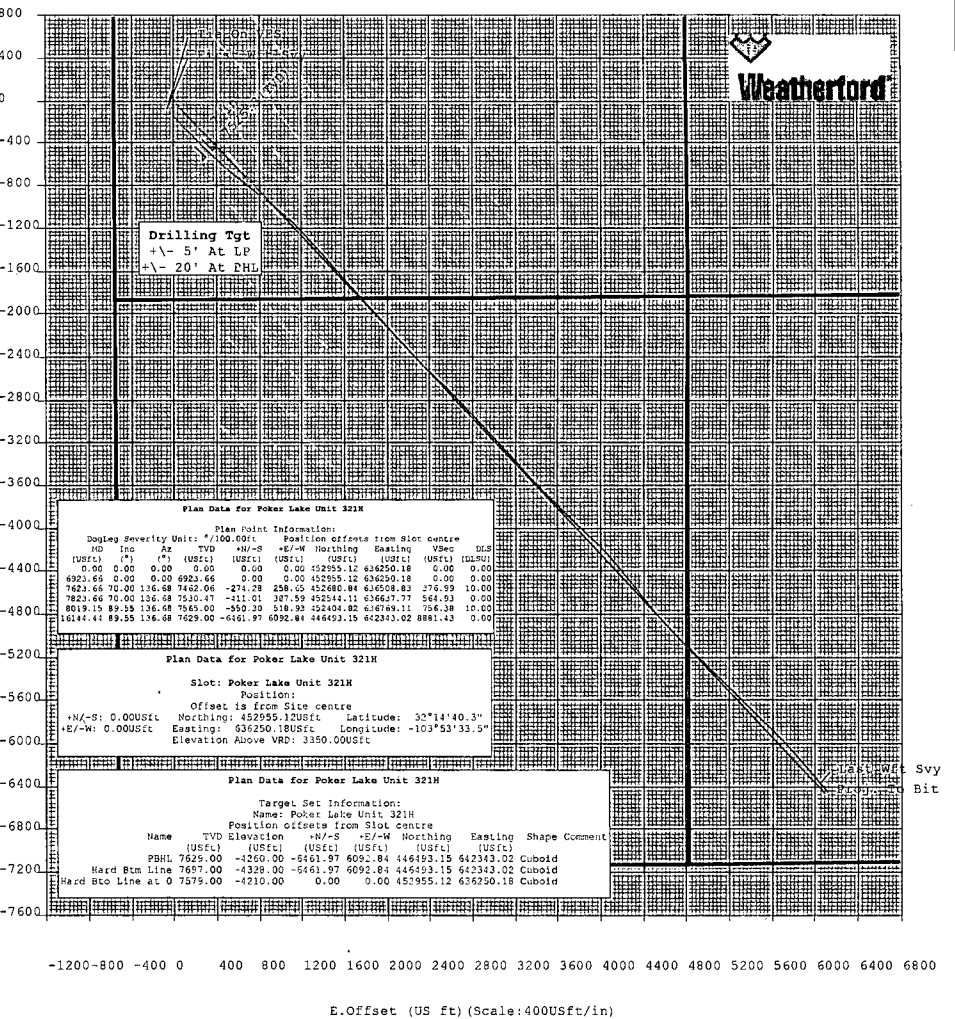
VS (US ft) (Bearing:136.68° Scale:500USft/in)



3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200 7400 7600 7800 8000 8200 8400 8600 8800 9000

VS (US ft) (Bearing:136.68° Scale:200USft/in)

Sign Off: Russell Joyner



-1200-800 -400 0 400 800 1200 1600 2000 2400 2800 3200 3600 4000 4400 4800 5200 5600 6000 6400 6800

E.Offset (US ft) (Scale:400USft/in)

Plan Data for Poker Lake Unit 321H

Plan Point Information

MD

Inc

Az

TVD

+N/-S

+E/-W

Northing

Eastng

VSec

SLB

(USft)

(ft)

(°)

(USft)

(USft)

(USft)

(USft)

(USft)

(USft)

(SLB)

0.00

0.00

0.00

0.00

0.00

0.00

452955.12

636250.18

0.00

0.00

4923.66

0.00

0.00

4923.66

0.00

0.00

0.00

452955.12

636250.18

0.00

0.00

7623.66

70.00

136.68

7462.06

-274.28

258.05

452680.84

636508.83

276.99

10.00

7823.66

70.00

136.68

7530.47

-211.01

387.59

452544.11

636647.77

564.93

0.00

8018.15

89.55

136.68

7659.00

-350.20

518.92

452406.82

636788.11

794.38

10.00

16144.41

89.55

136.68

7629.00

-6161.97

6092.84

446493.15

642343.02

8881.43

0.00

Plan Data for Poker Lake Unit 321H

Slot: Poker Lake Unit 321H

Position:

Offset is from Slot centre

+N/-S: 0.00USft Northing: 452955.12USft Latitude: 32°14'40.3"

+E/-W: 0.00USft Easting: 636250.18USft Longitude: -103°53'33.5"

Elevation Above VRD: 3350.00USft

Plan Data for Poker Lake Unit 321H

Target Set Information:

Name: Poker Lake Unit 321H

Position offsets from Slot centre

Name	TVD	Elevation	+N/-S	+E/-W	Northing	Eastng	Shape	Comment
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)
PHL	7629.00	-3260.00	-5461.97	6092.84	446493.15	642343.02	Cuboid	
Hard Btm Line	7697.00	-4328.00	-5461.97	6092.84	446493.15	642343.02	Cuboid	
Hard Bto Line at 0	7579.00	-4210.00	0.00	0.00	452955.12	636250.18	Cuboid	

5D Survey Report**BOPCO, L.P.****Field Name:** *Eddy Co, NM Nad27 NMEZ***Site Name:** *Poker Lake Unit 321H***Well Name:** *Poker Lake Unit 321H***Survey:** *Wft Svy*

27 December 2013




Weatherford

Poker Lake Unit 321H

Field Name	Map Units : US ft Vertical Reference Datum (VRD) : Mean Sea Level Projected Coordinate System : NAD27 / New Mexico East Comment :		Company Name : BOPCO, L.P.
Site Name	Units : US ft Position	North Reference : Grid Northing : 452955.12 US ft Easting : 636250.18 US ft	Convergence Angle : 0.24 Latitude : 32° 14' 40.28" Longitude : -103° 53' 33.49"
Poker Lake Unit 321H	Elevation above Mean Sea Level: 3350.00 US ft Comment :		
Slot Name	Position (Offsets relative to Site Centre) +N / -S : 0.00 US ft Northing : 452955.12 US ft Latitude : 32° 14' 40.28" +E / -W : 0.00 US ft Easting : 636250.18 US ft Longitude : -103° 53' 33.49"		
Poker Lake Unit 321H	Slot TVD Reference : Ground Elevation Elevation above Mean Sea Level : 3350.00 US ft Comment :		
Well Name	Type : Main well Rig Height Drill Floor : 19.00 US ft Relative to Mean Sea Level: 3369.00 US ft		UWI : Comment :
Poker Lake Unit 321H	Closure Distance : 8894.22 US ft Vertical Section (Position of Origin Relative to Slot) +N / -S : 0.00 US ft +E / -W : 0.00 US ft Az : 136.68°		Closure Azimuth : 136.513°

Target Set

Name : Poker Lake Unit 321H **Number of Targets :** 3

Comment :

Target Name:	Position (Relative to Slot centre) +N / -S : -6461.97 US ft Northing : 446493.15 US ft Latitude : 32° 13' 36.08" +E / -W : 6092.84 US ft Easting : 642343.02 US ft Longitude : -103° 52' 22.87"		
Shape:	TVD (Drill Floor) : 7629.00 US ft		
Cuboid	Orientation Azimuth : 0.00° Dimensions Length : 0.00 US ft	Inclination : 0.00° Breadth : 0.00 US ft	Height : 0.00 US ft

5D Survey Report

Target Name: Hard Btm Line	Position (Relative to Slot centre)		
	+N / -S : -6461.97US ft	Northing : 446493.15 US ft	Latitude : 32°13'36.08"
	+E / -W : 6092.84 US ft	Easting : 642343.02US ft	Longitude : -103°52'22.87"
	TVD (Drill Floor) : 7697.00 US ft		
	Shape: Cuboid		
	Orientation	Azimuth : 136.68°	Inclination : -0.76°
	Dimensions	Length : 17762.00 US ft	Breadth : 0.00 US ft
			Height : 1.00 US ft

Target Name: Hard Bto Line at 0	Position (Relative to Slot centre)		
	+N / -S : 0.00US ft	Northing : 452955.12 US ft	Latitude : 32°14'40.28"
	+E / -W : 0.00 US ft	Easting : 636250.18US ft	Longitude : -103°53'33.49"
	TVD (Drill Floor) : 7579.00 US ft		
	Shape: Cuboid		
	Orientation	Azimuth : 136.68°	Inclination : -0.76°
	Dimensions	Length : 6000.00 US ft	Breadth : 0.00 US ft
			Height : 1.00 US ft

Casing Points (Relative to Slot centre, TVD relative to Drill Floor)								
Easting (US ft)	Northing (US ft)	E. Offset (US ft)	N. Offset (US ft)	TVD (US ft)	Inc (°)	Az (°)	MD (US ft)	Name
636593.63	452458.81	343.45	-496.31	7526.17	73.03	134.53	7826.00	7 in

Well path created using minimum curvature

Survey Points (Relative to Slot centre, TVD relative to Drill Floor.)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	VS (US ft)	Comment
6883.00	1.85	204.16	6881.76	-80.71	-49.95	452874.41	636200.23	0.00	24.45	Tie On VES
6916.00	2.21	180.23	6914.74	-81.83	-50.17	452873.29	636200.01	2.76	25.12	First Wft Svy
6946.00	4.68	157.12	6944.68	-83.54	-49.70	452871.58	636200.48	9.29	26.68	
6977.00	7.26	150.79	6975.51	-86.41	-48.25	452868.71	636201.93	8.58	29.77	
7009.00	9.93	147.22	7007.15	-90.50	-45.77	452864.62	636204.41	8.50	34.44	
7041.00	12.78	146.31	7038.52	-95.77	-42.31	452859.35	636207.87	8.92	40.64	
7072.00	15.07	143.50	7068.61	-101.86	-38.01	452853.26	636212.17	7.70	48.03	
7103.00	17.53	139.97	7098.36	-108.67	-32.61	452846.45	636217.57	8.55	56.69	
7135.00	20.15	137.18	7128.64	-116.41	-25.76	452838.71	636224.42	8.66	67.02	
7167.00	23.62	136.80	7158.33	-125.13	-17.63	452829.99	636232.55	10.85	78.94	
7199.00	27.48	135.47	7187.20	-135.07	-8.06	452820.05	636242.12	12.19	92.74	
7230.00	30.88	135.54	7214.26	-145.85	2.54	452809.27	636252.72	10.97	107.85	
7262.00	34.29	135.66	7241.22	-158.16	14.59	452796.96	636264.77	10.66	125.08	
7293.00	37.02	136.51	7266.41	-171.18	27.12	452783.94	636277.30	8.95	143.14	
7325.00	39.73	137.26	7291.49	-185.68	40.69	452769.44	636290.87	8.59	163.01	
7357.00	42.62	137.98	7315.58	-201.24	54.89	452753.88	636305.07	9.15	184.07	
7388.00	45.69	137.54	7337.81	-217.23	69.41	452737.89	636319.59	9.95	205.66	
7419.00	49.67	136.99	7358.68	-234.06	84.96	452721.06	636335.14	12.91	228.57	
7450.00	53.87	136.12	7377.86	-251.73	101.70	452703.39	636351.88	13.73	252.92	
7481.00	57.83	135.53	7395.26	-270.12	119.58	452685.00	636369.76	12.87	278.56	
7511.00	60.21	135.60	7410.70	-288.49	137.59	452666.63	636387.77	7.94	304.28	
7542.00	62.70	135.62	7425.51	-307.95	156.63	452647.17	636406.81	8.03	331.50	
7574.00	65.94	135.72	7439.38	-328.57	176.78	452626.55	636426.96	10.13	360.33	
7605.00	68.07	135.86	7451.49	-349.03	196.68	452606.09	636446.86	6.88	388.87	
7636.00	68.82	135.64	7462.88	-369.68	216.80	452585.44	636466.98	2.51	417.69	
7668.00	69.29	135.25	7474.32	-390.97	237.77	452564.15	636487.95	1.86	447.57	
7699.00	69.81	135.20	7485.15	-411.59	258.22	452543.53	636508.40	1.68	476.61	
7730.00	70.15	134.99	7495.76	-432.22	278.79	452522.90	636528.97	1.27	505.72	
7742.00	70.38	134.90	7499.81	-440.20	286.78	452514.92	636536.96	2.04	517.01	

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	VS (US ft)	Comment
7826.00	73.03	134.53	7526.17	-496.31	343.45	452458.81	636593.63	3.19	596.71	7 in
7867.00	74.33	134.35	7537.69	-523.86	371.55	452431.26	636621.73	3.19	636.03	
7898.00	76.38	133.33	7545.53	-544.63	393.18	452410.49	636643.36	7.34	665.99	
7929.00	78.45	132.45	7552.29	-565.22	415.35	452389.90	636665.53	7.23	696.17	
7960.00	79.58	132.83	7558.19	-585.83	437.73	452369.29	636687.91	3.84	726.53	
7991.00	81.36	131.75	7563.33	-606.40	460.35	452348.72	636710.53	6.69	757.01	
8022.00	83.61	131.08	7567.38	-626.73	483.39	452328.39	636733.57	7.57	787.61	
8052.00	85.38	130.05	7570.26	-646.15	506.08	452308.97	636756.26	6.82	817.30	
8082.00	87.90	129.04	7572.02	-665.22	529.17	452289.90	636779.35	9.05	847.02	
8112.00	90.28	129.25	7572.49	-684.15	552.43	452270.97	636802.61	7.96	876.75	
8143.00	88.74	128.59	7572.76	-703.62	576.55	452251.50	636826.73	5.40	907.46	
8235.00	89.37	128.65	7574.27	-761.04	648.42	452194.08	636898.60	0.69	998.54	
8326.00	89.23	128.54	7575.39	-817.80	719.54	452137.32	636969.72	0.20	1088.63	
8416.00	87.69	127.81	7577.80	-873.40	790.26	452081.72	637040.44	1.89	1177.61	
8507.00	91.19	128.19	7578.69	-929.42	861.95	452025.70	637112.13	3.87	1267.55	
8598.00	92.73	129.94	7575.58	-986.73	932.56	451968.39	637182.74	2.56	1357.68	
8690.00	91.68	130.05	7572.04	-1045.81	1002.99	451909.31	637253.17	1.15	1448.99	
8782.00	92.87	132.27	7568.39	-1106.31	1072.20	451848.81	637322.38	2.74	1540.48	
8874.00	93.08	134.28	7563.61	-1169.29	1139.09	451785.83	637389.27	2.19	1632.19	
8935.00	93.29	134.64	7560.22	-1211.95	1182.56	451743.17	637432.74	0.68	1693.05	
9032.00	92.38	137.64	7555.43	-1281.80	1249.68	451673.32	637499.86	3.23	1789.92	
9127.00	90.00	137.77	7553.45	-1352.05	1313.59	451603.07	637563.77	2.51	1884.87	
9222.00	90.00	138.13	7553.45	-1422.59	1377.22	451532.53	637627.40	0.38	1979.85	
9317.00	87.62	138.86	7555.43	-1493.71	1440.15	451461.41	637690.33	2.62	2074.78	
9412.00	85.38	138.11	7561.23	-1564.71	1503.00	451390.41	637753.18	2.49	2169.54	
9507.00	87.41	137.34	7567.20	-1634.86	1566.77	451320.26	637816.95	2.28	2264.34	
9601.00	90.63	138.60	7568.81	-1704.66	1629.69	451250.46	637879.87	3.68	2358.28	
9696.00	88.60	138.24	7569.44	-1775.72	1692.73	451179.40	637942.91	2.17	2453.23	
9791.00	90.49	137.09	7570.20	-1845.94	1756.71	451109.18	638006.89	2.33	2548.21	
9886.00	88.32	137.77	7571.19	-1915.89	1820.97	451039.23	638071.15	2.39	2643.19	
9981.00	89.93	137.25	7572.64	-1985.93	1885.12	450969.19	638135.30	1.78	2738.17	
10076.00	89.72	137.94	7572.93	-2056.08	1949.19	450899.04	638199.37	0.76	2833.15	
10171.00	89.09	137.59	7573.91	-2126.41	2013.04	450828.71	638263.22	0.76	2928.13	
10266.00	89.44	137.30	7575.13	-2196.39	2077.28	450758.73	638327.46	0.48	3023.11	
10361.00	88.46	136.85	7576.87	-2265.94	2141.97	450689.18	638392.15	1.14	3118.09	
10455.00	91.54	137.97	7576.87	-2335.13	2205.58	450619.99	638455.76	3.49	3212.07	
10550.00	89.02	136.13	7576.41	-2404.66	2270.30	450550.46	638520.48	3.28	3307.06	
10646.00	89.16	135.92	7577.93	-2473.74	2336.95	450481.38	638587.13	0.26	3403.04	
10741.00	89.58	133.92	7578.98	-2540.81	2404.21	450414.31	638654.39	2.15	3497.98	
10835.00	90.00	133.35	7579.32	-2605.68	2472.24	450349.44	638722.42	0.75	3591.85	
10930.00	88.81	134.87	7580.31	-2671.79	2540.44	450283.33	638790.62	2.03	3686.74	
11025.00	91.47	136.39	7580.08	-2739.69	2606.87	450215.43	638857.05	3.22	3781.72	
11120.00	87.55	134.94	7580.89	-2807.63	2673.24	450147.49	638923.42	4.40	3876.68	
11215.00	92.38	137.04	7580.95	-2875.93	2739.22	450079.19	638989.40	5.54	3971.64	
11309.00	91.26	136.41	7577.96	-2944.33	2803.62	450010.79	639053.80	1.37	4065.59	
11404.00	92.38	137.08	7574.94	-3013.48	2868.69	449941.64	639118.87	1.37	4160.54	
11499.00	88.67	135.92	7574.07	-3082.38	2934.07	449872.74	639184.25	4.09	4255.52	
11594.00	89.72	137.05	7575.41	-3151.26	2999.47	449803.86	639249.65	1.62	4350.50	
11689.00	89.09	137.11	7576.40	-3220.83	3064.16	449734.29	639314.34	0.67	4445.49	
11783.00	88.53	137.56	7578.35	-3289.93	3127.85	449665.19	639378.03	0.76	4539.47	
11878.00	88.11	137.26	7581.13	-3359.84	3192.11	449595.28	639442.29	0.54	4634.42	
11973.00	89.58	138.92	7583.05	-3430.52	3255.55	449524.60	639505.73	2.33	4729.36	
12068.00	85.44	136.97	7587.17	-3500.98	3319.11	449454.14	639569.29	4.82	4824.23	
12161.00	87.62	136.76	7592.80	-3568.72	3382.57	449386.41	639632.75	2.35	4917.05	
12256.00	89.58	136.31	7595.12	-3637.64	3447.90	449317.48	639698.08	2.12	5012.02	
12351.00	88.67	135.62	7596.57	-3705.93	3513.93	449249.19	639764.11	1.20	5107.00	
12446.00	90.42	135.55	7597.33	-3773.78	3580.41	449181.34	639830.59	1.84	5201.97	
12541.00	87.83	133.75	7598.78	-3840.53	3647.98	449114.59	639898.16	3.32	5296.89	
12635.00	89.93	133.66	7600.62	-3905.46	3715.91	449049.66	639966.09	2.24	5390.74	

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)										Comment
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	VS (US ft)	
12730.00	91.96	133.97	7599.05	-3971.22	3784.45	448983.90	640034.63	2.16	5485.60	
12825.00	91.05	133.13	7596.56	-4036.65	3853.28	448918.47	640103.46	1.30	5580.43	
12920.00	91.82	133.58	7594.18	-4101.85	3922.33	448853.27	640172.51	0.94	5675.24	
13015.00	90.42	133.33	7592.32	-4167.17	3991.28	448787.95	640241.46	1.50	5770.07	
13110.00	90.63	137.63	7591.45	-4234.89	4057.87	448720.23	640308.05	4.53	5865.02	
13205.00	90.70	139.08	7590.35	-4305.88	4120.99	448649.24	640371.17	1.53	5959.97	
13299.00	90.21	139.88	7589.60	-4377.33	4182.06	448577.79	640432.24	1.00	6053.85	
13394.00	91.26	141.69	7588.38	-4450.92	4242.12	448504.20	640492.30	2.20	6148.60	
13490.00	87.20	139.81	7589.67	-4525.24	4302.84	448429.88	640553.02	4.66	6244.32	
13584.00	89.02	141.33	7592.77	-4597.80	4362.50	448357.32	640612.68	2.52	6338.05	
13679.00	88.25	140.87	7595.03	-4671.71	4422.14	448283.41	640672.32	0.94	6432.74	
13775.00	86.71	140.46	7599.25	-4745.89	4482.93	448209.23	640733.11	1.66	6528.41	
13869.00	86.99	138.37	7604.42	-4817.17	4543.99	448137.95	640794.17	2.24	6622.15	
13964.00	87.13	137.31	7609.29	-4887.49	4607.67	448067.63	640857.85	1.12	6717.01	
14059.00	85.03	136.39	7615.79	-4956.64	4672.48	447998.48	640922.66	2.41	6811.78	
14154.00	87.06	135.79	7622.34	-5024.91	4738.21	447930.21	640988.39	2.23	6906.54	
14250.00	89.79	135.32	7624.98	-5093.41	4805.40	447861.71	641055.58	2.89	7002.48	
14344.00	88.88	134.18	7626.07	-5159.58	4872.15	447795.54	641122.33	1.55	7096.42	
14439.00	89.16	133.60	7627.69	-5225.44	4940.60	447729.68	641190.78	0.68	7191.29	
14534.00	92.03	134.37	7626.71	-5291.40	5008.95	447663.72	641259.13	3.13	7286.17	
14629.00	92.03	134.64	7623.34	-5357.95	5076.66	447597.17	641326.84	0.28	7381.04	
14723.00	91.26	134.12	7620.64	-5423.67	5143.81	447531.45	641393.99	0.99	7474.92	
14818.00	90.49	133.60	7619.19	-5489.48	5212.30	447465.64	641462.48	0.98	7569.80	
14913.00	89.86	135.38	7618.90	-5556.05	5280.07	447399.07	641530.25	1.99	7664.72	
15007.00	88.60	135.56	7620.17	-5623.06	5345.98	447332.06	641596.16	1.35	7758.69	
15102.00	88.95	134.57	7622.20	-5690.29	5413.06	447264.83	641663.24	1.11	7853.63	
15197.00	87.90	133.55	7624.81	-5756.33	5481.30	447198.79	641731.48	1.54	7948.49	
15293.00	90.21	134.26	7626.39	-5822.89	5550.46	447132.23	641800.64	2.52	8044.36	
15388.00	90.07	133.44	7626.16	-5888.70	5618.97	447066.42	641869.15	0.88	8139.24	
15481.00	90.56	135.77	7625.65	-5954.00	5685.17	447001.12	641935.35	2.56	8232.17	
15576.00	92.45	137.02	7623.15	-6022.76	5750.67	446932.36	642000.85	2.38	8327.13	
15671.00	93.78	139.44	7617.99	-6093.51	5813.85	446861.61	642064.03	2.90	8421.95	
15766.00	92.24	140.07	7613.00	-6165.92	5875.14	446789.20	642125.32	1.75	8516.68	
15861.00	90.70	139.29	7610.56	-6238.32	5936.59	446716.80	642186.77	1.82	8611.51	
15956.00	91.05	139.62	7609.11	-6310.50	5998.33	446644.62	642248.51	0.51	8706.39	
16051.00	90.42	139.21	7607.90	-6382.64	6060.13	446572.48	642310.31	0.79	8801.27	Last Wft Svy
16144.00	90.42	139.21	7607.21	-6453.05	6120.89	446502.07	642371.07	0.00	8894.18	Proj. To Bit