

30-025-39946

HOBBS OCD

APR 29 2011

RECEIVED

MARSHALL & WINSTON

Teas

Lea County, NM

Laguna Deep Unit Federal 35 #1H

VH - Job #32K12101004

SUR: I-35-19s-33e, 2310/S & 330/E
BHL: L-35-19s-33e, 2146/S & 4945/E
API # 30-025-39946

Survey: Actual

SDI Standard Survey Report

13 January, 2011

This survey is correct to the best of my knowledge and is supported by actual field data.

Robert

Notarized this date 17th of January, 2011.

Carrie Reed

Notary Signature
County of Midland
State of Texas



JUL 07 2011

Scientific Drilling International, Inc.
SDI Standard Survey Report

Company:	MARSHALL & WINSTON	Local Co-ordinate Reference:	Well Laguna Deep Unit Federal 35 #1H
Project:	Teas	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Laguna Deep Unit Federal 35 #1H	North Reference:	Grid
Wellbore:	VH - Job #32K12101004	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K12101004	Database:	EDM-Regulatory

Project	Teas		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site		Lea County, NM			
Site Position:		Northing:	588,407.22 usft	Latitude:	32° 36' 56.315 N
From:	Lat/Long	Easting:	717,823.47 usft	Longitude:	103° 37' 33.258 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.38 °

Well	Laguna Deep Unit Federal 35 #1H, Directional (Great White)					
Well Position	+N/-S	0.0 usft	Northing:	588,407.22 usft	Latitude:	32° 36' 56.315 N
	+E/-W	0.0 usft	Easting:	717,823.47 usft	Longitude:	103° 37' 33.258 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore					
VH - Job #32K12101004					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2010	12/25/2010	7.75	60.56	48,959

Design		VH - Job #32K12101004			
Audit Notes:					
Version:		1 0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:		Depth From (TVD)	+N/-S	+E/-W	Direction
		(usft)	(usft)	(usft)	(°)
		0.0	0 0	0 0	269.71

Survey Program		Date - 1/13/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,964.1	Actual (VH - Job #32K12101004)	KSRG	Keeper Gyro

Survey								
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
100.0	0.77	259.77	100.0	-0.1	-0.7	259.77	0.7	
200.0	0.60	237.68	200.0	-0.5	-1.8	253.63	1.8	
300.0	1.12	244.47	300.0	-1.2	-3.1	248.45	3.3	
400.0	0.94	249.42	400.0	-1.9	-4.7	247.85	5.1	
500.0	1.01	246.66	499.9	-2.6	-6.3	247.88	6.8	
600.0	0.92	252.69	599.9	-3.2	-7.9	248.21	8.5	
700.0	0.78	244.80	699.9	-3.7	-9.3	248.34	10.0	
800.0	0.88	240.84	799.9	-4.3	-10.6	247.62	11.4	
900.0	0.57	243.29	899.9	-4.9	-11.7	247.04	12.7	
1,000.0	0.40	227.50	999.9	-5.4	-12.4	246.41	13.5	
1,100.0	0.33	211.10	1,099.9	-5.9	-12.8	245.27	14.1	

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Site:	Lea County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Laguna Deep Unit Federal 35 #1H	North Reference:	Grid
Wellbore:	VH - Job #32K12101004	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K12101004	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200.0	0.47	247.32	1,199.9	-6.3	-13.3	244.70	14.7
1,300.0	0.43	260.74	1,299.9	-6.5	-14.1	245.15	15.5
1,400.0	0.13	298.78	1,399.9	-6.5	-14.5	245.84	15.9
1,500.0	0.24	30.05	1,499.9	-6.3	-14.5	246.62	15.8
1,600.0	0.25	46.81	1,599.9	-5.9	-14.3	247.35	15.5
1,700.0	0.06	35.78	1,699.9	-5.8	-14.1	247.74	15.2
1,800.0	0.12	8.60	1,799.9	-5.6	-14.0	248.19	15.1
1,900.0	0.25	48.64	1,899.9	-5.4	-13.8	248.82	14.8
2,000.0	0.24	57.92	1,999.9	-5.1	-13.5	249.28	14.4
2,100.0	0.31	29.49	2,099.9	-4.8	-13.2	250.15	14.0
2,200.0	0.38	36.91	2,199.9	-4.3	-12.9	251.67	13.5
2,300.0	0.46	50.12	2,299.9	-3.7	-12.4	253.16	12.9
2,400.0	0.78	33.46	2,399.9	-2.9	-11.7	255.98	12.0
2,500.0	0.98	69.17	2,499.9	-2.0	-10.5	258.99	10.7
2,600.0	0.90	38.94	2,599.9	-1.1	-9.2	263.02	9.3
2,700.0	0.98	33.73	2,699.8	0.2	-8.2	271.36	8.2
2,800.0	1.31	33.04	2,799.8	1.9	-7.1	284.65	7.4
2,900.0	1.37	36.25	2,899.8	3.8	-5.8	303.12	6.9
3,000.0	1.46	35.56	2,999.8	5.8	-4.4	323.02	7.2
3,100.0	0.97	37.52	3,099.7	7.5	-3.1	337.52	8.1
3,200.0	0.44	36.28	3,199.7	8.5	-2.4	344.45	8.8
3,300.0	0.32	24.64	3,299.7	9.0	-2.0	347.43	9.3
3,400.0	0.02	9.28	3,399.7	9.3	-1.9	348.49	9.5
3,500.0	0.07	165.02	3,499.7	9.3	-1.9	348.55	9.5
3,600.0	0.33	255.60	3,599.7	9.1	-2.1	346.82	9.4
3,700.0	0.69	237.80	3,699.7	8.7	-2.9	341.48	9.2
3,800.0	0.64	231.11	3,799.7	8.1	-3.9	334.37	9.0
3,900.0	0.74	212.10	3,899.7	7.2	-4.7	327.05	8.6
4,000.0	0.68	183.75	3,999.7	6.0	-5.0	320.18	7.9
4,100.0	0.70	166.98	4,099.7	4.9	-4.9	314.51	6.9
4,200.0	0.47	179.31	4,199.7	3.8	-4.8	308.74	6.1
4,300.0	0.54	160.75	4,299.7	3.0	-4.6	302.85	5.5
4,400.0	0.26	169.67	4,399.7	2.3	-4.4	297.63	5.0
4,500.0	0.23	168.60	4,499.7	1.9	-4.4	293.59	4.8
4,600.0	0.21	242.94	4,599.7	1.6	-4.5	289.91	4.8
4,700.0	0.22	289.00	4,699.7	1.6	-4.8	288.36	5.1
4,800.0	0.07	241.71	4,799.7	1.6	-5.1	287.91	5.3
4,900.0	0.57	300.67	4,899.7	1.9	-5.5	288.55	5.8
5,000.0	0.54	338.27	4,999.7	2.6	-6.1	292.55	6.7
5,100.0	0.38	2.70	5,099.7	3.3	-6.3	297.78	7.1
5,200.0	0.53	356.34	5,199.7	4.1	-6.3	303.07	7.5
5,300.0	0.45	337.94	5,299.7	4.9	-6.5	307.26	8.2
5,400.0	0.39	16.45	5,399.7	5.6	-6.5	310.70	8.6
5,500.0	0.57	9.82	5,499.7	6.4	-6.4	315.37	9.1

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Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Laguna Deep Unit Federal 35 #1H	North Reference:	Grid
Wellbore:	VH - Job #32K12101004	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K12101004	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,600.0	0.75	25.29	5,599.7	7.5	-6.0	321.45	9.6
5,700.0	0.78	23.66	5,699.6	8.7	-5.4	328.08	10.3
5,800.0	0.80	35.53	5,799.6	9.9	-4.8	334.37	11.0
5,900.0	0.83	42.09	5,899.6	11.0	-3.9	340.66	11.7
6,000.0	0.99	53.21	5,999.6	12.1	-2.7	347.43	12.4
6,100.0	2.09	80.40	6,099.6	12.9	-0.2	359.08	12.9
6,200.0	2.12	81.41	6,199.5	13.5	3.4	14.22	13.9
6,300.0	1.84	91.14	6,299.4	13.7	6.9	26.51	15.4
6,400.0	1.71	92.78	6,399.4	13.6	9.9	36.11	16.9
6,500.0	1.37	95.77	6,499.4	13.4	12.6	43.21	18.4
6,600.0	0.98	104.01	6,599.3	13.1	14.6	48.16	19.7
6,700.0	0.89	112.29	6,699.3	12.6	16.2	52.09	20.5
6,800.0	0.89	141.76	6,799.3	11.7	17.4	56.05	21.0
6,900.0	0.94	156.19	6,899.3	10.3	18.2	60.38	20.9
7,000.0	0.98	166.25	6,999.3	8.8	18.7	64.93	20.7
7,100.0	1.01	175.35	7,099.3	7.1	19.0	69.63	20.3
7,200.0	1.04	177.59	7,199.3	5.3	19.1	74.58	19.8
7,300.0	0.92	182.71	7,299.2	3.6	19.1	79.44	19.5
7,400.0	0.98	175.28	7,399.2	1.9	19.2	84.30	19.3
7,500.0	1.00	175.82	7,499.2	0.2	19.3	89.44	19.3
7,600.0	0.87	185.47	7,599.2	-1.4	19.3	94.26	19.3
7,700.0	0.77	182.83	7,699.2	-2.9	19.2	98.49	19.4
7,800.0	0.65	167.28	7,799.2	-4.1	19.3	101.98	19.7
7,900.0	0.51	168.87	7,899.2	-5.1	19.5	104.61	20.1
8,000.0	0.54	181.18	7,999.2	-6.0	19.6	107.02	20.5
8,100.0	0.49	192.03	8,099.2	-6.9	19.5	109.46	20.6
8,200.0	0.29	184.00	8,199.2	-7.5	19.4	111.30	20.8
8,300.0	0.39	202.43	8,299.2	-8.1	19.2	112.90	20.8
8,400.0	0.06	117.56	8,399.2	-8.5	19.1	113.85	20.9
8,500.0	0.51	335.73	8,499.2	-8.1	19.0	113.03	20.6
8,600.0	0.57	9.68	8,599.2	-7.2	18.9	110.80	20.2
8,700.0	0.39	23.93	8,699.2	-6.4	19.1	108.45	20.1
8,800.0	0.35	39.28	8,799.2	-5.8	19.4	106.68	20.3
8,900.0	0.49	346.84	8,899.2	-5.2	19.5	104.83	20.2
8,964.1	0.48	314.87	8,963.3	-4.7	19.3	103.75	19.8



Project: Teas
Lea County, NM
Well: Laguna Deep Unit Federal 35 #1H
Wellbore: VH - Job #32K12101004
Design: VH - Job #32K12101004

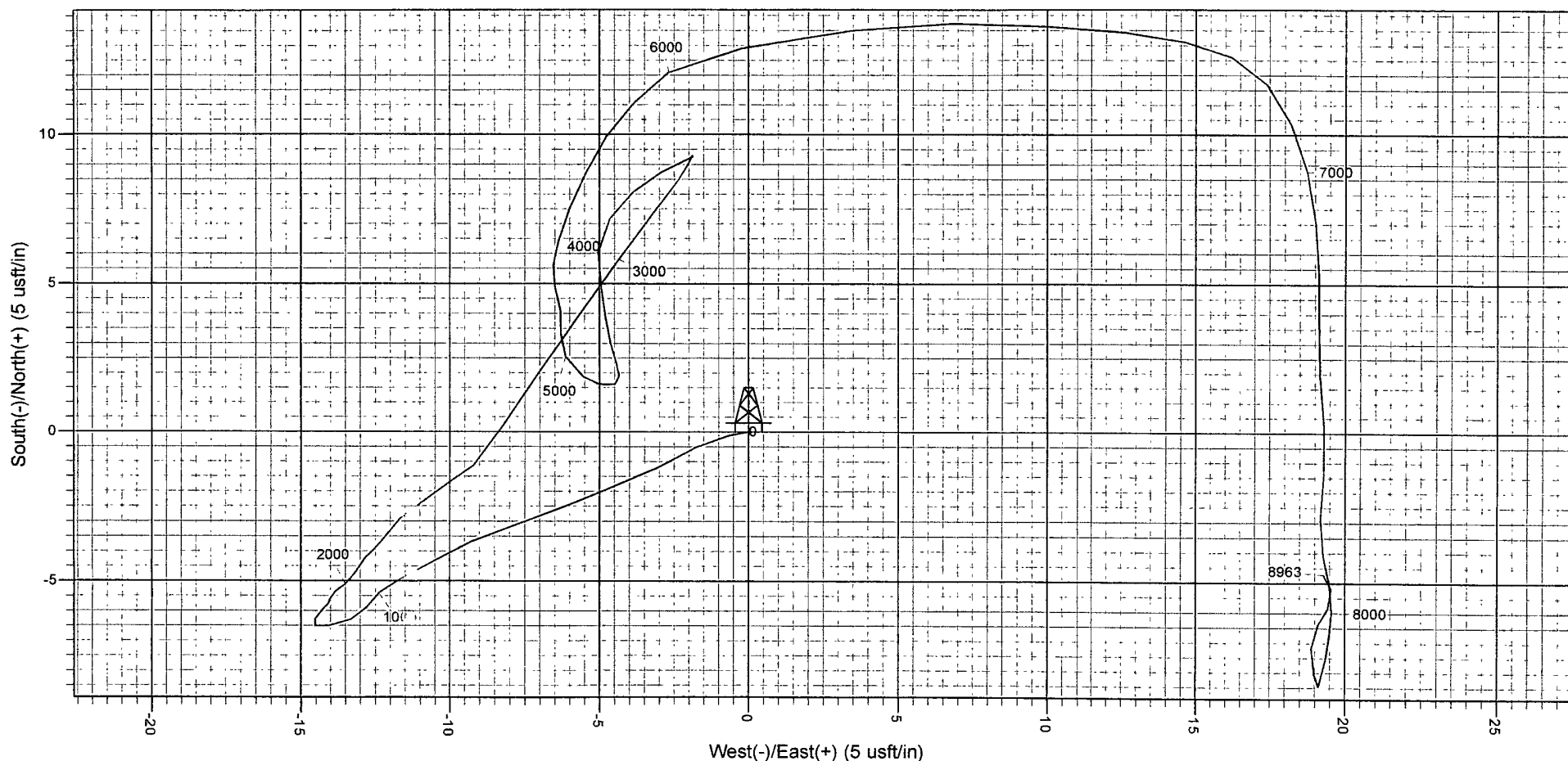


Azimuths to Grid North
True North: -0.38°
Magnetic North: 7.37°

Magnetic Field
Strength 48959 2snT
Dip Angle: 60.56°
Date: 12/25/2010
Model: BGGM2010

WELL DETAILS: Laguna Deep Unit Federal 35 #1H
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	588407.22	717823.47	32° 36' 56.315 N	103° 37' 33.258 W	



PROJECT DETAILS: Teas
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Lea County, NM
Site Centre Latitude: 32° 36' 56.315 N
Longitude: 103° 37' 33.258 W
Positional Uncertainty: 0.0
Convergence: 0.38
Local North: Grid

Actual Wellpath Report

No.1H PWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(LDU) Sec 35, T19S, R33E	Wellbore	No.1H PWB
Facility	Leguna Deep Unit Fed 35-1H		

REPORT SETUP INFORMATION

Projection System	NAD27 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Gomeoscr
Scale	0.999963	Report Generated	1/24/2011 at 7:33:56 AM
Convergence at slot	0.38° East	Database/Source file	WA Midland/No.1H_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	717823.50	588407.40	32°36'56.317"N	103°37'33.258"W
Facility Reference Pt			717823.50	588407.40	32°36'56.317"N	103°37'33.258"W
Field Reference Pt			717823.50	588407.40	32°36'56.317"N	103°37'33.258"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 1H SHL (RT) to GL	21.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 1H SHL (RT) to Mean Sea Level	3636.00ft
Vertical Reference Pt	Rig on No. 1H SHL (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 1H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	269.71°

Actual Wellpath Report

No.1H PWP

Page 2 of 5

REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(LDU) Sec 35, T19S, R33E	Wellbore	No.1H PWB
Facility	Leguna Deep Unit Fed 35-1H		

WELLPATH DATA (156 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8964.15	0.480	314.870	8963.30	-19.25	-4.75	19.27	717842.77	588402.65	32°36'56.268"N	103°37'33.033"W	0.00	
8999.00	1.300	276.300	8998.15	-18.75	-4.60	18.77	717842.27	588402.80	32°36'56.270"N	103°37'33.039"W	2.79	
9031.00	4.700	218.500	9030.10	-17.57	-5.59	17.60	717841.10	588401.81	32°36'56.260"N	103°37'33.052"W	12.98	
9063.00	5.000	277.000	9062.01	-15.36	-6.45	15.39	717838.89	588400.95	32°36'56.252"N	103°37'33.078"W	14.82	
9095.00	8.300	277.900	9093.79	-11.69	-5.96	11.72	717835.22	588401.44	32°36'56.257"N	103°37'33.121"W	10.32	
9127.00	12.700	283.400	9125.24	-5.99	-4.83	6.01	717829.51	588402.57	32°36'56.268"N	103°37'33.188"W	14.09	
9159.00	17.000	285.600	9156.17	1.94	-2.75	-1.92	717821.58	588404.65	32°36'56.289"N	103°37'33.280"W	13.55	
9190.00	21.200	287.700	9185.45	11.63	0.17	-11.63	717811.87	588407.57	32°36'56.319"N	103°37'33.394"W	13.73	
9222.00	25.800	288.400	9214.79	23.74	4.13	-23.76	717799.74	588411.53	32°36'56.359"N	103°37'33.535"W	14.40	
9254.00	30.100	289.100	9243.05	37.91	8.96	-37.95	717785.55	588416.36	32°36'56.408"N	103°37'33.701"W	13.48	
9281.00	33.000	287.100	9266.06	51.32	13.34	-51.38	717772.12	588420.74	32°36'56.452"N	103°37'33.857"W	11.42	
9313.00	37.300	285.300	9292.22	68.98	18.46	-69.07	717754.43	588425.86	32°36'56.504"N	103°37'34.064"W	13.82	
9344.00	42.200	284.900	9316.05	88.09	23.62	-88.21	717735.30	588431.02	32°36'56.556"N	103°37'34.287"W	15.83	
9376.00	47.300	283.700	9338.77	109.88	29.17	-110.03	717713.47	588436.57	32°36'56.612"N	103°37'34.542"W	16.15	
9408.00	52.600	283.600	9359.35	133.65	34.95	-133.83	717689.68	588442.35	32°36'56.671"N	103°37'34.819"W	16.56	
9439.00	58.100	283.000	9376.97	158.43	40.81	-158.64	717664.87	588448.21	32°36'56.731"N	103°37'35.109"W	17.81	
9471.00	63.600	282.100	9392.55	185.67	46.87	-185.91	717637.60	588454.27	32°36'56.793"N	103°37'35.427"W	17.36	
9503.00	69.300	281.400	9405.33	214.35	52.84	-214.61	717608.89	588460.24	32°36'56.854"N	103°37'35.763"W	17.92	
9535.00	75.100	280.800	9415.11	244.20	58.70	-244.50	717579.01	588466.10	32°36'56.914"N	103°37'36.111"W	18.21	
9567.00	80.900	279.900	9421.76	274.95	64.32	-275.28	717548.23	588471.72	32°36'56.971"N	103°37'36.471"W	18.33	
9598.00	85.500	277.100	9425.43	305.36	68.86	-305.71	717517.80	588476.26	32°36'57.018"N	103°37'36.826"W	17.34	
9630.00	89.400	273.400	9426.85	337.17	71.79	-337.53	717485.98	588479.18	32°36'57.049"N	103°37'37.198"W	16.79	
9661.00	93.100	269.200	9426.18	368.14	72.49	-368.51	717455.01	588479.89	32°36'57.058"N	103°37'37.560"W	18.05	
9693.00	93.400	264.100	9424.36	400.03	70.62	-400.39	717423.13	588478.02	32°36'57.042"N	103°37'37.933"W	15.94	
9779.00	92.500	254.900	9419.92	484.46	54.99	-484.74	717338.77	588462.38	32°36'56.893"N	103°37'38.920"W	10.73	
9811.00	92.300	255.400	9418.58	515.41	46.79	-515.65	717307.87	588454.19	32°36'56.814"N	103°37'39.282"W	1.68	
9842.00	92.400	255.300	9417.31	545.41	38.96	-545.62	717277.91	588446.36	32°36'56.738"N	103°37'39.633"W	0.46	
9874.00	91.000	255.700	9416.36	576.42	30.95	-576.58	717246.94	588438.35	32°36'56.661"N	103°37'39.996"W	4.55	
9906.00	90.800	256.600	9415.86	607.52	23.29	-607.65	717215.88	588430.69	32°36'56.587"N	103°37'40.360"W	2.88	
9938.00	90.700	256.600	9415.44	638.69	15.88	-638.77	717184.75	588423.28	32°36'56.516"N	103°37'40.724"W	0.31	
9969.00	90.300	256.400	9415.17	668.86	8.64	-668.92	717154.61	588416.04	32°36'56.446"N	103°37'41.077"W	1.44	
10000.00	90.600	256.500	9414.93	699.04	1.38	-699.05	717124.48	588408.78	32°36'56.376"N	103°37'41.430"W	1.02	
10009.00	90.600	258.800	9414.83	707.84	-0.55	-707.84	717115.68	588406.85	32°36'56.358"N	103°37'41.533"W	25.55	
10041.00	91.300	262.100	9414.30	739.41	-5.86	-739.39	717084.14	588401.54	32°36'56.307"N	103°37'41.902"W	10.54	
10073.00	92.200	264.500	9413.33	771.19	-9.59	-771.15	717052.38	588397.81	32°36'56.272"N	103°37'42.274"W	28.01	
10105.00	94.800	266.000	9411.37	803.03	-12.23	-802.98	717020.55	588395.17	32°36'56.248"N	103°37'42.646"W	9.38	
10136.00	95.000	267.600	9408.72	833.88	-13.96	-833.82	716989.71	588393.44	32°36'56.233"N	103°37'43.007"W	5.18	
10168.00	93.800	268.600	9406.27	865.77	-15.01	-865.71	716957.83	588392.39	32°36'56.225"N	103°37'43.379"W	4.88	
10199.00	92.400	270.100	9404.59	896.72	-15.36	-896.66	716926.88	588392.04	32°36'56.223"N	103°37'43.741"W	6.61	
10231.00	92.000	270.700	9403.37	928.70	-15.14	-928.63	716894.90	588392.26	32°36'56.228"N	103°37'44.115"W	2.25	
10262.00	91.800	270.600	9402.34	959.67	-14.79	-959.61	716863.92	588392.61	32°36'56.233"N	103°37'44.477"W	0.72	
10294.00	91.500	270.600	9401.42	991.66	-14.45	-991.60	716831.94	588392.95	32°36'56.239"N	103°37'44.851"W	0.94	
10326.00	91.200	270.400	9400.66	1023.65	-14.18	-1023.59	716799.95	588393.22	32°36'56.244"N	103°37'45.225"W	1.13	
10358.00	91.400	270.400	9399.94	1055.64	-13.95	-1055.58	716767.96	588393.45	32°36'56.248"N	103°37'45.599"W	0.62	
10389.00	93.100	271.000	9398.72	1086.61	-13.57	-1086.55	716736.99	588393.83	32°36'56.254"N	103°37'45.961"W	5.81	

Actual Wellpath Report

No.1H PWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(LDU) Sec 35, T19S, R33E	Wellbore	No.1H PWB
Facility	Leguna Deep Unit Fed 35-1H		

WELLPATH DATA (156 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10421.00	92.900	270.700	9397.04	1118.56	-13.10	-1118.50	716705.04	588394.30	32°36'56.260"N	103°37'46.335"W	1.13	
10453.00	93.400	270.700	9395.29	1150.50	-12.71	-1150.45	716673.09	588394.69	32°36'56.266"N	103°37'46.708"W	1.56	
10485.00	93.200	271.300	9393.44	1182.44	-12.15	-1182.39	716641.15	588395.25	32°36'56.274"N	103°37'47.081"W	1.97	
10517.00	93.300	271.400	9391.63	1214.38	-11.40	-1214.33	716609.21	588396.00	32°36'56.284"N	103°37'47.455"W	0.44	
10549.00	91.700	271.100	9390.23	1246.33	-10.70	-1246.30	716577.25	588396.70	32°36'56.293"N	103°37'47.828"W	5.09	
10580.00	90.000	270.400	9389.77	1277.32	-10.30	-1277.29	716546.26	588397.10	32°36'56.299"N	103°37'48.191"W	5.93	
10612.00	88.800	270.000	9390.11	1309.32	-10.18	-1309.29	716514.26	588397.22	32°36'56.302"N	103°37'48.565"W	3.95	
10644.00	88.900	269.500	9390.75	1341.31	-10.32	-1341.28	716482.27	588397.08	32°36'56.302"N	103°37'48.939"W	1.59	
10675.00	88.500	269.700	9391.45	1372.31	-10.54	-1372.27	716451.28	588396.86	32°36'56.302"N	103°37'49.301"W	1.44	
10707.00	89.000	269.200	9392.15	1404.30	-10.85	-1404.26	716419.29	588396.55	32°36'56.301"N	103°37'49.675"W	2.21	
10739.00	90.200	269.200	9392.38	1436.29	-11.29	-1436.26	716387.30	588396.11	32°36'56.299"N	103°37'50.049"W	3.75	
10770.00	89.900	268.900	9392.35	1467.29	-11.81	-1467.25	716356.30	588395.59	32°36'56.296"N	103°37'50.412"W	1.37	
10802.00	89.800	268.700	9392.43	1499.29	-12.48	-1499.24	716324.31	588394.92	32°36'56.292"N	103°37'50.786"W	0.70	
10834.00	90.700	269.000	9392.29	1531.28	-13.12	-1531.24	716292.32	588394.28	32°36'56.287"N	103°37'51.160"W	2.96	
10866.00	91.300	269.000	9391.73	1563.28	-13.68	-1563.23	716260.33	588393.72	32°36'56.284"N	103°37'51.534"W	1.87	
10898.00	91.600	268.800	9390.92	1595.26	-14.29	-1595.21	716228.35	588393.11	32°36'56.280"N	103°37'51.908"W	1.13	
10929.00	91.700	268.700	9390.03	1626.25	-14.97	-1626.19	716197.37	588392.43	32°36'56.275"N	103°37'52.270"W	0.46	
10961.00	91.500	268.900	9389.14	1658.23	-15.64	-1658.17	716165.39	588391.76	32°36'56.271"N	103°37'52.644"W	0.88	
10992.00	91.400	268.400	9388.35	1689.21	-16.37	-1689.15	716134.41	588391.03	32°36'56.265"N	103°37'53.006"W	1.64	
11024.00	91.200	268.100	9387.63	1721.19	-17.35	-1721.13	716102.44	588390.05	32°36'56.258"N	103°37'53.380"W	1.13	
11055.00	90.900	267.800	9387.06	1752.17	-18.46	-1752.10	716071.46	588388.95	32°36'56.249"N	103°37'53.742"W	1.37	
11087.00	91.000	267.300	9386.53	1784.15	-19.82	-1784.07	716039.50	588387.58	32°36'56.237"N	103°37'54.116"W	1.59	
11118.00	91.200	267.300	9385.93	1815.11	-21.28	-1815.03	716008.54	588386.12	32°36'56.225"N	103°37'54.478"W	0.65	
11150.00	92.200	267.600	9384.99	1847.07	-22.71	-1846.98	715976.59	588384.69	32°36'56.213"N	103°37'54.852"W	3.26	
11182.00	91.100	267.600	9384.06	1879.04	-24.05	-1878.94	715944.63	588383.36	32°36'56.202"N	103°37'55.225"W	3.44	
11213.00	89.900	266.700	9383.79	1910.01	-25.59	-1909.90	715913.67	588381.81	32°36'56.189"N	103°37'55.587"W	4.84	
11245.00	91.200	266.300	9383.49	1941.95	-27.54	-1941.84	715881.73	588379.86	32°36'56.171"N	103°37'55.961"W	4.25	
11277.00	91.600	266.100	9382.70	1973.88	-29.66	-1973.76	715849.82	588377.74	32°36'56.153"N	103°37'56.334"W	1.40	
11309.00	91.700	266.100	9381.78	2005.81	-31.84	-2005.67	715817.90	588375.57	32°36'56.133"N	103°37'56.708"W	0.31	
11341.00	91.600	265.800	9380.86	2037.72	-34.09	-2037.58	715786.00	588373.31	32°36'56.113"N	103°37'57.081"W	0.90	
11372.00	91.300	265.600	9380.08	2068.64	-36.42	-2068.48	715755.10	588370.98	32°36'56.092"N	103°37'57.442"W	1.16	
11403.00	90.300	265.000	9379.64	2099.54	-38.96	-2099.37	715724.21	588368.44	32°36'56.069"N	103°37'57.804"W	3.76	
11434.00	90.900	265.100	9379.32	2130.44	-41.63	-2130.26	715693.32	588365.77	32°36'56.044"N	103°37'58.165"W	1.96	
11466.00	91.700	265.100	9378.59	2162.33	-44.37	-2162.13	715661.45	588363.04	32°36'56.019"N	103°37'58.538"W	2.50	
11498.00	92.000	265.100	9377.56	2194.21	-47.10	-2194.00	715629.59	588360.30	32°36'55.994"N	103°37'58.910"W	0.94	
11530.00	93.200	265.600	9376.11	2226.08	-49.69	-2225.86	715597.73	588357.71	32°36'55.971"N	103°37'59.283"W	4.06	
11562.00	93.900	265.900	9374.13	2257.94	-52.06	-2257.71	715565.88	588355.35	32°36'55.949"N	103°37'59.656"W	2.38	
11594.00	94.100	267.800	9371.90	2289.82	-53.81	-2289.58	715534.01	588353.59	32°36'55.934"N	103°38'00.028"W	5.96	
11625.00	93.000	266.300	9369.98	2320.73	-55.40	-2320.48	715503.11	588352.00	32°36'55.920"N	103°38'00.390"W	5.99	
11657.00	93.100	266.400	9368.27	2352.63	-57.44	-2352.37	715471.22	588349.97	32°36'55.902"N	103°38'00.763"W	0.44	
11689.00	93.100	266.300	9366.54	2384.53	-59.47	-2384.26	715439.33	588347.93	32°36'55.884"N	103°38'01.136"W	0.31	
11721.00	93.100	266.400	9364.81	2416.42	-61.51	-2416.15	715407.45	588345.90	32°36'55.866"N	103°38'01.509"W	0.31	
11753.00	93.200	266.300	9363.05	2448.32	-63.54	-2448.03	715375.56	588343.86	32°36'55.848"N	103°38'01.881"W	0.44	
11785.00	92.800	266.200	9361.38	2480.22	-65.63	-2479.92	715343.67	588341.77	32°36'55.830"N	103°38'02.254"W	1.29	
11817.00	92.700	266.200	9359.84	2512.12	-67.75	-2511.81	715311.78	588339.65	32°36'55.811"N	103°38'02.627"W	0.31	

Actual Wellpath Report

No.1H PWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(LDU) Sec 35, T19S, R33E	Wellbore	No.1H PWB
Facility	Leguna Deep Unit Fed 35-1H		

WELLPATH DATA (156 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11849.00	93.400	266.100	9358.14	2544.01	-69.89	-2543.70	715279.90	588337.51	32°36'55.792"N	103°38'03.000"W	2.21	
11880.00	93.600	266.200	9356.25	2574.90	-71.97	-2574.57	715249.03	588335.43	32°36'55.773"N	103°38'03.361"W	0.72	
11912.00	93.500	265.700	9354.27	2606.77	-74.23	-2606.43	715217.17	588333.18	32°36'55.753"N	103°38'03.734"W	1.59	
11944.00	93.900	265.900	9352.20	2638.62	-76.57	-2638.28	715185.33	588330.84	32°36'55.732"N	103°38'04.106"W	1.40	
11976.00	93.800	266.100	9350.05	2670.48	-78.79	-2670.13	715153.48	588328.61	32°36'55.712"N	103°38'04.479"W	0.70	
12007.00	93.800	266.000	9348.00	2701.35	-80.92	-2700.98	715122.62	588326.48	32°36'55.693"N	103°38'04.840"W	0.32	
12039.00	94.100	266.000	9345.79	2733.21	-83.15	-2732.83	715090.78	588324.25	32°36'55.673"N	103°38'05.212"W	0.94	
12071.00	94.000	265.900	9343.53	2765.06	-85.40	-2764.67	715058.94	588322.00	32°36'55.652"N	103°38'05.585"W	0.44	
12103.00	93.700	266.000	9341.39	2796.92	-87.66	-2796.52	715027.09	588319.74	32°36'55.632"N	103°38'05.957"W	0.99	
12134.00	93.100	265.800	9339.55	2827.80	-89.87	-2827.38	714996.22	588317.53	32°36'55.612"N	103°38'06.318"W	2.04	
12166.00	93.200	265.100	9337.79	2859.66	-92.41	-2859.24	714964.38	588315.00	32°36'55.589"N	103°38'06.691"W	2.21	
12198.00	93.200	264.800	9336.00	2891.50	-95.22	-2891.06	714932.55	588312.18	32°36'55.564"N	103°38'07.063"W	0.94	
12230.00	91.800	265.800	9334.61	2923.37	-97.84	-2922.92	714900.69	588309.57	32°36'55.540"N	103°38'07.436"W	5.37	
12261.00	91.600	265.400	9333.69	2954.28	-100.22	-2953.82	714869.80	588307.19	32°36'55.518"N	103°38'07.797"W	1.44	
12293.00	90.800	265.200	9333.02	2986.18	-102.84	-2985.70	714837.91	588304.57	32°36'55.494"N	103°38'08.170"W	2.58	
12325.00	90.700	265.600	9332.60	3018.08	-105.40	-3017.60	714806.02	588302.00	32°36'55.471"N	103°38'08.543"W	1.29	
12356.00	90.500	265.300	9332.27	3049.00	-107.86	-3048.50	714775.12	588299.54	32°36'55.449"N	103°38'08.905"W	1.16	
12388.00	90.600	265.300	9331.97	3080.90	-110.48	-3080.39	714743.23	588296.92	32°36'55.425"N	103°38'09.278"W	0.31	
12419.00	91.100	265.700	9331.51	3111.81	-112.92	-3111.29	714712.33	588294.49	32°36'55.403"N	103°38'09.639"W	2.07	
12451.00	91.000	265.700	9330.92	3143.73	-115.32	-3143.19	714680.43	588292.09	32°36'55.381"N	103°38'10.012"W	0.31	
12482.00	90.700	266.100	9330.46	3174.66	-117.53	-3174.11	714649.51	588289.87	32°36'55.361"N	103°38'10.374"W	1.61	
12514.00	90.800	266.100	9330.04	3206.59	-119.71	-3206.03	714617.59	588287.70	32°36'55.342"N	103°38'10.747"W	0.31	
12545.00	90.600	265.800	9329.66	3237.52	-121.90	-3236.95	714586.67	588285.51	32°36'55.322"N	103°38'11.109"W	1.16	
12577.00	90.300	265.800	9329.41	3269.44	-124.24	-3268.87	714554.76	588283.16	32°36'55.301"N	103°38'11.482"W	0.94	
12608.00	89.800	266.900	9329.38	3300.39	-126.21	-3299.80	714523.82	588281.19	32°36'55.283"N	103°38'11.844"W	3.90	
12640.00	90.100	267.400	9329.41	3332.36	-127.81	-3331.76	714491.86	588279.60	32°36'55.270"N	103°38'12.218"W	1.82	
12671.00	90.100	267.900	9329.36	3363.34	-129.08	-3362.74	714460.89	588278.33	32°36'55.259"N	103°38'12.580"W	1.61	
12703.00	89.700	268.000	9329.41	3395.32	-130.22	-3394.72	714428.91	588277.18	32°36'55.250"N	103°38'12.954"W	1.29	
12735.00	89.900	267.600	9329.53	3427.30	-131.45	-3426.69	714396.94	588275.96	32°36'55.240"N	103°38'13.328"W	1.40	
12767.00	89.800	267.600	9329.61	3459.28	-132.79	-3458.66	714364.97	588274.62	32°36'55.229"N	103°38'13.702"W	0.31	
12798.00	90.500	267.700	9329.53	3490.26	-134.06	-3489.64	714334.00	588273.34	32°36'55.218"N	103°38'14.064"W	2.28	
12830.00	90.300	267.600	9329.30	3522.24	-135.37	-3521.61	714302.03	588272.03	32°36'55.207"N	103°38'14.438"W	0.70	
12861.00	89.900	267.600	9329.25	3553.22	-136.67	-3552.58	714271.05	588270.73	32°36'55.196"N	103°38'14.800"W	1.29	
12893.00	90.000	267.700	9329.28	3585.20	-137.98	-3584.56	714239.08	588269.42	32°36'55.185"N	103°38'15.174"W	0.44	
12925.00	90.200	267.600	9329.22	3617.18	-139.29	-3616.53	714207.11	588268.11	32°36'55.175"N	103°38'15.548"W	0.70	
12957.00	90.400	267.300	9329.06	3649.15	-140.72	-3648.50	714175.14	588266.69	32°36'55.162"N	103°38'15.921"W	1.13	
12988.00	90.400	267.400	9328.84	3680.13	-142.15	-3679.46	714144.18	588265.25	32°36'55.150"N	103°38'16.284"W	0.32	
13020.00	90.300	267.500	9328.64	3712.10	-143.58	-3711.43	714112.21	588263.83	32°36'55.138"N	103°38'16.657"W	0.44	
13052.00	89.900	267.900	9328.59	3744.08	-144.86	-3743.41	714080.24	588262.55	32°36'55.128"N	103°38'17.031"W	1.77	
13083.00	90.100	267.300	9328.59	3775.06	-146.16	-3774.38	714049.27	588261.25	32°36'55.117"N	103°38'17.393"W	2.04	
13115.00	90.100	267.400	9328.53	3807.03	-147.64	-3806.34	714017.30	588259.77	32°36'55.104"N	103°38'17.767"W	0.31	
13147.00	90.200	267.600	9328.45	3839.01	-149.03	-3838.31	713985.34	588258.37	32°36'55.093"N	103°38'18.141"W	0.70	
13178.00	90.700	268.000	9328.20	3869.99	-150.22	-3869.29	713954.36	588257.18	32°36'55.083"N	103°38'18.503"W	2.07	
13210.00	90.500	267.600	9327.87	3901.97	-151.45	-3901.26	713922.39	588255.95	32°36'55.073"N	103°38'18.877"W	1.40	
13242.00	90.500	267.900	9327.59	3933.95	-152.71	-3933.24	713890.41	588254.70	32°36'55.062"N	103°38'19.251"W	0.94	

Actual Wellpath Report

No.1H PWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION				
Operator	Marshall & Winston, INC	Slot	No. 1H SHL	
Area	Lea County, NM	Well	No. 1H	
Field	(LDU) Sec 35, T19S, R33E	Wellbore	No.1H PWB	
Facility	Leguna Deep Unit Fed 35-1H			

WELLPATH DATA (156 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13273.00	90.300	268.300	9327.37	3964.94	-153.74	-3964.22	713859.43	588253.67	32°36'55.054"N	103°38'19.613"W	1.44	
13305.00	89.700	268.600	9327.37	3996.93	-154.60	-3996.21	713827.45	588252.80	32°36'55.048"N	103°38'19.987"W	2.10	
13337.00	89.400	268.600	9327.62	4028.92	-155.38	-4028.20	713795.46	588252.02	32°36'55.042"N	103°38'20.361"W	0.94	
13369.00	89.600	269.000	9327.90	4060.92	-156.05	-4060.19	713763.47	588251.35	32°36'55.037"N	103°38'20.736"W	1.40	
13401.00	89.500	269.000	9328.16	4092.91	-156.61	-4092.18	713731.47	588250.79	32°36'55.034"N	103°38'21.110"W	0.31	
13432.00	89.000	268.900	9328.56	4123.91	-157.18	-4123.18	713700.48	588250.23	32°36'55.030"N	103°38'21.472"W	1.64	
13463.00	89.000	269.200	9329.10	4154.90	-157.69	-4154.17	713669.49	588249.71	32°36'55.027"N	103°38'21.834"W	0.97	
13494.00	88.900	268.900	9329.67	4185.89	-158.21	-4185.16	713638.50	588249.20	32°36'55.024"N	103°38'22.197"W	1.02	
13526.00	88.800	269.200	9330.31	4217.88	-158.74	-4217.15	713606.52	588248.67	32°36'55.021"N	103°38'22.571"W	0.99	
13558.00	89.100	268.600	9330.90	4249.87	-159.35	-4249.13	713574.53	588248.05	32°36'55.017"N	103°38'22.945"W	2.10	
13590.00	89.300	269.100	9331.35	4281.87	-159.99	-4281.12	713542.54	588247.41	32°36'55.013"N	103°38'23.319"W	1.68	
13622.00	89.100	268.600	9331.79	4313.86	-160.64	-4313.11	713510.55	588246.77	32°36'55.008"N	103°38'23.693"W	1.68	
13653.00	88.900	269.300	9332.33	4344.85	-161.20	-4344.10	713479.56	588246.20	32°36'55.005"N	103°38'24.055"W	2.35	
13684.00	88.500	269.000	9333.04	4375.84	-161.66	-4375.09	713448.58	588245.74	32°36'55.002"N	103°38'24.417"W	1.61	
13716.00	88.600	269.200	9333.85	4407.83	-162.17	-4407.08	713416.59	588245.24	32°36'54.999"N	103°38'24.791"W	0.70	
13748.00	88.300	269.100	9334.71	4439.82	-162.64	-4439.06	713384.61	588244.77	32°36'54.997"N	103°38'25.165"W	0.99	
13780.00	88.300	269.400	9335.66	4471.80	-163.06	-4471.05	713352.63	588244.35	32°36'54.995"N	103°38'25.539"W	0.94	
13811.00	88.100	269.600	9336.64	4502.79	-163.33	-4502.03	713321.64	588244.08	32°36'54.994"N	103°38'25.901"W	0.91	
13843.00	87.800	269.600	9337.78	4534.77	-163.55	-4534.01	713289.67	588243.85	32°36'54.994"N	103°38'26.275"W	0.94	
13874.00	87.500	269.300	9339.05	4565.74	-163.85	-4564.98	713258.69	588243.56	32°36'54.993"N	103°38'26.637"W	1.37	
13924.00	87.500	269.300	9341.23	4615.69	-164.46	-4614.93	713208.75	588242.95	32°36'54.990"N	103°38'27.221"W	0.00	Proj to Bit

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL		9300.00	-23.00	-4620.68	713203.00	588384.40	32°36'56.390"N	103°38'27.278"W	point
No. 1H Target1		9349.00	-21.00	-2227.27	715596.32	588386.40	32°36'56.255"N	103°37'59.297"W	point

WELLPATH COMPOSITION					Ref Wellbore: No.1H PWB	Ref Wellpath: No.1H PWP
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment	Wellbore
8964.15	10000.00	ISCWSA MWD, Rev. 2 (Standard)			MWD-Greatwhite	No.1H PWB
10000.00	13924.00	NaviTrak (Standard)			MWD	No.1H PWB

Marshall & Winston, INC

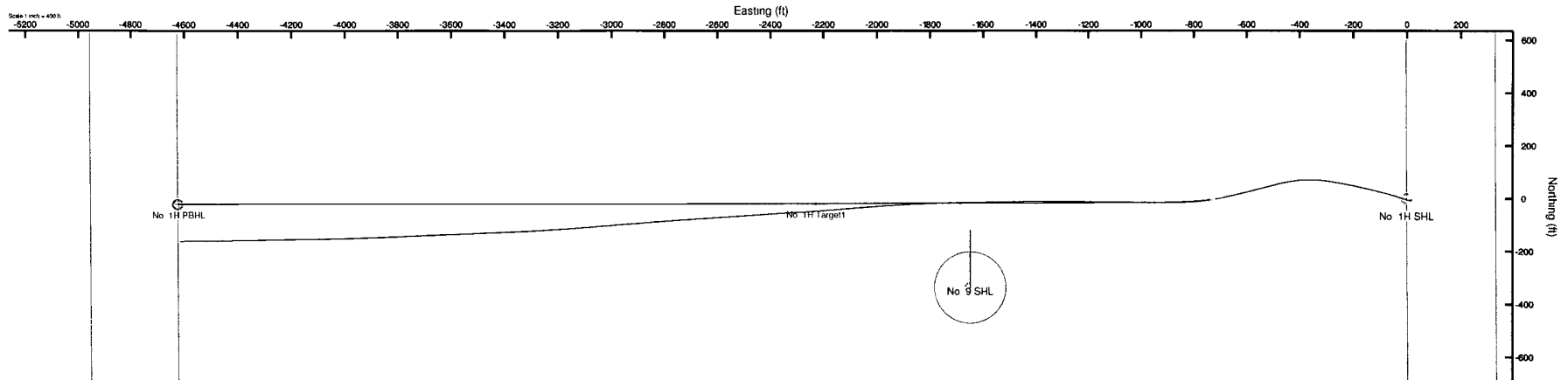
Location Lea County, NM
Field (LDU) Sec 35, T19S, R33E
Facility Leguna Deep Unit Fed 35-1H

Slot No 1H SHL
Well No 1H
Wallbore No. 1H PWB

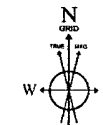


Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	10041.00	91.300	262.100	9414.30	-5.86	-739.39	0.00	739.41
Proj to Bit	10091.00	92.200	266.600	9412.78	-10.77	-789.11	9.17	789.15
EOB	10250.27	92.559	269.768	9406.16	-15.82	-948.14	2.00	948.21
EOH - Target 1	11530.68	92.559	269.768	9349.00	-21.00	-2227.27	0.00	2227.35
EOD	11601.64	91.152	269.955	9346.70	-21.17	-2298.19	2.00	2298.26
No 1H PBHL	13924.60	91.152	269.955	9300.00	-23.00	-4620.68	0.00	4620.74



Plot reference wellpath is Plan#2: ST	
True vertical depths are referenced to Rig on No 1H SHL (RT)	Grid System: NAD27 / TM New Mexico State Planes, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No 1H SHL (RT)	North Reference: Grid north
Rig on No 1H SHL (RT) to Mean Sea Level: 3636 feet	Scale: True distance
Mean Sea Level to Mud line (Facility: Leguna Deep Unit Fed 35-1H): -3615 feet	Depths are in feet
Coordinates are in feet referenced to Surface Location	Created by: gomeosor on 1/24/2011



BGGM (1945.0 to 2011.0) Dip: 60.59° Field: 49048.7 nT
Magnetic North is 7.85 degrees East of True North (at 1/21/2010)
Grid North is 0.38 degrees East of True North
To correct azimuth from True to Grid subtract 0.38 degrees
To correct azimuth from Magnetic to Grid add 7.47 degrees
For example if the Magnetic North Azimuth = 90 degs then the Grid North Azimuth = 90 + 7.47 = 97.47

