

30-015-37895

OCCIDENTAL PERMIAN LTD.

Lost Tank Delaware, West
Eddy County, NM
Lost Tank 4 Federal #18
DH - Job #32D11111089

Survey: MWD

SDI Standard Survey Report

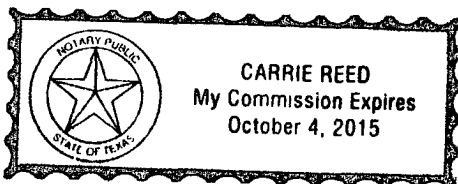
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 12th of December, 2011.

[Signature]

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	OCCIDENTAL PERMIAN LTD.	Local Co-ordinate Reference:	Well Lost Tank 4 Federal #18
Project:	Lost Tank Delaware, West	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Lost Tank 4 Federal #18	North Reference:	Grid
Wellbore:	VH - Job #32K11111079	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K11111079	Database:	EDM-Regulatory

Project	Lost Tank Delaware, West		
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	Eddy County, NM		
Site Position:		Northing:	515,232.05 usft
From:	Lat/Long	Easting:	676,005.63 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 24' 54.705 N
		Longitude:	103° 45' 0.939 W
		Grid Convergence:	0.31 °

Well	Lost Tank 4 Federal #18, Directional		
Well Position	+N/-S	0.0 usft	Northing: 516,519.67 usft
	+E/-W	0.0 usft	Easting: 669,638.18 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 25' 7.777 N
		Longitude:	103° 47' 0.939 W
		Ground Level:	0.0 usft

Wellbore	VH - Job #32K11111079				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	11/7/2011	7.65	60.32	48,697

Design	VH - Job #32K11111079			
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	185.77

Survey Program	Date:	12/30/2011		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
106.8	611.7	Gyro (VH - Job #32K11111079)	Keeper	Keeper Surface Readout

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	
106.8	0.11	119.83	106.8	-0.1	0.1	119.83	0.1	
165.3	0.18	146.65	165.3	-0.2	0.2	129.60	0.2	
254.6	0.18	141.16	254.6	-0.4	0.4	137.25	0.5	
343.9	0.18	134.53	343.9	-0.6	0.5	137.46	0.8	
433.1	0.32	114.59	433.1	-0.8	0.9	132.38	1.2	
522.4	0.37	126.75	522.4	-1.1	1.3	128.86	1.7	
611.7	0.34	128.97	611.7	-1.4	1.8	128.60	2.3	

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Project:	Lost Tank Delaware West	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Lost Tank 4 Federal #18	North Reference:	Grid
Wellbore:	DH - Job #32D11111089	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #32D11111089	Database:	EDM-Regulatory

Project:	Lost Tank Delaware West		
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:	Eddy County, NM		
Site Position:		Northing:	515,232.05 usft
From:	Lat/Long	Easting:	676,005.63 usft
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 24' 54.705 N
		Longitude:	103° 45' 46.737 W
		Grid Convergence:	0 31 °

Well:	Lost Tank 4 Federal #18, Directional		
Well Position	+N/-S	0 0 usft	Latitude: 32° 25' 7.777 N
	+E/-W	0 0 usft	Longitude: 103° 47' 0 939 W
Position Uncertainty	0 0 usft	Wellhead Elevation:	usft
		Ground Level:	0.0 usft

Wellbore:	DH - Job #32D11111089				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	11/8/2011	(°)	(°)	(nT)
			7.65	60 32	48,696

Design:	DH - Job #32D11111089				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	611.7
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0 0	0.0	0.0	185.77	

Survey Program	Date	12/30/2011			
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
106 8	611 7	Gyro (VH - Job #32K11111079)	Keeper	Keeper Surface Readout	
673 0	8,460.0	MWD (DH - Job #32D11111089)	MWD	MWD	

Survey								
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)	
611.7	0.34	128 97	611 7	-1 4	1 8	128 60	2.3	
673 0	0.20	84 11	673.0	-1 5	2.0	126.92	2.5	
765 0	0 17	159 10	765 0	-1 6	2 2	126 16	2.7	
925.0	0 32	203.25	925.0	-2 3	2 1	136.66	3 1	
1,021 0	0.37	193 30	1,021 0	-2 8	1 9	145.16	3 4	
1,111 0	0 30	185.67	1,111 0	-3 3	1 9	150 74	3 8	
1,201 0	0 28	169 52	1,201 0	-3 8	1 9	153 54	4 2	
1,329 0	0 17	191 81	1,329.0	-4 3	1 9	156 04	4 7	
1,426.0	0.31	150 82	1,426.0	-4 6	2 0	156 72	5 0	
1,516.0	0 35	143.29	1,516 0	-5 1	2 3	155 81	5 6	
1,606 0	0 44	130 78	1,606 0	-5 5	2 7	153 89	6 1	

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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Lost Tank 4 Federal #18	North Reference:	Grid
Wellbore:	DH - Job #32D11111089	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #32D11111089	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,696.0	0.44	123.11	1,696.0	-5.9	3.3	151.24	6.8
1,786.0	0.64	117.85	1,786.0	-6.4	4.0	147.88	7.5
1,876.0	0.62	127.14	1,876.0	-6.9	4.8	144.98	8.4
1,966.0	0.69	128.85	1,966.0	-7.5	5.6	143.15	9.4
2,056.0	0.77	111.73	2,056.0	-8.1	6.6	140.69	10.4
2,146.0	0.84	109.87	2,145.9	-8.5	7.8	137.56	11.6
2,236.0	1.07	94.24	2,235.9	-8.8	9.3	133.60	12.8
2,326.0	1.00	87.31	2,325.9	-8.8	10.9	129.09	14.0
2,416.0	1.20	85.20	2,415.9	-8.7	12.6	124.69	15.3
2,506.0	1.20	76.68	2,505.9	-8.4	14.5	120.23	16.7
2,596.0	1.34	76.43	2,595.9	-8.0	16.4	115.90	18.2
2,686.0	1.17	72.21	2,685.8	-7.4	18.3	112.11	19.7
2,776.0	1.13	72.01	2,775.8	-6.9	20.0	108.97	21.2
2,866.0	0.89	68.62	2,865.8	-6.3	21.5	106.45	22.4
2,956.0	0.88	100.89	2,955.8	-6.2	22.8	105.25	23.7
3,091.0	1.55	122.88	3,090.8	-7.4	25.4	106.27	26.4
3,181.0	1.83	134.00	3,180.7	-9.1	27.4	108.29	28.9
3,271.0	1.59	136.27	3,270.7	-11.0	29.3	110.50	31.3
3,361.0	1.18	139.51	3,360.7	-12.6	30.8	112.21	33.3
3,451.0	0.93	127.73	3,450.6	-13.7	32.0	113.23	34.8
3,541.0	1.35	91.82	3,540.6	-14.2	33.6	112.91	36.5
3,631.0	1.98	93.46	3,630.6	-14.3	36.2	111.59	39.0
3,721.0	2.54	110.55	3,720.5	-15.1	39.7	110.89	42.4
3,811.0	2.87	121.56	3,810.4	-17.0	43.4	111.39	46.7
3,827.0	2.84	122.82	3,826.4	-17.4	44.1	111.57	47.4
3,967.0	2.32	128.64	3,966.3	-21.1	49.2	113.18	53.6
4,012.0	1.92	123.97	4,011.2	-22.1	50.6	113.58	55.2
4,102.0	1.90	109.23	4,101.2	-23.4	53.2	113.73	58.2
4,192.0	4.30	136.29	4,191.0	-26.3	57.0	114.81	62.8
4,237.0	4.60	138.02	4,235.9	-28.9	59.4	115.96	66.0
4,282.0	4.98	137.60	4,280.8	-31.7	61.9	117.12	69.5
4,327.0	5.38	143.13	4,325.6	-34.8	64.5	118.37	73.3
4,372.0	5.74	152.91	4,370.4	-38.5	66.8	119.98	77.1
4,417.0	6.23	159.00	4,415.1	-42.8	68.7	121.93	80.9
4,507.0	7.08	178.07	4,504.5	-52.9	70.6	126.84	88.2
4,597.0	7.67	182.13	4,593.8	-64.4	70.6	132.41	95.6
4,642.0	7.89	183.53	4,638.4	-70.5	70.2	135.11	99.5
4,687.0	8.22	188.15	4,682.9	-76.8	69.6	137.81	103.6
4,733.0	8.88	190.20	4,728.4	-83.5	68.5	140.65	108.0
4,778.0	8.90	191.74	4,772.9	-90.4	67.2	143.37	112.6
4,823.0	8.73	193.21	4,817.3	-97.1	65.7	145.92	117.2
4,868.0	9.37	194.62	4,861.8	-104.0	64.0	148.39	122.1
4,913.0	10.57	196.90	4,906.1	-111.5	61.9	150.97	127.5
5,003.0	12.91	194.20	4,994.2	-129.1	57.0	156.18	141.1

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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Lost Tank 4 Federal #18	North Reference:	Grid
Wellbore:	DH - Job #32D11111089	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #32D11111089	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True-Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,048.0	12.80	194.90	5,038.1	-138.8	54.5	158.57	149.1	
5,093.0	14.04	195.00	5,081.8	-148.9	51.8	160.82	157.6	
5,138.0	15.02	193.50	5,125.4	-159.8	49.0	162.95	167.2	
5,183.0	15.87	193.00	5,168.8	-171.5	46.3	164.90	177.6	
5,228.0	17.21	192.50	5,211.9	-184.0	43.4	166.71	189.1	
5,273.0	18.23	192.00	5,254.8	-197.4	40.5	168.39	201.5	
5,318.0	19.13	191.50	5,297.4	-211.5	37.6	169.92	214.8	
5,363.0	19.55	190.00	5,339.9	-226.1	34.8	171.24	228.8	
5,408.0	19.86	189.10	5,382.2	-241.1	32.3	172.37	243.2	
5,498.0	21.57	190.90	5,466.4	-272.4	26.8	174.39	273.7	
5,543.0	22.09	191.10	5,508.2	-288.9	23.6	175.33	289.8	
5,588.0	22.65	190.00	5,549.8	-305.7	20.4	176.17	306.4	
5,633.0	23.50	190.40	5,591.2	-323.1	17.3	176.93	323.5	
5,723.0	25.46	188.20	5,673.1	-359.9	11.3	178.20	360.0	
5,768.0	26.14	188.00	5,713.6	-379.2	8.6	178.71	379.3	
5,814.0	27.01	187.70	5,754.8	-399.6	5.7	179.18	399.7	
5,859.0	26.90	188.30	5,794.9	-419.8	2.9	179.60	419.8	
5,904.0	27.92	188.20	5,834.8	-440.3	-0.1	180.01	440.3	
5,949.0	28.49	187.20	5,874.5	-461.4	-2.9	180.36	461.4	
5,994.0	29.76	187.30	5,913.8	-483.1	-5.7	180.67	483.2	
6,039.0	30.90	187.58	5,952.6	-505.7	-8.6	180.98	505.7	
6,129.0	32.89	187.10	6,029.0	-552.8	-14.7	181.52	553.0	
6,218.0	33.10	187.10	6,103.7	-600.9	-20.7	181.97	601.3	
6,309.0	33.43	187.50	6,179.8	-650.4	-27.0	182.38	651.0	
6,399.0	32.56	187.82	6,255.3	-699.0	-33.6	182.75	699.8	
6,489.0	32.70	188.52	6,331.1	-747.0	-40.4	183.10	748.1	
6,579.0	31.67	188.62	6,407.2	-794.4	-47.6	183.43	795.9	
6,669.0	31.06	189.01	6,484.1	-840.7	-54.8	183.73	842.5	
6,759.0	29.07	189.40	6,562.0	-885.2	-62.0	184.00	887.4	
6,849.0	29.53	188.26	6,640.4	-928.8	-68.7	184.23	931.3	
6,940.0	27.55	188.48	6,720.4	-971.8	-75.1	184.42	974.7	
7,029.0	25.63	187.31	6,800.0	-1,011.2	-80.5	184.55	1,014.4	
7,120.0	24.99	186.81	6,882.2	-1,049.8	-85.3	184.65	1,053.3	
7,209.0	26.11	187.05	6,962.5	-1,087.9	-90.0	184.73	1,091.7	
7,254.0	26.41	186.86	7,002.9	-1,107.7	-92.4	184.77	1,111.5	
7,299.0	27.47	186.80	7,043.0	-1,127.9	-94.8	184.80	1,131.9	
7,344.0	28.73	187.56	7,082.7	-1,149.0	-97.4	184.85	1,153.1	
7,389.0	29.61	187.35	7,122.0	-1,170.7	-100.3	184.90	1,175.0	
7,434.0	29.71	187.23	7,161.1	-1,192.8	-103.1	184.94	1,197.3	
7,524.0	29.71	187.19	7,239.3	-1,237.1	-108.7	185.02	1,241.8	
7,614.0	29.56	187.06	7,317.5	-1,281.2	-114.2	185.10	1,286.3	
7,704.0	29.51	187.24	7,395.8	-1,325.2	-119.8	185.16	1,330.6	
7,795.0	30.07	186.26	7,474.8	-1,370.1	-125.1	185.22	1,375.8	
7,885.0	28.90	187.33	7,553.1	-1,414.1	-130.3	185.26	1,420.1	
7,975.0	30.72	185.48	7,631.2	-1,458.6	-135.3	185.30	1,464.8	

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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Lost Tank 4 Federal #18	North Reference:	Grid
Wellbore:	DH - Job #32D11111089	Survey Calculation Method:	Minimum Curvature
Design:	DH - Job #32D11111089	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
8,020.0	30.81	185.92	7,669.9	-1,481.5	-137.6	185.30	1,487.9
8,110.0	28.48	185.90	7,748.1	-1,525.8	-142.1	185.32	1,532.4
8,200.0	27.39	186.23	7,827.6	-1,567.7	-146.6	185.34	1,574.5
8,290.0	26.20	186.83	7,907.9	-1,608.0	-151.2	185.37	1,615.1
8,399.0	22.41	186.91	8,007.2	-1,652.5	-156.6	185.41	1,659.9
Last MWD Survey							
8,460.0	22.41	186.91	8,063.6	-1,675.6	-159.4	185.43	1,683.2
Projection to Bit							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,399.0	8,007.2	-1,652.5	-156.6	Last MWD Survey
8,460.0	8,063.6	-1,675.6	-159.4	Projection to Bit



Scientific Drilling
Directional Drilling Operations

Project: Lost Tank Delaware, West
Eddy County, NM
Well: Lost Tank 4 Federal #18
Wellbore: DH - Job #32D11111089
Design: DH - Job #32D11111089



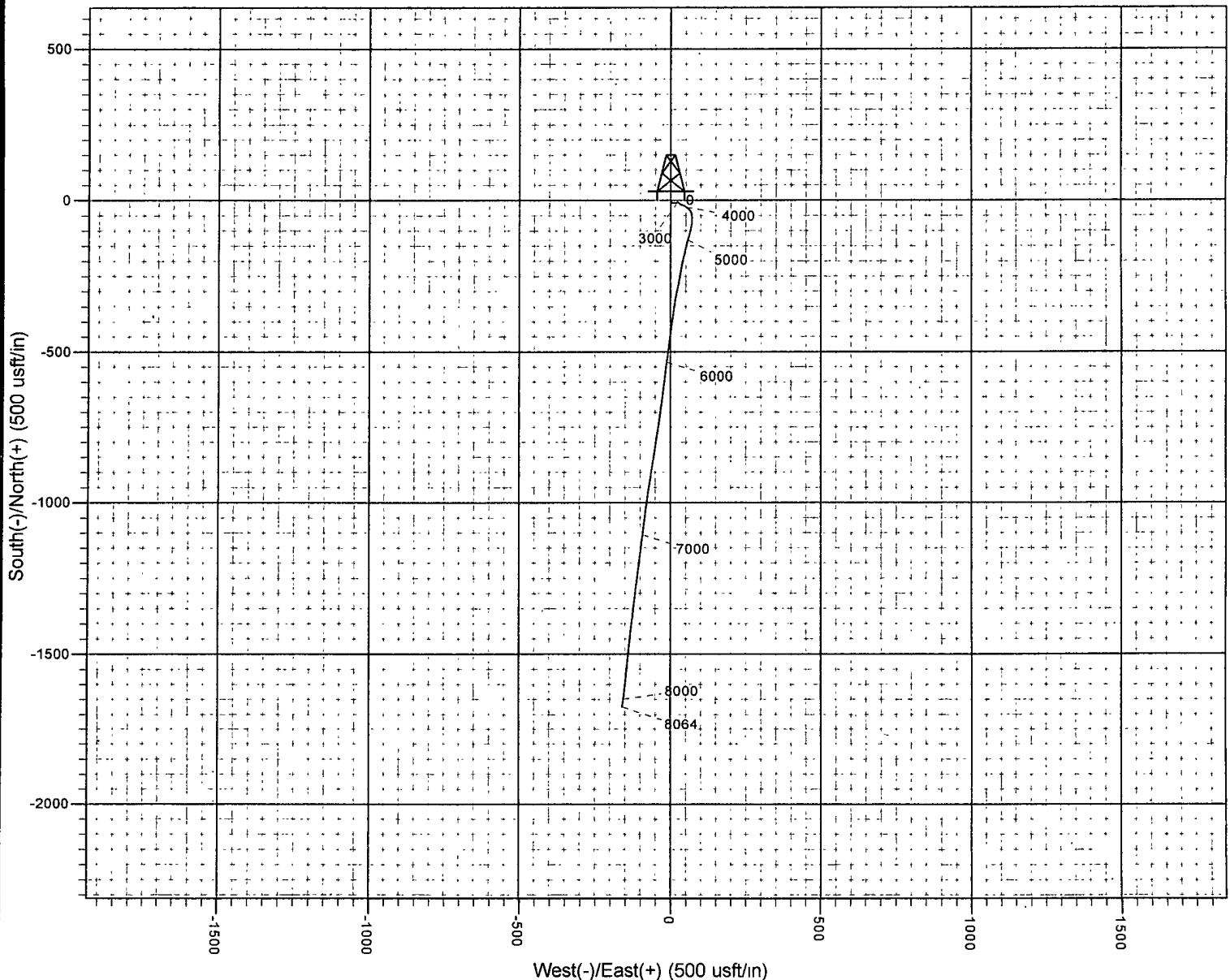
Azimuths to Grid North
True North: -0.29°
Magnetic North: 7.36°

Magnetic Field
Strength: 48696.4nT
Dip Angle: 60.32°
Date: 11/8/2011
Model: IGRF2010

WELL DETAILS: Lost Tank 4 Federal #18
WELL @ 0.0usft (Original Well Elev)

Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	516519.67	669638.18	32° 25' 7.777 N	103° 47' 0.939 W	



PROJECT DETAILS: Lost Tank Delaware, West
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: Eddy County, NM
Site Centre Latitude: 32° 24' 54.705 N
Longitude: 103° 45' 46.737 W
Positional Uncertainty: 0.0
Convergence: 0.31
Local North: Grid