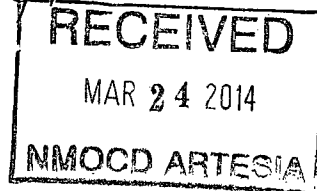


30-015-41247



Yates Petroleum Corp.

Eddy County, NM (NAD83 NME)

Benson Deep AAS Federal Com

#2H

OH - Job #321213-MPH-1305

Survey: SDI MWD #1

SDI Survey Report

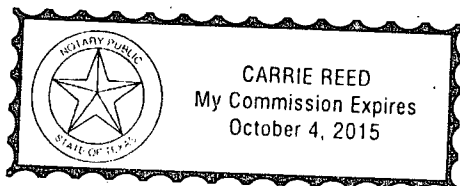
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 31st of January, 2014.

Carrie Reed

Notary Signature
County of Midland
State of Texas



SDI

SDI Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD83 NME)	TVD Reference:	KB = 18.5 @ 3443.5usft (McVay.8)
Site:	Benson Deep AAS Federal Com	MD Reference:	KB = 18.5 @ 3443.5usft (McVay.8)
Well:	#2H	North Reference:	Grid
Wellbore:	OH - Job #321213-MPH-1305	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Project:	Eddy County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Benson Deep AAS Federal Com		
Site Position:		Northing:	621,984.90 usft
From:	Map	Easting:	648,609.85 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 42' 33.814 N
		Longitude:	103° 59' 4.449 W
		Grid Convergence:	0.19 °

Well:	#2H					
Well Position	+N/-S	0.0 usft	Northing:	621,984.90 usft	Latitude:	32° 42' 33.814 N
	+E/-W	0.0 usft	Easting:	648,609.85 usft	Longitude:	103° 59' 4.449 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,425.0 usft

Wellbore						OH - Job #321213-MPH-1305									
Magnetics						Model Name		Sample Date		Declination		Dip Angle		Field Strength	
										(°)		(°)		(nT)	
						BGGM2012		11/5/2013							

Design: OH				
Audit Notes:				
Version: 1.0		Phase: ACTUAL		Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	93.33

Survey Program	Date	2/7/2014		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
80.1	5,022.0	SDI Gyro #1 (OH - Job #321213-MPH-130	Keeper	Standard Wireline Keeper ver 1.0.2
5,119.0	12,748.0	SDI MWD #1 (OH - Job #321213-MPH-13	SDI MWD	SDI MWD - Standard ver 1.0.1

Survey								
MD	Inc	Azi (azimuth)	TVD	N/S	E/W	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°)	(usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
80.1	0.30	337.65	80.1	0.2	-0.1	337.65	0.2	
164.5	0.24	105.75	164.5	0.4	0.0	1.03	0.4	
255.1	0.50	121.51	255.1	0.1	0.5	80.07	0.5	
341.9	0.39	88.28	341.9	-0.1	1.1	94.84	1.1	
427.2	0.50	29.64	427.2	0.2	1.6	81.73	1.6	
509.9	0.47	39.21	509.9	0.8	2.0	68.02	2.2	
597.7	0.43	43.89	597.7	1.3	2.5	61.70	2.8	
691.8	0.35	34.58	691.8	1.8	2.9	57.67	3.4	
787.2	0.35	44.60	787.2	2.3	3.2	55.07	4.0	
881.2	0.34	357.33	881.2	2.7	3.4	51.31	4.4	

SDI

SDI Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD83 NME)	TVD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Site:	Benson Deep AAS Federal Com	MD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Well:	#2H	North Reference:	Grid
Wellbore:	OH - Job #321213-MPH-1305	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
975.1	0.33	27.83	975.1	3.3	3.5	47.35	4.8	
1,069.1	0.36	53.90	1,069.1	3.7	3.9	46.74	5.4	
1,163.1	0.45	53.65	1,163.1	4.1	4.4	47.51	6.0	
1,257.1	0.75	61.38	1,257.1	4.6	5.3	49.04	7.0	
1,351.1	0.96	41.91	1,351.0	5.5	6.4	49.27	8.4	
1,445.0	0.95	43.19	1,445.0	6.6	7.4	48.22	9.9	
1,539.0	1.02	31.05	1,539.0	7.9	8.4	46.65	11.5	
1,633.0	1.06	24.56	1,632.9	9.4	9.2	44.24	13.1	
1,727.0	1.15	22.76	1,726.9	11.1	9.9	41.78	14.8	
1,816.2	1.14	23.97	1,816.1	12.7	10.6	39.83	16.6	
1,914.5	1.04	39.68	1,914.4	14.3	11.6	38.99	18.4	
2,012.8	1.02	42.44	2,012.7	15.6	12.7	39.17	20.2	
2,104.7	0.97	47.50	2,104.5	16.8	13.9	39.59	21.7	
2,196.6	0.95	58.72	2,196.4	17.7	15.1	40.47	23.2	
2,288.5	0.84	64.78	2,288.3	18.4	16.3	41.67	24.6	
2,383.5	0.67	54.40	2,383.3	19.0	17.4	42.55	25.8	
2,478.5	0.56	38.36	2,478.3	19.7	18.2	42.72	26.8	
2,573.5	0.42	23.23	2,573.3	20.3	18.6	42.41	27.6	
2,666.8	0.28	20.32	2,666.6	20.9	18.8	42.00	28.1	
2,760.1	0.33	2.15	2,759.9	21.4	18.9	41.49	28.5	
2,853.4	0.48	352.83	2,853.2	22.0	18.8	40.57	29.0	
2,948.0	0.52	350.77	2,947.8	22.8	18.7	39.37	29.5	
3,042.6	0.44	350.01	3,042.3	23.6	18.6	38.23	30.1	
3,137.1	0.45	354.62	3,136.9	24.3	18.5	37.24	30.6	
3,231.1	0.46	358.55	3,230.9	25.1	18.5	36.35	31.1	
3,325.1	0.41	351.57	3,324.8	25.8	18.4	35.50	31.7	
3,419.0	0.33	346.38	3,418.8	26.4	18.3	34.72	32.1	
3,513.0	0.41	346.36	3,512.8	27.0	18.1	33.92	32.5	
3,607.1	0.34	344.86	3,606.9	27.6	18.0	33.12	32.9	
3,701.2	0.33	348.51	3,701.0	28.1	17.9	32.43	33.3	
3,794.8	0.26	7.44	3,794.6	28.6	17.8	31.96	33.7	
3,889.5	0.46	20.47	3,889.3	29.2	18.0	31.69	34.3	
3,984.1	0.63	29.25	3,983.9	30.0	18.4	31.53	35.2	
4,072.8	0.72	38.59	4,072.6	30.8	19.0	31.61	36.2	
4,167.7	0.67	30.12	4,167.5	31.8	19.6	31.70	37.3	
4,262.6	0.85	13.54	4,262.4	32.9	20.1	31.35	38.6	
4,357.6	1.00	17.95	4,357.3	34.4	20.5	30.77	40.0	
4,452.5	1.21	12.83	4,452.2	36.2	21.0	30.09	41.8	
4,547.4	1.66	9.93	4,547.1	38.5	21.4	29.09	44.1	
4,642.3	2.10	18.00	4,641.9	41.5	22.2	28.13	47.1	
4,737.2	2.03	14.69	4,736.8	44.8	23.2	27.34	50.4	
4,832.2	2.16	16.86	4,831.7	48.1	24.1	26.60	53.8	
4,927.1	2.08	18.64	4,926.5	51.5	25.2	26.06	57.3	
5,022.0	2.07	25.94	5,021.4	54.6	26.5	25.85	60.7	

SDI

SDI Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD83 NME)	TVD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Site:	Benson Deep AAS Federal Com	MD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Well:	#2H	North Reference:	Grid
Wellbore:	OH - Job #321213-MPH-1305	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
5,119.0	2.55	15.69	5,118.3	58.3	27.8	25.51	64.6	
5,370.0	2.02	20.97	5,369.1	67.8	30.9	24.51	74.5	
5,433.0	2.11	29.23	5,432.1	69.9	31.9	24.53	76.8	
5,590.0	0.70	142.52	5,589.0	71.6	33.9	25.31	79.2	
5,840.0	0.88	33.45	5,839.0	72.0	35.9	26.48	80.4	
6,097.0	0.53	333.42	6,096.0	74.7	36.4	25.99	83.1	
6,345.0	0.79	334.30	6,344.0	77.3	35.2	24.47	84.9	
6,597.0	1.06	21.94	6,595.9	81.0	35.3	23.53	88.4	
6,848.0	0.62	359.35	6,846.9	84.5	36.1	23.15	91.9	
7,099.0	0.97	55.69	7,097.9	87.1	37.9	23.51	95.0	
7,350.0	0.62	6.47	7,348.9	89.6	39.8	23.94	98.1	
7,601.0	0.79	352.05	7,599.9	92.7	39.7	23.18	100.8	
7,765.0	1.13	319.65	7,763.8	95.0	38.5	22.05	102.5	
7,801.0	0.88	293.87	7,799.8	95.4	38.0	21.72	102.7	
7,833.0	0.70	136.90	7,831.8	95.4	37.9	21.68	102.6	
7,864.0	2.78	114.76	7,862.8	94.9	38.7	22.20	102.5	
7,896.0	5.45	100.60	7,894.7	94.3	40.9	23.46	102.8	
7,927.0	8.62	94.88	7,925.5	93.9	44.7	25.46	104.0	
7,959.0	11.96	94.09	7,957.0	93.4	50.4	28.34	106.1	
7,992.0	14.25	98.22	7,989.1	92.6	57.8	31.99	109.2	
8,023.0	17.32	101.65	8,018.9	91.1	66.1	35.97	112.6	
8,055.0	21.72	99.19	8,049.1	89.2	76.6	40.67	117.6	
8,086.0	26.88	96.96	8,077.3	87.4	89.3	45.59	125.0	
8,117.0	31.57	94.18	8,104.4	86.0	104.3	50.50	135.2	
8,149.0	36.40	92.51	8,130.9	85.0	122.2	55.18	148.8	
8,180.0	41.24	93.65	8,155.1	83.9	141.6	59.34	164.6	
8,211.0	46.25	97.08	8,177.4	81.9	162.9	63.31	182.3	
8,243.0	50.73	101.07	8,198.7	78.1	186.5	67.29	202.2	
8,274.0	54.69	104.11	8,217.4	72.7	210.6	70.96	222.8	
8,306.0	58.30	106.05	8,235.1	65.7	236.4	74.46	245.3	
8,337.0	63.04	106.83	8,250.3	58.1	262.3	77.51	268.6	
8,368.0	68.76	107.54	8,262.9	49.7	289.3	80.25	293.5	
8,400.0	74.74	107.80	8,272.9	40.5	318.2	82.75	320.8	
8,431.0	79.23	108.77	8,279.9	31.0	346.9	84.89	348.3	
8,463.0	82.66	107.28	8,285.0	21.3	376.9	86.77	377.5	
8,494.0	85.56	107.01	8,288.1	12.2	406.4	88.29	406.6	
8,525.0	88.81	107.98	8,289.7	2.9	435.9	89.62	435.9	
8,557.0	90.04	107.28	8,290.0	-6.8	466.4	90.84	466.5	
8,651.0	89.52	102.71	8,290.3	-31.2	557.2	93.20	558.1	
8,745.0	88.64	100.07	8,291.9	-49.7	649.3	94.38	651.2	
8,839.0	88.20	96.82	8,294.4	-63.5	742.3	94.89	745.0	
8,933.0	87.85	92.95	8,297.7	-71.5	835.8	94.89	838.9	
9,027.0	88.02	90.75	8,301.1	-74.5	929.7	94.58	932.7	
9,122.0	90.04	90.58	8,302.7	-75.6	1,024.7	94.22	1,027.5	
9,216.0	90.66	90.67	8,302.1	-76.7	1,118.7	93.92	1,121.3	

SDI

SDI Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD83 NME)	TVD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Site:	Benson Deep AAS Federal Com	MD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Well:	#2H	North Reference:	Grid
Wellbore:	OH - Job #321213-MPH-1305	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
9,310.0	89.43	92.18	8,302.0	-79.0	1,212.7	93.73	1,215.2
9,404.0	89.97	93.03	8,302.5	-83.3	1,306.6	93.65	1,309.2
9,498.0	90.10	92.98	8,302.5	-88.2	1,400.4	93.60	1,403.2
9,593.0	90.40	95.94	8,302.1	-95.6	1,495.1	93.66	1,498.2
9,686.0	88.81	96.20	8,302.7	-105.4	1,587.6	93.80	1,591.1
9,781.0	88.90	96.64	8,304.6	-116.0	1,682.0	93.95	1,686.0
9,875.0	89.69	94.18	8,305.8	-124.9	1,775.6	94.02	1,779.9
9,969.0	89.80	92.43	8,306.2	-130.3	1,869.4	93.99	1,873.9
10,063.0	91.01	91.63	8,305.5	-133.7	1,963.3	93.89	1,967.9
10,157.0	89.43	94.01	8,305.1	-138.3	2,057.2	93.85	2,061.9
10,251.0	88.02	91.28	8,307.2	-142.6	2,151.1	93.79	2,155.8
10,345.0	89.78	93.13	8,309.0	-146.2	2,245.0	93.73	2,249.7
10,439.0	89.69	92.34	8,309.5	-150.7	2,338.9	93.69	2,343.7
10,533.0	89.52	93.21	8,310.1	-155.3	2,432.8	93.65	2,437.7
10,628.0	89.43	92.25	8,311.0	-159.8	2,527.6	93.62	2,532.7
10,722.0	87.82	93.31	8,313.3	-164.3	2,621.5	93.59	2,626.7
10,816.0	89.16	92.95	8,315.7	-169.5	2,715.3	93.57	2,720.6
10,910.0	88.90	93.30	8,317.3	-174.6	2,809.2	93.56	2,814.6
11,004.0	89.13	92.72	8,318.9	-179.5	2,903.0	93.54	2,908.6
11,098.0	89.08	92.25	8,320.4	-183.6	2,996.9	93.51	3,002.6
11,192.0	88.55	91.90	8,322.3	-187.0	3,090.9	93.46	3,096.5
11,286.0	88.81	94.18	8,324.5	-192.0	3,184.7	93.45	3,190.5
11,380.0	88.64	93.57	8,326.6	-198.4	3,278.4	93.46	3,284.4
11,474.0	88.46	93.30	8,329.0	-204.0	3,372.2	93.46	3,378.4
11,568.0	88.90	94.01	8,331.2	-210.0	3,466.0	93.47	3,472.4
11,662.0	88.62	92.69	8,333.2	-215.5	3,559.8	93.46	3,566.4
11,757.0	89.80	92.41	8,334.5	-219.7	3,654.7	93.44	3,661.3
11,850.0	89.69	91.90	8,334.9	-223.2	3,747.7	93.41	3,754.3
11,944.0	89.69	91.28	8,335.4	-225.8	3,841.6	93.36	3,848.3
12,038.0	89.25	92.07	8,336.3	-228.5	3,935.6	93.32	3,942.2
12,133.0	88.64	93.30	8,338.0	-233.0	4,030.5	93.31	4,037.2
12,227.0	88.46	92.86	8,340.4	-238.0	4,124.3	93.30	4,131.2
12,321.0	88.37	94.09	8,343.0	-243.7	4,218.1	93.31	4,225.1
12,415.0	88.64	93.74	8,345.5	-250.2	4,311.8	93.32	4,319.1
12,509.0	88.90	93.39	8,347.5	-256.0	4,405.6	93.33	4,413.1
12,603.0	88.72	93.39	8,349.4	-261.6	4,499.5	93.33	4,507.0
12,698.0	88.55	93.04	8,351.7	-266.9	4,594.3	93.32	4,602.0
MWD Survey							
12,748.0	88.55	93.04	8,353.0	-269.5	4,644.2	93.32	4,652.0
Projection to Bit							

SDI
SDI Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well: #2H
Project:	Eddy County, NM (NAD83 NME)	TVD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Site:	Benson Deep AAS Federal Com	MD Reference:	KB = 18.5 @ 3443.5usft (McVay 8)
Well:	#2H	North Reference:	Grid
Wellbore:	OH - Job #321213-MPH-1305	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-Regulatory

Design Annotations

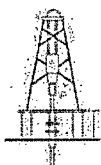
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,698.0	8,351.7	-266.9	4,594.3	MWD Survey
12,748.0	8,353.0	-269.5	4,644.2	Projection to Bit



Azimuths to Grid North
True North: -0.19°
Magnetic North: 7.44°

Magnetic Field
Strength: 48580.5nT
Dip Angle: 60.46°
Date: 11/5/2013
Model: BGGM2012

Benson Deep AAS Federal Com #2H
Eddy County, NM (NAD83 NME)
Northing: (Y) 621984.897
Easting: (X) 648609.851
Plan #7



KB = 18.5 @ 3443.50uft (McVay 8)
Ground Level 3425.00

WELL DETAILS:					
Ground Level: 3425.00					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	621984.897	648609.851	32° 42' 33.814 N	103° 59' 4.449 W

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
8745.00	88.64	100.07	8291.86	-49.71	649.33	0.00	0.00	851.12	
8795.00	88.64	100.07	8293.04	-58.45	698.55	0.00	0.00	709.76	
8887.18	91.83	99.49	8292.66	-74.11	789.37	3.52	-10.24	792.34	
9094.50	89.08	92.73	8291.00	-96.16	995.37	3.52	-112.08	999.27	1000
9594.96	89.08	92.73	8299.00	-120.00	1495.19	0.00	0.00	1499.64	1500
10095.22	89.08	92.73	8307.00	-143.82	1994.82	0.00	0.00	1999.81	2000
10595.40	89.08	92.73	8315.00	-167.64	2494.37	0.00	0.00	2499.90	2500
11095.54	89.08	92.73	8323.00	-191.46	2993.88	0.00	0.00	2999.95	3000
11595.66	89.08	92.73	8331.00	-215.28	3493.37	0.00	0.00	3499.98	3500
12095.77	89.08	92.73	8339.00	-239.09	3992.85	0.00	0.00	3999.99	4000
12595.87	89.08	92.73	8347.00	-262.91	4492.31	0.00	0.00	4500.00	4500
12604.99	88.90	92.73	8347.16	-263.34	4501.43	2.00	-180.00	4509.13	
12753.11	88.90	92.73	8350.00	-270.40	4649.35	0.00	0.00	4657.21	TD

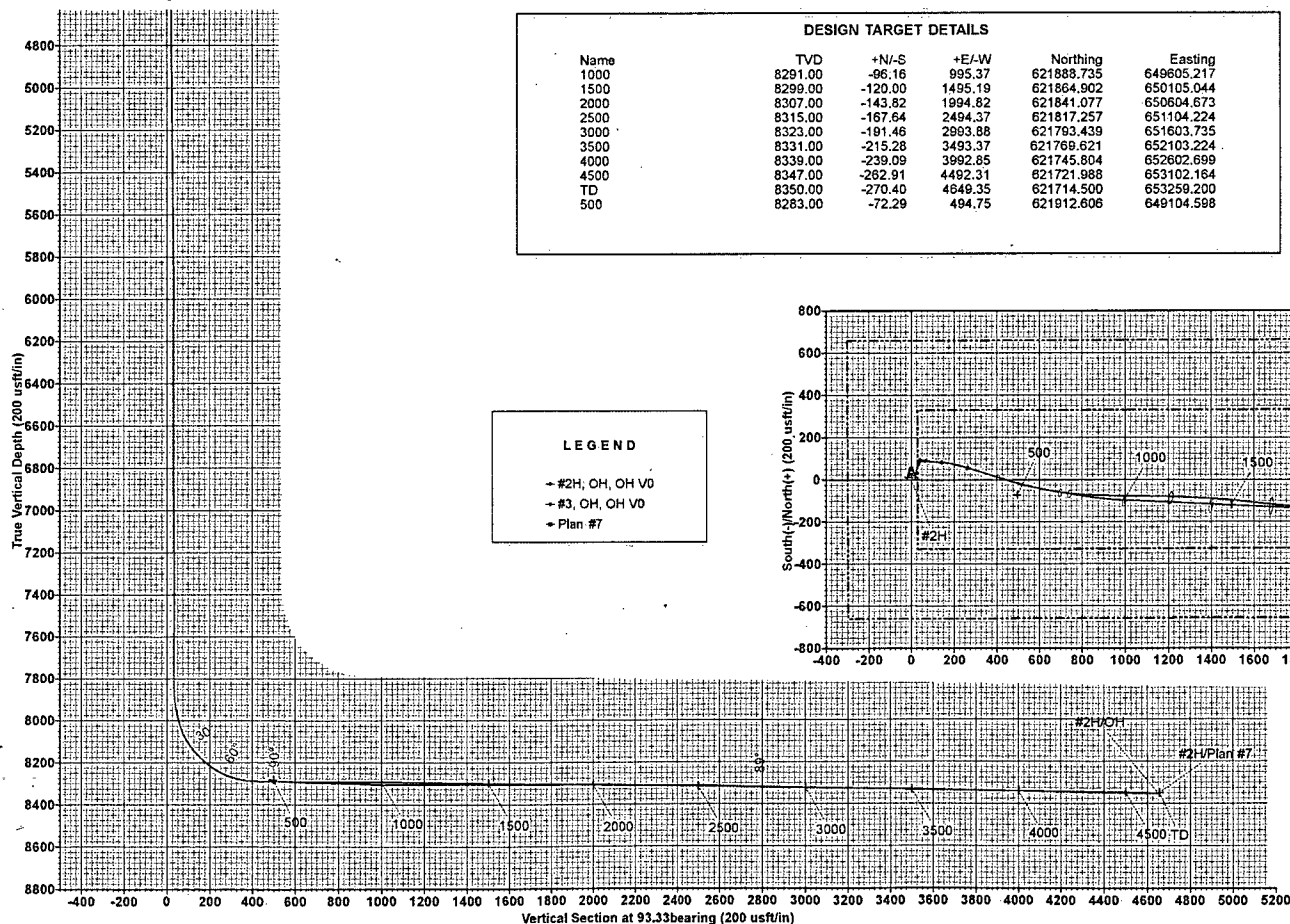
DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
1000	8291.00	-96.16	995.37	621985.735	649605.217
1500	8299.00	-120.00	1495.19	621984.902	650105.044
2000	8307.00	-143.82	1994.82	621841.077	650604.673
2500	8315.00	-167.64	2494.37	621817.257	651104.224
3000	8323.00	-191.46	2993.88	621793.439	651603.735
3500	8331.00	-215.28	3493.37	621769.621	652103.224
4000	8339.00	-239.09	3992.85	621745.804	652602.699
4500	8347.00	-262.91	4492.31	621721.988	653102.164
TD	8350.00	-270.40	4649.35	621714.500	653259.200
500	8283.00	-72.29	494.75	621912.606	649104.598

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone
Local Origin: Well #2H, Grid North
Latitude: 32° 42' 33.814 N
Longitude: 103° 59' 4.449 W
Grid East: 648609.851
Grid North: 621984.897
Scale Factor: 1.000

Geomagnetic Model: BGGM2012
Sample Date: 05-Nov-13
Magnetic Declination: 7.63°
Dip Angle from Horizontal: 60.46°
Magnetic Field Strength: 48581

To convert Magnetic North to Grid, Add 7.44°
To convert Magnetic North to True, Add 7.63° East
To convert True North to Grid, Subtract 0.19°

PROJECT DETAILS: Eddy County, NM (NAD83 NME)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



LEGEND
→ #2H, OH, OH VO
→ #3, OH, OH VO
→ Plan #7

