

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 07 2019

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**NGL WATER SOLUTIONS PERMIAN,
LLC**

EDDY COUNTY, NEW MEXICO (NAD 83)

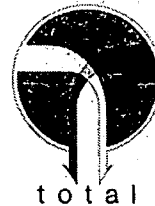
SE SE SEC. 33 T23S R28E

STRIKER 3 SWD #1

01 January, 2018

30-015-44407

Survey: FINAL SURVEYS



Accepted for record
NMOCD

Survey Report



Company:	NGL WATER SOLUTIONS PERMIAN, LLC	Local Co-ordinate Reference:	Well STRIKER 3 SWD #1
Project:	EDDY COUNTY, NEW MEXICO (NAD 83)	TVD Reference:	KB (28') @ 3097.00usft (LATSHAW # 21)
Site:	SE SE SEC. 33 T23S R28E	MD Reference:	KB (28') @ 3097.00usft (LATSHAW # 21)
Well:	STRIKER 3 SWD #1	North Reference:	True
Wellbore:	JOB # 2017-480-21	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Project	EDDY COUNTY, NEW MEXICO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	SE SE SEC. 33 T23S R28E		
Site Position:		Northing:	456,787.32 usft
From:	Lat/Long	Easting:	617,558.09 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft
		Latitude:	32.255543
		Longitude:	-104.086765
		Grid Convergence:	0.13 °

Well	STRIKER 3 SWD #1		
Well Position	+N/-S	0.00 usft	Northing: 456,787.32 usft
	+E/-W	0.00 usft	Easting: 617,558.09 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32.255543
		Longitude:	-104.086765
		Ground Level:	3,069.00 usft

Wellbore	JOB # 2017-480-21		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	01/11/2017	7.15
			Dip Angle
			60.00
			Field Strength
			47,866

Design	FINAL SURVEYS		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			0.00

Survey Program	Date 01/01/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
593.00	14,865.00	FINAL SURVEYS (JOB # 2017-480-21)	MWD
			Description
			MWD - Standard

Survey											
Measured	Inclination	Azimuth	Vertical	Subsea	+N/-S	+E/-W	Vertical	Dogleg	Bulld	Turn	
Depth	(°)	(°)	Depth	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(usft)			(usft)	(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
0.00	0.00	0.00	0.00	3,097.00	0.00	0.00	0.00	0.00	0.00	0.00	
593.00	1.00	188.50	592.97	2,504.03	-5.12	-0.76	-5.12	0.17	0.17	0.00	
684.00	0.90	214.60	683.96	2,413.04	-6.49	-1.29	-6.49	0.48	-0.11	28.68	
774.00	1.00	195.90	773.95	2,323.05	-7.83	-1.90	-7.83	0.36	0.11	-20.78	
865.00	1.10	202.50	864.93	2,232.07	-9.40	-2.46	-9.40	0.17	0.11	7.25	
1,050.00	1.20	190.60	1,049.89	2,047.11	-12.94	-3.49	-12.94	0.14	0.05	-6.43	
1,144.00	1.00	214.10	1,143.88	1,953.12	-14.59	-4.13	-14.59	0.52	-0.21	25.00	
1,238.00	1.00	168.30	1,237.86	1,859.14	-16.07	-4.43	-16.07	0.83	0.00	-48.72	
1,327.00	1.00	165.60	1,326.85	1,770.15	-17.59	-4.08	-17.59	0.05	0.00	-3.03	
1,421.00	0.80	153.30	1,420.84	1,676.16	-18.97	-3.58	-18.97	0.29	-0.21	-13.09	
1,520.00	0.50	175.00	1,519.83	1,577.17	-20.01	-3.23	-20.01	0.39	-0.30	21.92	
1,614.00	0.30	269.00	1,613.83	1,483.17	-20.43	-3.44	-20.43	0.64	-0.21	100.00	
1,708.00	0.40	266.50	1,707.83	1,389.17	-20.45	-4.01	-20.45	0.11	0.11	-2.66	

Survey Report



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Site:	SE SE SEC. 33 T23S R28E	MD Reference:	KB (28') @ 3097.00usft (LATSHAW # 21)
Well:	STRIKER 3 SWD #1	North Reference:	True
Wellbore:	JOB # 2017-480-21	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,803.00	0.40	125.30	1,802.83	1,294.17	-20.66	-4.07	-20.66	0.79	0.00	-148.63
1,897.00	1.00	122.20	1,896.82	1,200.18	-21.29	-3.11	-21.29	0.64	0.64	-3.30
1,992.00	1.20	96.40	1,991.80	1,105.20	-21.84	-1.42	-21.84	0.56	0.21	-27.16
2,087.00	1.70	100.30	2,086.77	1,010.23	-22.21	0.95	-22.21	0.54	0.53	4.11
2,181.00	1.70	100.30	2,180.73	916.27	-22.70	3.70	-22.70	0.00	0.00	0.00
2,275.00	3.40	101.70	2,274.63	822.37	-23.52	7.80	-23.52	1.81	1.81	1.49
2,370.00	4.10	92.80	2,369.43	727.57	-24.26	13.95	-24.26	0.96	0.74	-9.37
2,464.00	3.30	90.40	2,463.24	633.76	-24.44	20.01	-24.44	0.87	-0.85	-2.55
2,558.00	2.60	98.10	2,557.11	539.89	-24.76	24.83	-24.76	0.85	-0.74	8.19
2,617.00	2.50	102.00	2,616.05	480.95	-25.21	27.41	-25.21	0.34	-0.17	6.61
2,742.00	2.10	99.20	2,740.95	356.05	-26.15	32.34	-26.15	0.33	-0.32	-2.24
2,835.00	0.80	100.60	2,833.92	263.08	-26.54	34.66	-26.54	1.40	-1.40	1.51
2,929.00	0.40	320.80	2,927.92	169.08	-26.41	35.10	-26.41	1.21	-0.43	-148.72
3,024.00	1.00	325.40	3,022.91	74.09	-25.47	34.42	-25.47	0.63	0.63	4.84
3,118.00	0.90	342.10	3,116.90	-19.90	-24.09	33.72	-24.09	0.31	-0.11	17.77
3,212.00	1.60	318.00	3,210.87	-113.87	-22.41	32.62	-22.41	0.92	0.74	-25.64
3,307.00	1.80	324.20	3,305.83	-208.83	-20.22	30.86	-20.22	0.29	0.21	6.53
3,401.00	1.60	320.60	3,399.79	-302.79	-18.00	29.16	-18.00	0.24	-0.21	-3.83
3,495.00	1.50	320.60	3,493.76	-396.76	-16.04	27.55	-16.04	0.11	-0.11	0.00
3,589.00	1.40	320.90	3,587.73	-490.73	-14.20	26.04	-14.20	0.11	-0.11	0.32
3,683.00	1.00	319.00	3,681.71	-584.71	-12.69	24.78	-12.69	0.43	-0.43	-2.02
3,778.00	1.20	324.30	3,776.69	-679.69	-11.25	23.66	-11.25	0.24	0.21	5.58
3,873.00	1.50	311.00	3,871.66	-774.66	-9.63	22.14	-9.63	0.45	0.32	-14.00
3,968.00	1.50	298.20	3,966.63	-869.63	-8.23	20.10	-8.23	0.35	0.00	-13.47
4,062.00	1.40	294.70	4,060.60	-963.60	-7.17	17.98	-7.17	0.14	-0.11	-3.72
4,157.00	1.20	303.30	4,155.57	-1,058.57	-6.13	16.09	-6.13	0.29	-0.21	9.05
4,251.00	1.00	286.80	4,249.56	-1,152.56	-5.36	14.48	-5.36	0.40	-0.21	-17.55
4,345.00	1.00	293.70	4,343.54	-1,246.54	-4.79	12.95	-4.79	0.13	0.00	7.34
4,440.00	1.10	271.30	4,438.53	-1,341.53	-4.44	11.27	-4.44	0.44	0.11	-23.58
4,534.00	1.00	285.90	4,532.51	-1,435.51	-4.19	9.58	-4.19	0.30	-0.11	15.53
4,629.00	1.20	274.70	4,627.49	-1,530.49	-3.88	7.80	-3.88	0.31	0.21	-11.79
4,724.00	1.00	273.90	4,722.48	-1,625.48	-3.74	5.98	-3.74	0.21	-0.21	-0.84
4,818.00	0.90	257.70	4,816.46	-1,719.46	-3.85	4.44	-3.85	0.30	-0.11	-17.23
4,912.00	0.80	256.60	4,910.45	-1,813.45	-4.16	3.08	-4.16	0.11	-0.11	-1.17
5,008.00	0.70	249.70	5,006.45	-1,909.45	-4.51	1.88	-4.51	0.14	-0.10	-7.19
5,103.00	0.80	272.80	5,101.44	-2,004.44	-4.68	0.67	-4.68	0.33	0.11	24.32
5,198.00	0.90	267.00	5,196.43	-2,099.43	-4.69	-0.74	-4.69	0.14	0.11	-6.11
5,292.00	0.70	250.50	5,290.42	-2,193.42	-4.92	-2.02	-4.92	0.32	-0.21	-17.55
5,386.00	0.70	247.14	5,384.41	-2,287.41	-5.33	-3.09	-5.33	0.04	0.00	-3.57
5,481.00	0.80	259.90	5,479.40	-2,382.40	-5.68	-4.28	-5.68	0.20	0.11	13.43
5,575.00	0.70	250.40	5,573.40	-2,476.40	-5.98	-5.46	-5.98	0.17	-0.11	-10.11
5,670.00	0.90	223.20	5,668.39	-2,571.39	-6.72	-6.52	-6.72	0.45	0.21	-28.63
5,764.00	0.50	280.10	5,762.38	-2,665.38	-7.19	-7.43	-7.19	0.80	-0.43	60.53
5,860.00	0.60	264.90	5,858.38	-2,761.38	-7.16	-8.34	-7.16	0.18	0.10	-15.83
5,954.00	0.60	334.80	5,952.37	-2,855.37	-6.76	-9.04	-6.76	0.73	0.00	74.36
6,048.00	0.60	11.40	6,046.37	-2,949.37	-5.83	-9.15	-5.83	0.40	0.00	38.94
6,143.00	0.50	10.80	6,141.36	-3,044.36	-4.94	-8.98	-4.94	0.11	-0.11	-0.63
6,237.00	0.40	337.30	6,235.36	-3,138.36	-4.23	-9.03	-4.23	0.29	-0.11	-35.64
6,330.00	0.70	344.50	6,328.36	-3,231.36	-3.38	-9.30	-3.38	0.33	0.32	7.74
6,425.00	0.90	347.50	6,423.35	-3,326.35	-2.10	-9.62	-2.10	0.22	0.21	3.16
6,519.00	1.20	345.10	6,517.33	-3,420.33	-0.42	-10.03	-0.42	0.32	0.32	-2.55
6,613.00	1.00	340.30	6,611.31	-3,514.31	1.30	-10.56	1.30	0.23	-0.21	-5.11
6,706.00	0.50	36.60	6,704.31	-3,607.31	2.39	-10.60	2.39	0.90	-0.54	60.54

Survey Report



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,801.00	0.90	93.90	6,799.30	-3,702.30	2.67	-9.60	2.67	0.80	0.42	60.32
6,896.00	1.50	113.80	6,894.28	-3,797.28	2.12	-7.72	2.12	0.76	0.63	20.95
6,990.00	0.60	98.60	6,988.26	-3,891.26	1.55	-6.11	1.55	0.99	-0.96	-16.17
7,084.00	0.40	67.90	7,082.26	-3,985.26	1.60	-5.32	1.60	0.35	-0.21	-32.66
7,179.00	0.40	78.70	7,177.26	-4,080.26	1.79	-4.69	1.79	0.08	0.00	11.37
7,273.00	0.30	107.30	7,271.25	-4,174.25	1.78	-4.13	1.78	0.21	-0.11	30.43
7,367.00	0.50	75.30	7,365.25	-4,268.25	1.81	-3.50	1.81	0.31	0.21	-34.04
7,461.00	0.60	85.10	7,459.25	-4,362.25	1.96	-2.61	1.96	0.15	0.11	10.43
7,556.00	0.40	102.90	7,554.24	-4,457.24	1.92	-1.79	1.92	0.26	-0.21	18.74
7,649.00	0.50	169.30	7,647.24	-4,550.24	1.45	-1.40	1.45	0.54	0.11	71.40
7,744.00	1.20	181.50	7,742.23	-4,645.23	0.05	-1.35	0.05	0.76	0.74	12.84
7,837.00	1.20	188.00	7,835.21	-4,738.21	-1.89	-1.51	-1.89	0.15	0.00	6.99
7,932.00	1.60	203.50	7,930.18	-4,833.18	-4.09	-2.18	-4.09	0.58	0.42	16.32
8,027.00	2.10	209.50	8,025.13	-4,928.13	-6.82	-3.56	-6.82	0.56	0.53	6.32
8,121.00	1.50	192.90	8,119.09	-5,022.09	-9.52	-4.69	-9.52	0.84	-0.64	-17.66
8,215.00	0.90	171.70	8,213.07	-5,116.07	-11.45	-4.85	-11.45	0.78	-0.64	-22.55
8,309.00	0.70	165.10	8,307.06	-5,210.06	-12.73	-4.60	-12.73	0.23	-0.21	-7.02
8,403.00	0.80	180.40	8,401.05	-5,304.05	-13.94	-4.46	-13.94	0.24	0.11	16.28
8,498.00	0.70	158.00	8,496.04	-5,399.04	-15.14	-4.24	-15.14	0.32	-0.11	-23.58
8,591.00	0.80	113.20	8,589.03	-5,492.03	-15.93	-3.44	-15.93	0.62	0.11	-48.17
8,685.00	0.80	101.60	8,683.02	-5,586.02	-16.32	-2.19	-16.32	0.17	0.00	-12.34
8,780.00	1.30	116.70	8,778.01	-5,681.01	-16.93	-0.58	-16.93	0.60	0.53	15.89
8,874.00	1.20	117.80	8,871.99	-5,774.99	-17.87	1.25	-17.87	0.11	-0.11	1.17
8,969.00	1.00	140.30	8,966.97	-5,869.97	-18.97	2.66	-18.97	0.50	-0.21	23.68
9,063.00	1.10	158.30	9,060.95	-5,963.95	-20.44	3.51	-20.44	0.36	0.11	19.15
9,157.00	1.50	189.10	9,154.93	-6,057.93	-22.50	3.65	-22.50	0.84	0.43	32.77
9,251.00	1.60	188.30	9,248.90	-6,151.90	-25.01	3.27	-25.01	0.11	0.11	-0.85
9,345.00	1.70	187.00	9,342.86	-6,245.86	-27.69	2.91	-27.69	0.11	0.11	-1.38
9,439.00	1.70	199.40	9,436.82	-6,339.82	-30.39	2.28	-30.39	0.39	0.00	13.19
9,523.00	1.60	201.20	9,520.78	-6,423.78	-32.66	1.44	-32.66	0.13	-0.12	2.14
9,627.00	1.90	201.30	9,624.73	-6,527.73	-35.62	0.29	-35.62	0.29	0.29	0.10
9,721.00	1.50	299.50	9,718.71	-6,621.71	-36.47	-1.35	-36.47	2.75	-0.43	104.47
9,816.00	2.00	306.80	9,813.66	-6,716.66	-34.86	-3.76	-34.86	0.58	0.53	7.68
9,909.00	1.70	299.30	9,906.61	-6,809.61	-33.21	-6.26	-33.21	0.41	-0.32	-8.06
10,003.00	1.50	297.00	10,000.58	-6,903.58	-31.97	-8.57	-31.97	0.22	-0.21	-2.45
10,097.00	1.60	289.80	10,094.54	-6,997.54	-30.97	-10.91	-30.97	0.23	0.11	-7.66
10,191.00	1.60	284.40	10,188.51	-7,091.51	-30.20	-13.41	-30.20	0.16	0.00	-5.74
10,286.00	1.70	277.30	10,283.47	-7,186.47	-29.69	-16.09	-29.69	0.24	0.11	-7.47
10,380.00	1.80	277.20	10,377.42	-7,280.42	-29.33	-18.94	-29.33	0.11	0.11	-0.11
10,474.00	2.40	326.60	10,471.37	-7,374.37	-27.50	-21.49	-27.50	1.95	0.64	52.55
10,568.00	2.70	340.80	10,565.27	-7,468.27	-23.77	-23.30	-23.77	0.74	0.32	15.11
10,662.00	1.50	1.10	10,659.21	-7,562.21	-20.45	-24.01	-20.45	1.48	-1.28	21.60
10,757.00	1.10	8.90	10,754.19	-7,657.19	-18.30	-23.84	-18.30	0.46	-0.42	8.21
10,851.00	1.10	3.50	10,848.17	-7,751.17	-16.51	-23.65	-16.51	0.11	0.00	-5.74
10,944.00	0.90	352.50	10,941.15	-7,844.15	-14.89	-23.69	-14.89	0.30	-0.22	-11.83
11,039.00	1.00	26.80	11,036.14	-7,939.14	-13.41	-23.41	-13.41	0.60	0.11	36.11
11,134.00	0.90	30.80	11,131.13	-8,034.13	-12.03	-22.65	-12.03	0.13	-0.11	4.21
11,228.00	0.80	26.50	11,225.12	-8,128.12	-10.81	-21.98	-10.81	0.13	-0.11	-4.57
11,322.00	0.70	31.80	11,319.11	-8,222.11	-9.74	-21.39	-9.74	0.13	-0.11	5.64
11,416.00	0.40	31.40	11,413.11	-8,316.11	-8.97	-20.91	-8.97	0.32	-0.32	-0.43
11,511.00	0.30	44.60	11,508.10	-8,411.10	-8.51	-20.57	-8.51	0.13	-0.11	13.89
11,605.00	0.40	51.20	11,602.10	-8,505.10	-8.13	-20.14	-8.13	0.11	0.11	7.02
11,699.00	0.50	53.30	11,696.10	-8,599.10	-7.68	-19.55	-7.68	0.11	0.11	2.23

Survey Report



Company:	NGL WATER SOLUTIONS PERMIAN, LLC	Local Co-ordinate Reference:	Well STRIKER 3 SWD #1
Project:	EDDY COUNTY, NEW MEXICO (NAD 83)	TVD Reference:	KB (28') @ 3097.00usft (LATSHAW # 21)
Site:	SE SE SEC. 33 T23S R28E	MD Reference:	KB (28') @ 3097.00usft (LATSHAW # 21)
Well:	STRIKER 3 SWD #1	North Reference:	True
Wellbore:	JOB # 2017-480-21	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,793.00	0.40	43.40	11,790.10	-8,693.10	-7.19	-19.00	-7.19	0.13	-0.11	-10.53
11,888.00	0.30	45.70	11,885.09	-8,788.09	-6.78	-18.59	-6.78	0.11	-0.11	2.42
11,982.00	0.30	44.90	11,979.09	-8,882.09	-6.43	-18.24	-6.43	0.00	0.00	-0.85
12,075.00	0.30	62.30	12,072.09	-8,975.09	-6.15	-17.86	-6.15	0.10	0.00	18.71
12,171.00	0.30	76.80	12,168.09	-9,071.09	-5.97	-17.39	-5.97	0.08	0.00	15.10
12,262.00	0.30	66.60	12,259.09	-9,162.09	-5.82	-16.94	-5.82	0.06	0.00	-11.21
12,357.00	0.30	41.40	12,354.09	-9,257.09	-5.54	-16.55	-5.54	0.14	0.00	-26.53
12,451.00	0.30	16.00	12,448.09	-9,351.09	-5.12	-16.32	-5.12	0.14	0.00	-27.02
12,545.00	0.40	319.60	12,542.09	-9,445.09	-4.63	-16.46	-4.63	0.36	0.11	-60.00
12,639.00	0.40	302.50	12,636.08	-9,539.08	-4.20	-16.95	-4.20	0.13	0.00	-18.19
12,734.00	0.60	304.00	12,731.08	-9,634.08	-3.75	-17.64	-3.75	0.21	0.21	1.58
12,828.00	0.50	271.20	12,825.08	-9,728.08	-3.46	-18.46	-3.46	0.35	-0.11	-34.89
12,922.00	0.50	260.20	12,919.07	-9,822.07	-3.53	-19.27	-3.53	0.10	0.00	-11.70
13,017.00	0.50	264.20	13,014.07	-9,917.07	-3.64	-20.10	-3.64	0.04	0.00	4.21
13,111.00	0.60	263.00	13,108.06	-10,011.06	-3.74	-20.99	-3.74	0.11	0.11	-1.28
13,206.00	0.60	258.30	13,203.06	-10,106.06	-3.90	-21.97	-3.90	0.05	0.00	-4.95
13,301.00	0.60	254.30	13,298.05	-10,201.05	-4.14	-22.94	-4.14	0.04	0.00	-4.21
13,395.00	0.70	245.80	13,392.05	-10,295.05	-4.51	-23.94	-4.51	0.15	0.11	-9.04
13,489.00	0.30	252.10	13,486.04	-10,389.04	-4.82	-24.69	-4.82	0.43	-0.43	6.70
13,582.00	0.30	257.70	13,579.04	-10,482.04	-4.94	-25.16	-4.94	0.03	0.00	6.02
13,676.00	0.60	251.80	13,673.04	-10,576.04	-5.15	-25.87	-5.15	0.32	0.32	-6.28
13,770.00	0.80	259.00	13,767.03	-10,670.03	-5.43	-26.98	-5.43	0.23	0.21	7.66
13,864.00	1.20	257.40	13,861.02	-10,764.02	-5.77	-28.59	-5.77	0.43	0.43	-1.70
13,925.00	1.60	264.40	13,922.00	-10,825.00	-5.99	-30.06	-5.99	0.71	0.66	11.48
14,018.00	1.90	265.50	14,014.96	-10,917.96	-6.24	-32.89	-6.24	0.32	0.32	1.18
14,112.00	2.00	296.50	14,108.90	-11,011.90	-5.63	-35.91	-5.63	1.11	0.11	32.98
14,206.00	2.10	285.90	14,202.84	-11,105.84	-4.42	-39.03	-4.42	0.42	0.11	-11.28
14,302.00	2.80	282.30	14,298.76	-11,201.76	-3.44	-43.02	-3.44	0.75	0.73	-3.75
14,397.00	0.80	95.70	14,393.73	-11,296.73	-3.01	-44.62	-3.01	3.79	-2.11	182.53
14,491.00	0.50	42.20	14,487.72	-11,390.72	-2.78	-43.70	-2.78	0.68	-0.32	-56.91
14,585.00	2.60	81.90	14,581.68	-11,484.68	-2.17	-41.31	-2.17	2.38	2.23	42.23
14,678.00	1.80	92.10	14,674.61	-11,577.61	-1.93	-37.76	-1.93	0.95	-0.86	10.97
LAST SURVEY, JAN 1, 2018										
14,772.00	1.70	97.00	14,768.57	-11,671.57	-2.15	-34.90	-2.15	0.19	-0.11	5.21
PROJECTION TO TD										
14,865.00	1.70	97.00	14,861.53	-11,764.53	-2.49	-32.16	-2.49	0.00	0.00	0.00

Survey Report



Company:	NGL WATER SOLUTIONS PERMIAN, LLC	Local Co-ordinate Reference:	Well STRIKER 3 SWD #1
Project:	EDDY COUNTY, NEW MEXICO (NAD 83)	TVD Reference:	KB (28') @ 3097.00usft (LATSHAW # 21)
Site:	SE SE SEC. 33 T23S R28E	MD Reference:	KB (28') @ 3097.00usft (LATSHAW # 21)
Well:	STRIKER 3 SWD #1	North Reference:	True
Wellbore:	JOB # 2017-480-21	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
ABDN VERT WITT #001	0.00	0.00	6,300.20	88.00	337.00	456,876.09	617,894.86	32.255785	-104.085675
- survey misses target center by 358.15usft at 6301.65usft MD (6300.00 TVD, -3.69 N, -9.21 E)									
- Circle (radius 30.00)									
PROPOSED TD - STRIKER 3 SWD #1	0.00	0.00	15,200.20	0.00	0.00	456,787.32	617,558.09	32.255543	-104.086765
- survey misses target center by 340.20usft at 14865.00usft MD (14861.53 TVD, -2.49 N, -32.16 E)									
- Circle (radius 40.00)									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
14,772.00	14,768.57	-2.15	-34.90	LAST SURVEY JAN 1, 2018
14,865.00	14,861.53	-2.49	-32.16	PROJECTION TO TD

Checked By: _____	Approved By: _____	Date: _____
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Project: EDDY COUNTY, NEW MEXICO (NAD 83)
Site: SE SE SEC. 33 T23S R28E
Well: STRIKER 3 SWD #1
Wellbore: JOB # 2017-480-21
Design: SURVEYS

PROJECT DETAILS: EDDY COUNTY, NEW MEXICO (NAD 83)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
Pedicle: SE SE SEC. 33 T23S R28E

WELL DETAILS: STRIKER 3 SWD #1

Ground Level: 3089.00

+N/-S	+E/-W	North	Easting	Latitude	Longitude
0.00	0.00	456787.32	617558.09	32.255543	-104.088765

DESIGN TARGET DETAILS

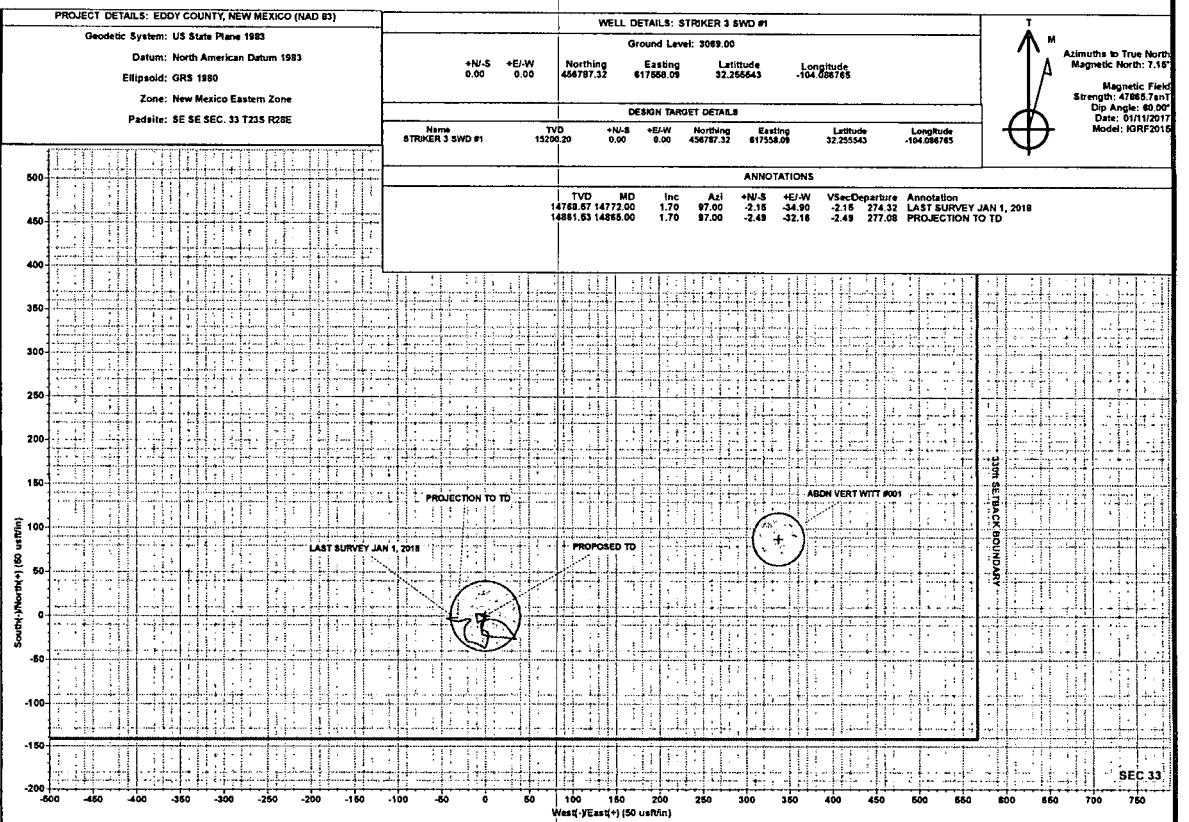
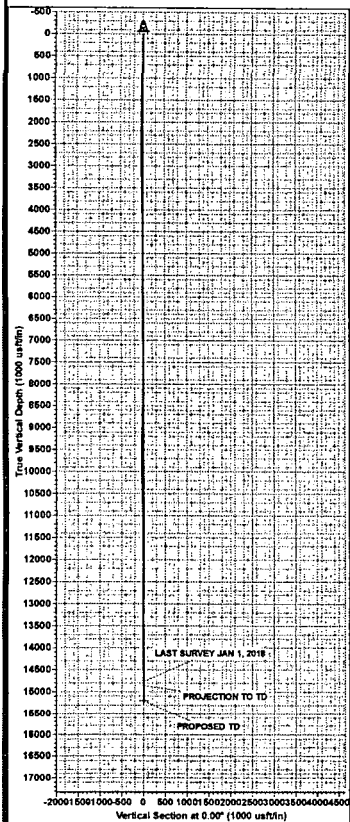
Name	TVD	+N/-S	+E/-W	North	Easting	Latitude	Longitude
STRIKER 3 SWD #1	15200.20	0.00	0.00	456787.32	617558.09	32.255543	-104.088765

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
14768.67	14772.00	1.70	97.00	-2.15	-34.90	-2.15	274.32	LAST SURVEY JAN 1, 2018
14881.63	14886.00	1.70	97.00	-2.49	-32.18	-2.49	277.08	PROJECTION TO TD



Azimuths to True North:
Magnetic North: 7.15°
Magnetic Field
Strength: 47865.7 nT
Dip Angle: 60.00°
Date: 01/11/2017
Model: KRF2015





STRIKER3

Amended 6/18/19



TUBULARS						WELL INFORMATION		DIRECTIONS TO SITE	PROPOSED INJECTION INTERVAL
STRING DETAILS (Size, WPF, Grade, Conn)	HOLE SIZE (in.)	O.D. (in.)	I.D. (in.)	HOLE DEPTH (ft)	SET DEPTH (ft)	RIG:	Latshaw #21		
20" 94# 1-55 BTC (12 js)	24	20.000	19.124	545'	542'	API #:	30-015-44407		
13.375" 68# L-80 BTC (71 js)	17.5	13.375	12.415	2,676'	2,664'	COUNTY:	Eddy		
9.625" 47# L-80 BTC (238 js)	12.25	9.625	8.681	9,580'	9,544'	S/T/R:	Sec. 33 235 28E		
7" 29# HCP-110 DTLF (112 js)	8.5	7.000	6.13	13,975'	13,974'	LATITUDE:			
Open Hole Injection Interval	6.5	-	-	14,865'	-	LONGITUDE:			
						SPUD DATE:	11/16/2017		
						RR DATE:	1/9/2018		
STRING COMPONENTS						HOLE INFORMATION / GEO TOPS		CEMENT INFO	PROPOSED INJECTING STRING
COMPONENT	O.D.	I.D.	Tap	8tm		GL: 3069'			
						KB: 3097'			
20" Surface Casing Shoe	20.000	19.124	-	542'		24" Surface Hole T.D. = 545'		Pumped 193 bbls (809 ss) of 14.8 ppg. 1.34 R3/sk. Class "C" cement. Circulated 58 bbls of cement to surface. (11/18/17)	
						Salado - 1000'			
						Top of Salt - 1753'			
						Bottom of Salt - 2403'		Pumped 379 bbls (1237 ss) of 13.7 ppg. 1.72 R3/sk. Class "C" lead cement followed by 363 bbls (1521 ss) of 14.8 ppg. 1.34 R3/sk. Class "C" cement. 273 bbls of cement to surface. (11/24/17)	DDR Does not have count of injection string joints. A total of 9279' of 5-1/2" 17# P110 LTC was ran with a X/O
						Delaware - 7605'			
						Bell Canyon - 2647'			
13.375" 1st Intermediate Casing Shoe	13.375	12.415	-	2,664'		17.5" 1st Int. Hole T.D. = 2676'			
9.625" Stage Tool	9.625	-	-	5,485'				Stage 1: 173 bbls (558 ss) of 13.5 ppg Class "H" lead cement, 1.74 R3/sk followed by 108 bbls (497 ss) of 14.4 ppg Class "H" cement. 1.22 R3/sk. 50 bbls of cement circulated to surface after DVT opened.	
								Stage 2: 151 bbls (487 ss) of 13.5 ppg Class "C" lead cement, 1.74 R3/sk followed by 209 bbls (931 ss) of 14.2 ppg Class "C" cement. 1.26 R3/sk. 60 bbls of cement circulated to surface. (12/9/17)	
7" Liner Hanger (Downhole Tool)	8.681	7.000	9,345'	9,351'		Bone Spring Line 1 - 6368'			
						Bone Spring Sand 1 - 7179'			
						Bone Spring Line 2 - 7422'			
						Bone Spring Sand 2 - 7940'			
						Bone Spring Line 3 - 8244'			
9.625" 2nd Intermediate Casing Shoe	9.625	8.681	-	9,544'					
						Wolfcamp - 9458'			
						12.25" 2nd Int. Hole T.D. = 9580'			
						Pennsylvanian - 11017'			DDR Does not have count of injection string joints. A total of 4649' of 4-1/2" 11.6# P110 LTC was ran with a X/O
						Atoka - 11707'			
						Morrow - 11957'			
								Pumped 60 bbls (120 ss) of 11 ppg. 2.08 R3/sk. Class "C" lead cement followed by 71 bbls (270 ss) of 13.2 ppg. 1.469 R3/sk. Class "C" tail cement. Circulated 30 bbls of cement to surface. (12/26/17)	
Permanenet Packer with Seal Assembly	6.125	4.500	-	13,928'		Barnett - 13325'			
						Miss Limestone - 13509'			
						Woodford - 13771'			
						Devonian - 13958'			13929' Setting depth of Permanenet Packer and Seal Assembly for Injection String.
7" Liner Shoe	7.000	6.125	-	13,974'		8.5" 3rd Int. Hole T.D. = 13975'			
						Silurian Carbonate - 14,335'			
						Fuselman - 14,515'			
						Montrose - 14,767'			
						6-1/8" TD - 14865'			

