

VERDAD RESOURCES

WATTENBERG FIELD

1N-65W-30 JOHNSON PAD

JOHNSON 01N-65W-30-10H

Wellbore #1

Plan: Design #4

Standard Planning Report

01 August, 2019

Project: WATTENBERG FIELD
Site: 1N-65W-30 JOHNSON PAD
Well: JOHNSON 01N-65W-30-10H
Wellbore: Wellbore #1
Design: Design #4

VERDAD RESOURCES

CASING DETAILS

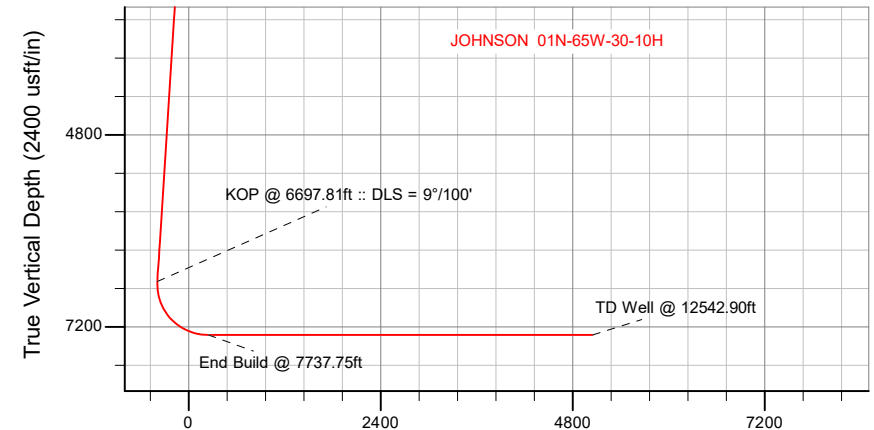
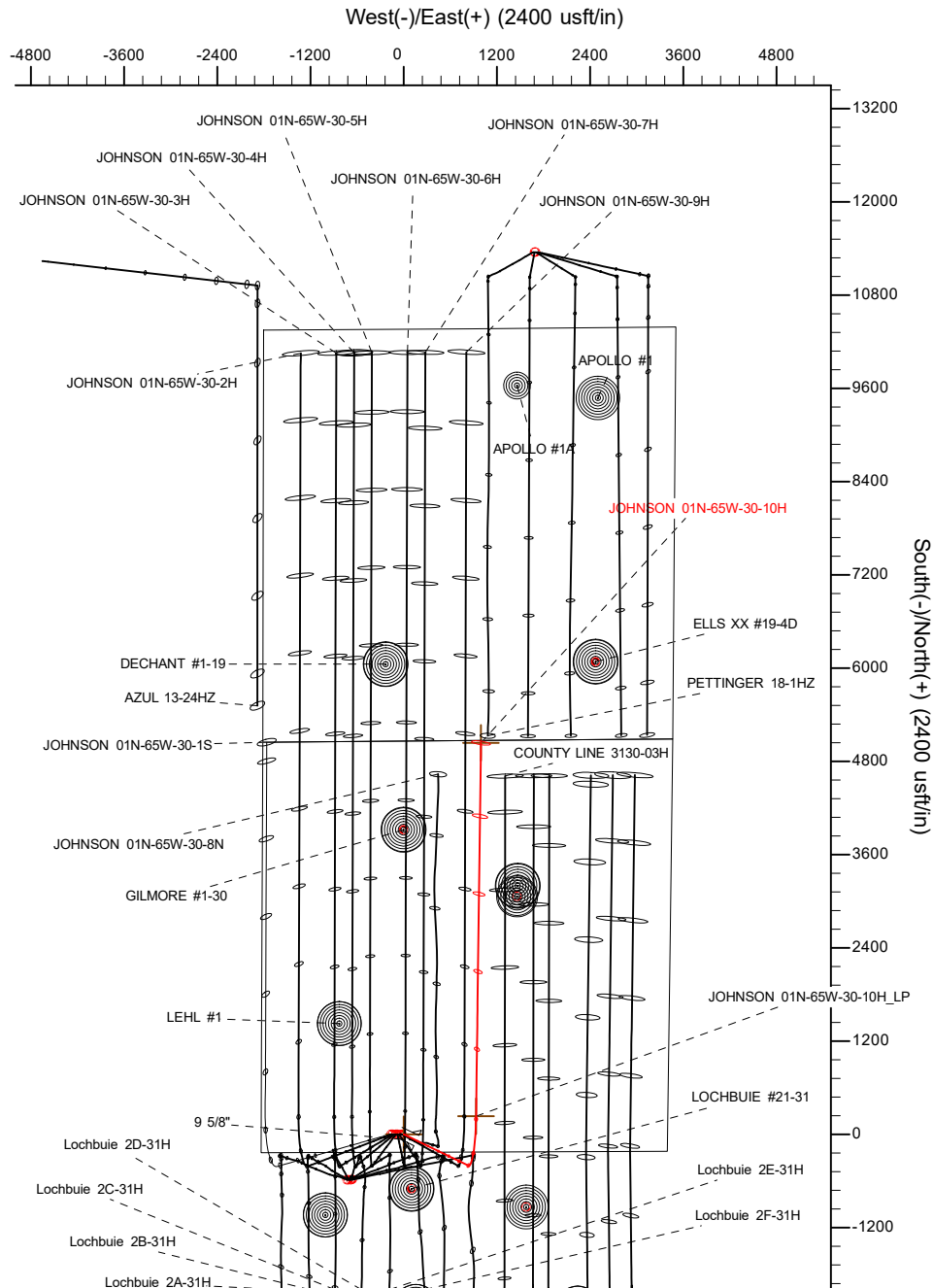
TVD	MD	Name	Size
1700.00	1713.04	9 5/8"	9-5/8

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
676.50	8.53	115.75	674.93	-13.77	28.54	2.00	115.75	-13.40	
6697.81	8.53	115.75	6629.63	-401.78	832.98	0.00	0.00	-390.99	
7737.75	90.00	0.74	7300.00	232.35	932.33	9.00	-114.76	244.37	
12542.90	90.00	0.74	7300.00	5037.09	994.67	0.00	0.00	5049.52	JOHNSON 01N-65W-30-10H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
JOHNSON 01N-65W-30-10H_SHL	0.00	0.00	0.00	40.015686	-104.709598
JOHNSON 01N-65W-30-10H_BHL	7300.00	5037.09	994.67	40.029514	-104.706046



Vertical Section at 0.74° (2400 usft/in)

SHL
230' FSL
1835' FWL

Heel
460' FSL
2468' FEL

BHL
31' FNL
2468' FEL

 Azimuths to True North Magnetic North: 7.91° Magnetic Field Strength: 52235.4snT Dip Angle: 66.52° Date: 2/3/2018 Model: IGRF2010	WELL DETAILS: JOHNSON 01N-65W-30-10H
	GL = 4999'
	RKB = 20' @ 5019.00usft (RIG)
	Plan: Design #4 (JOHNSON 01N-65W-30-10H/Wellbore #1)
	Date: 8/1/2019

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Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well JOHNSON 01N-65W-30-10H
Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5019.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5019.00usft (RIG)
Site:	1N-65W-30 JOHNSON PAD	North Reference:	True
Well:	JOHNSON 01N-65W-30-10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Project	WATTENBERG FIELD		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	1N-65W-30 JOHNSON PAD			
Site Position:		Northing:	1,249,544.93 usft	Latitude: 40.015680
From:	Map	Easting:	3,221,340.35 usft	Longitude: -104.709740
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.51 °

Well	JOHNSON 01N-65W-30-10H			
Well Position	+N/-S	2.18 usft	Northing:	1,249,547.47 usft
	+E/-W	39.77 usft	Easting:	3,221,380.10 usft
Position Uncertainty		3.28 usft	Wellhead Elevation:	Ground Level: 4,999.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/3/2018	7.91	66.52	52,235.37151654

Design	Design #4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	0.74

Plan Survey Tool Program	Date	8/1/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,700.00	Design #4 (Wellbore #1)	ISCWSA REV 2 MWD
				Fixed:v2:standard declination
2	1,700.00	12,542.90	Design #4 (Wellbore #1)	ISCWSA REV 2 MWD
				Fixed:v2:standard declination

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
676.50	8.53	115.75	674.93	-13.77	28.54	2.00	2.00	0.00	115.75	
6,697.81	8.53	115.75	6,629.63	-401.78	832.98	0.00	0.00	0.00	0.00	
7,737.75	90.00	0.74	7,300.00	232.35	932.33	9.00	7.83	-11.06	-114.76	
12,542.90	90.00	0.74	7,300.00	5,037.09	994.67	0.00	0.00	0.00	0.00	JOHNSON 01N-65W-

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5019.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5019.00usft (RIG)
Site:	1N-65W-30 JOHNSON PAD	North Reference:	True
Well:	JOHNSON 01N-65W-30-10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	1.00	115.75	300.00	-0.19	0.39	-0.18	2.00	2.00	0.00
400.00	3.00	115.75	399.93	-1.71	3.54	-1.66	2.00	2.00	0.00
500.00	5.00	115.75	499.68	-4.74	9.82	-4.61	2.00	2.00	0.00
600.00	7.00	115.75	599.13	-9.28	19.23	-9.03	2.00	2.00	0.00
676.50	8.53	115.75	674.93	-13.77	28.54	-13.40	2.00	2.00	0.00
Hold Tangent @ 676.50ft									
700.00	8.53	115.75	698.17	-15.28	31.68	-14.87	0.00	0.00	0.00
800.00	8.53	115.75	797.06	-21.73	45.04	-21.14	0.00	0.00	0.00
900.00	8.53	115.75	895.95	-28.17	58.40	-27.41	0.00	0.00	0.00
1,000.00	8.53	115.75	994.85	-34.61	71.76	-33.68	0.00	0.00	0.00
1,100.00	8.53	115.75	1,093.74	-41.06	85.12	-39.95	0.00	0.00	0.00
1,200.00	8.53	115.75	1,192.64	-47.50	98.48	-46.23	0.00	0.00	0.00
1,300.00	8.53	115.75	1,291.53	-53.95	111.84	-52.50	0.00	0.00	0.00
1,400.00	8.53	115.75	1,390.42	-60.39	125.20	-58.77	0.00	0.00	0.00
1,500.00	8.53	115.75	1,489.32	-66.83	138.56	-65.04	0.00	0.00	0.00
1,600.00	8.53	115.75	1,588.21	-73.28	151.92	-71.31	0.00	0.00	0.00
1,700.00	8.53	115.75	1,687.10	-79.72	165.28	-77.58	0.00	0.00	0.00
1,713.04	8.53	115.75	1,700.00	-80.56	167.02	-78.40	0.00	0.00	0.00
9 5/8"									
1,800.00	8.53	115.75	1,786.00	-86.17	178.64	-83.85	0.00	0.00	0.00
1,900.00	8.53	115.75	1,884.89	-92.61	192.00	-90.12	0.00	0.00	0.00
2,000.00	8.53	115.75	1,983.79	-99.05	205.36	-96.39	0.00	0.00	0.00
2,100.00	8.53	115.75	2,082.68	-105.50	218.72	-102.66	0.00	0.00	0.00
2,200.00	8.53	115.75	2,181.57	-111.94	232.08	-108.94	0.00	0.00	0.00
2,300.00	8.53	115.75	2,280.47	-118.39	245.44	-115.21	0.00	0.00	0.00
2,400.00	8.53	115.75	2,379.36	-124.83	258.80	-121.48	0.00	0.00	0.00
2,500.00	8.53	115.75	2,478.26	-131.27	272.16	-127.75	0.00	0.00	0.00
2,600.00	8.53	115.75	2,577.15	-137.72	285.52	-134.02	0.00	0.00	0.00
2,700.00	8.53	115.75	2,676.04	-144.16	298.88	-140.29	0.00	0.00	0.00
2,800.00	8.53	115.75	2,774.94	-150.61	312.24	-146.56	0.00	0.00	0.00
2,900.00	8.53	115.75	2,873.83	-157.05	325.60	-152.83	0.00	0.00	0.00
3,000.00	8.53	115.75	2,972.72	-163.49	338.96	-159.10	0.00	0.00	0.00
3,100.00	8.53	115.75	3,071.62	-169.94	352.32	-165.37	0.00	0.00	0.00
3,200.00	8.53	115.75	3,170.51	-176.38	365.68	-171.64	0.00	0.00	0.00
3,300.00	8.53	115.75	3,269.41	-182.83	379.04	-177.92	0.00	0.00	0.00
3,400.00	8.53	115.75	3,368.30	-189.27	392.40	-184.19	0.00	0.00	0.00
3,500.00	8.53	115.75	3,467.19	-195.71	405.76	-190.46	0.00	0.00	0.00
3,600.00	8.53	115.75	3,566.09	-202.16	419.12	-196.73	0.00	0.00	0.00
3,700.00	8.53	115.75	3,664.98	-208.60	432.48	-203.00	0.00	0.00	0.00
3,800.00	8.53	115.75	3,763.88	-215.05	445.84	-209.27	0.00	0.00	0.00
3,900.00	8.53	115.75	3,862.77	-221.49	459.20	-215.54	0.00	0.00	0.00
4,000.00	8.53	115.75	3,961.66	-227.93	472.56	-221.81	0.00	0.00	0.00
4,100.00	8.53	115.75	4,060.56	-234.38	485.92	-228.08	0.00	0.00	0.00
4,200.00	8.53	115.75	4,159.45	-240.82	499.28	-234.35	0.00	0.00	0.00
4,300.00	8.53	115.75	4,258.34	-247.27	512.64	-240.62	0.00	0.00	0.00
4,400.00	8.53	115.75	4,357.24	-253.71	526.00	-246.90	0.00	0.00	0.00
4,500.00	8.53	115.75	4,456.13	-260.15	539.35	-253.17	0.00	0.00	0.00
4,600.00	8.53	115.75	4,555.03	-266.60	552.71	-259.44	0.00	0.00	0.00

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Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5019.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5019.00usft (RIG)
Site:	1N-65W-30 JOHNSON PAD	North Reference:	True
Well:	JOHNSON 01N-65W-30-10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.00	8.53	115.75	4,653.92	-273.04	566.07	-265.71	0.00	0.00	0.00
4,800.00	8.53	115.75	4,752.81	-279.49	579.43	-271.98	0.00	0.00	0.00
4,900.00	8.53	115.75	4,851.71	-285.93	592.79	-278.25	0.00	0.00	0.00
5,000.00	8.53	115.75	4,950.60	-292.37	606.15	-284.52	0.00	0.00	0.00
5,100.00	8.53	115.75	5,049.50	-298.82	619.51	-290.79	0.00	0.00	0.00
5,200.00	8.53	115.75	5,148.39	-305.26	632.87	-297.06	0.00	0.00	0.00
5,300.00	8.53	115.75	5,247.28	-311.71	646.23	-303.33	0.00	0.00	0.00
5,400.00	8.53	115.75	5,346.18	-318.15	659.59	-309.60	0.00	0.00	0.00
5,500.00	8.53	115.75	5,445.07	-324.59	672.95	-315.88	0.00	0.00	0.00
5,600.00	8.53	115.75	5,543.96	-331.04	686.31	-322.15	0.00	0.00	0.00
5,700.00	8.53	115.75	5,642.86	-337.48	699.67	-328.42	0.00	0.00	0.00
5,800.00	8.53	115.75	5,741.75	-343.93	713.03	-334.69	0.00	0.00	0.00
5,900.00	8.53	115.75	5,840.65	-350.37	726.39	-340.96	0.00	0.00	0.00
6,000.00	8.53	115.75	5,939.54	-356.81	739.75	-347.23	0.00	0.00	0.00
6,100.00	8.53	115.75	6,038.43	-363.26	753.11	-353.50	0.00	0.00	0.00
6,200.00	8.53	115.75	6,137.33	-369.70	766.47	-359.77	0.00	0.00	0.00
6,300.00	8.53	115.75	6,236.22	-376.15	779.83	-366.04	0.00	0.00	0.00
6,400.00	8.53	115.75	6,335.11	-382.59	793.19	-372.31	0.00	0.00	0.00
6,500.00	8.53	115.75	6,434.01	-389.03	806.55	-378.58	0.00	0.00	0.00
6,600.00	8.53	115.75	6,532.90	-395.48	819.91	-384.86	0.00	0.00	0.00
6,697.81	8.53	115.75	6,629.63	-401.78	832.98	-390.99	0.00	0.00	0.00
KOP @ 6697.81ft :: DLS = 9°/100'									
6,700.00	8.45	114.53	6,631.80	-401.92	833.27	-391.12	9.00	-3.68	-55.62
6,800.00	9.55	54.68	6,730.77	-400.17	846.75	-389.20	9.00	1.10	-59.85
6,900.00	16.49	28.08	6,828.22	-382.82	860.22	-371.68	9.00	6.94	-26.60
7,000.00	24.77	17.88	6,921.75	-350.30	873.36	-338.99	9.00	8.28	-10.21
7,100.00	33.41	12.64	7,009.07	-303.40	885.83	-291.93	9.00	8.64	-5.24
7,200.00	42.19	9.37	7,088.02	-243.28	897.35	-231.67	9.00	8.78	-3.27
7,300.00	51.03	7.06	7,156.65	-171.43	907.61	-159.69	9.00	8.84	-2.31
7,400.00	59.91	5.26	7,213.29	-89.60	916.37	-77.76	9.00	8.88	-1.79
7,500.00	68.81	3.76	7,256.52	0.18	923.41	12.11	9.00	8.90	-1.50
7,600.00	77.72	2.44	7,285.29	95.71	928.56	107.69	9.00	8.91	-1.33
7,700.00	86.63	1.20	7,298.89	194.62	931.69	206.64	9.00	8.92	-1.24
7,737.75	90.00	0.74	7,300.00	232.35	932.33	244.37	9.00	8.92	-1.21
End Build @ 7737.75ft									
7,800.00	90.00	0.74	7,300.00	294.59	933.14	306.62	0.00	0.00	0.00
7,900.00	90.00	0.74	7,300.00	394.58	934.44	406.62	0.00	0.00	0.00
8,000.00	90.00	0.74	7,300.00	494.58	935.74	506.62	0.00	0.00	0.00
8,100.00	90.00	0.74	7,300.00	594.57	937.03	606.62	0.00	0.00	0.00
8,200.00	90.00	0.74	7,300.00	694.56	938.33	706.62	0.00	0.00	0.00
8,300.00	90.00	0.74	7,300.00	794.55	939.63	806.62	0.00	0.00	0.00
8,400.00	90.00	0.74	7,300.00	894.54	940.93	906.62	0.00	0.00	0.00
8,500.00	90.00	0.74	7,300.00	994.53	942.22	1,006.62	0.00	0.00	0.00
8,600.00	90.00	0.74	7,300.00	1,094.52	943.52	1,106.62	0.00	0.00	0.00
8,700.00	90.00	0.74	7,300.00	1,194.52	944.82	1,206.62	0.00	0.00	0.00
8,800.00	90.00	0.74	7,300.00	1,294.51	946.12	1,306.62	0.00	0.00	0.00
8,900.00	90.00	0.74	7,300.00	1,394.50	947.41	1,406.62	0.00	0.00	0.00
9,000.00	90.00	0.74	7,300.00	1,494.49	948.71	1,506.62	0.00	0.00	0.00
9,100.00	90.00	0.74	7,300.00	1,594.48	950.01	1,606.62	0.00	0.00	0.00
9,200.00	90.00	0.74	7,300.00	1,694.47	951.30	1,706.62	0.00	0.00	0.00
9,300.00	90.00	0.74	7,300.00	1,794.47	952.60	1,806.62	0.00	0.00	0.00
9,400.00	90.00	0.74	7,300.00	1,894.46	953.90	1,906.62	0.00	0.00	0.00
9,500.00	90.00	0.74	7,300.00	1,994.45	955.20	2,006.62	0.00	0.00	0.00
9,600.00	90.00	0.74	7,300.00	2,094.44	956.49	2,106.62	0.00	0.00	0.00

Hewlett-Packard

Planning Report

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Company:	VERDAD RESOURCES	TVD Reference:	RKB = 20' @ 5019.00usft (RIG)
Project:	WATTENBERG FIELD	MD Reference:	RKB = 20' @ 5019.00usft (RIG)
Site:	1N-65W-30 JOHNSON PAD	North Reference:	True
Well:	JOHNSON 01N-65W-30-10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #4		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,700.00	90.00	0.74	7,300.00	2,194.43	957.79	2,206.62	0.00	0.00	0.00	
9,800.00	90.00	0.74	7,300.00	2,294.42	959.09	2,306.62	0.00	0.00	0.00	
9,900.00	90.00	0.74	7,300.00	2,394.42	960.39	2,406.62	0.00	0.00	0.00	
10,000.00	90.00	0.74	7,300.00	2,494.41	961.68	2,506.62	0.00	0.00	0.00	
10,100.00	90.00	0.74	7,300.00	2,594.40	962.98	2,606.62	0.00	0.00	0.00	
10,200.00	90.00	0.74	7,300.00	2,694.39	964.28	2,706.62	0.00	0.00	0.00	
10,300.00	90.00	0.74	7,300.00	2,794.38	965.58	2,806.62	0.00	0.00	0.00	
10,400.00	90.00	0.74	7,300.00	2,894.37	966.87	2,906.62	0.00	0.00	0.00	
10,500.00	90.00	0.74	7,300.00	2,994.37	968.17	3,006.62	0.00	0.00	0.00	
10,600.00	90.00	0.74	7,300.00	3,094.36	969.47	3,106.62	0.00	0.00	0.00	
10,700.00	90.00	0.74	7,300.00	3,194.35	970.77	3,206.62	0.00	0.00	0.00	
10,800.00	90.00	0.74	7,300.00	3,294.34	972.06	3,306.62	0.00	0.00	0.00	
10,900.00	90.00	0.74	7,300.00	3,394.33	973.36	3,406.62	0.00	0.00	0.00	
11,000.00	90.00	0.74	7,300.00	3,494.32	974.66	3,506.62	0.00	0.00	0.00	
11,100.00	90.00	0.74	7,300.00	3,594.31	975.95	3,606.62	0.00	0.00	0.00	
11,200.00	90.00	0.74	7,300.00	3,694.31	977.25	3,706.62	0.00	0.00	0.00	
11,300.00	90.00	0.74	7,300.00	3,794.30	978.55	3,806.62	0.00	0.00	0.00	
11,400.00	90.00	0.74	7,300.00	3,894.29	979.85	3,906.62	0.00	0.00	0.00	
11,500.00	90.00	0.74	7,300.00	3,994.28	981.14	4,006.62	0.00	0.00	0.00	
11,600.00	90.00	0.74	7,300.00	4,094.27	982.44	4,106.62	0.00	0.00	0.00	
11,700.00	90.00	0.74	7,300.00	4,194.26	983.74	4,206.62	0.00	0.00	0.00	
11,800.00	90.00	0.74	7,300.00	4,294.26	985.04	4,306.62	0.00	0.00	0.00	
11,900.00	90.00	0.74	7,300.00	4,394.25	986.33	4,406.62	0.00	0.00	0.00	
12,000.00	90.00	0.74	7,300.00	4,494.24	987.63	4,506.62	0.00	0.00	0.00	
12,100.00	90.00	0.74	7,300.00	4,594.23	988.93	4,606.62	0.00	0.00	0.00	
12,200.00	90.00	0.74	7,300.00	4,694.22	990.23	4,706.62	0.00	0.00	0.00	
12,300.00	90.00	0.74	7,300.00	4,794.21	991.52	4,806.62	0.00	0.00	0.00	
12,400.00	90.00	0.74	7,300.00	4,894.21	992.82	4,906.62	0.00	0.00	0.00	
12,500.00	90.00	0.74	7,300.00	4,994.20	994.12	5,006.62	0.00	0.00	0.00	
12,542.90	90.00	0.74	7,300.00	5,037.09	994.67	5,049.52	0.00	0.00	0.00	
TD Well @ 12542.90ft										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,713.04	1,700.00	9 5/8"		9-5/8	13-1/2

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
250.00	250.00	+N/-S (usft)	+E/-W (usft)	Begin Nudge @ 250.00ft	
676.50	674.93	-13.77	28.54	Hold Tangent @ 676.50ft	
6,697.81	6,629.63	-401.78	832.98	KOP @ 6697.81ft :: DLS = 9°/100'	
7,737.75	7,300.00	232.35	932.33	End Build @ 7737.75ft	
12,542.90	7,300.00	5,037.09	994.67	TD Well @ 12542.90ft	