VERDAD RESOURCES

WATTENBERG FIELD
9N-60W-35 BOYDSTON PAD
BOYDSTON 3535-06H

Wellbore #1

Plan: Design #1

Standard Planning Report

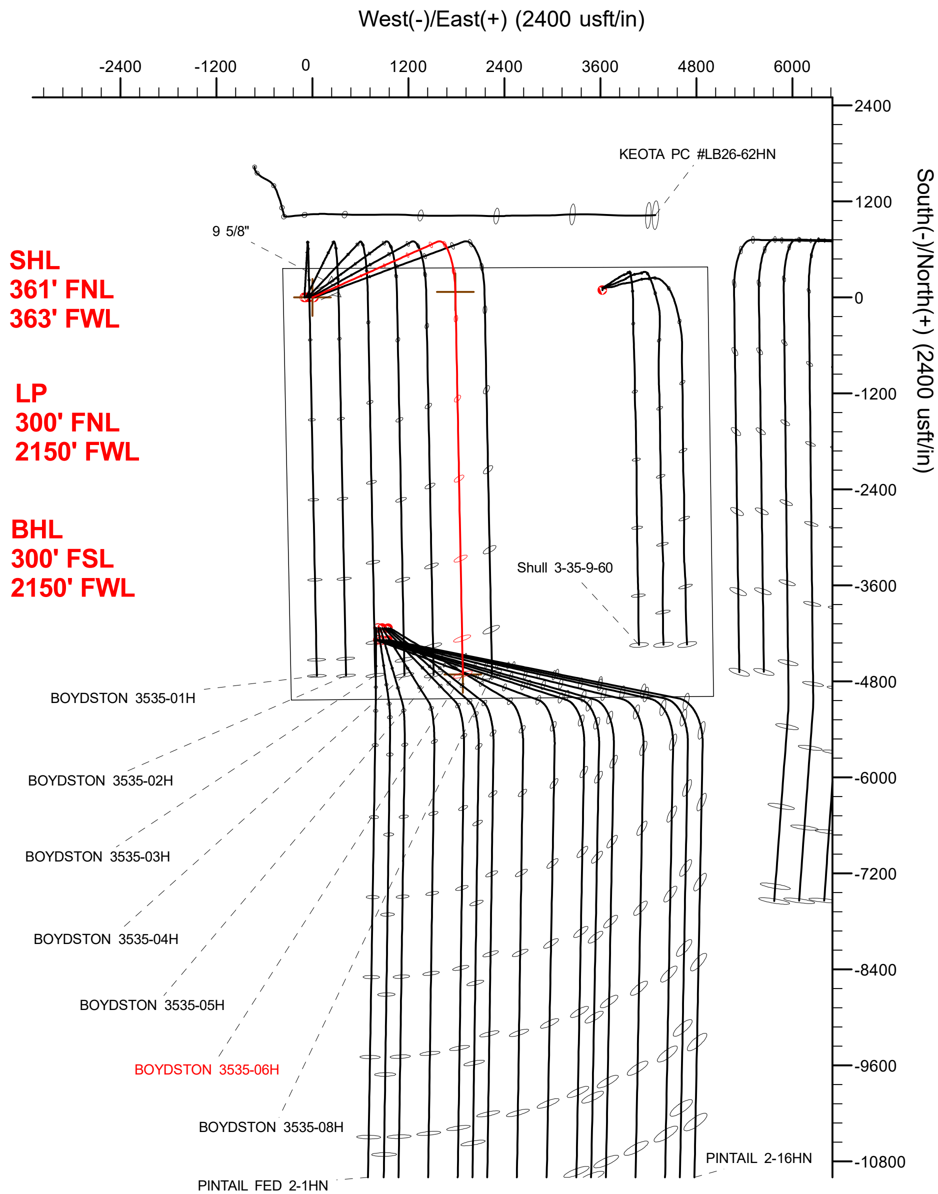
22 March, 2018

Project:	WATTENBERG FIELD
Site:	9N-60W-35 BOYDSTON PAD
Well:	BOYDSTON 3535-06H
Wellbore:	Wellbore #1
Design:	Design #1

VERDAD RESOURCES

CASING DETAILS

TVD	MD	Name	Size
1700.00	1745.64	9 5/8"	9-5/8

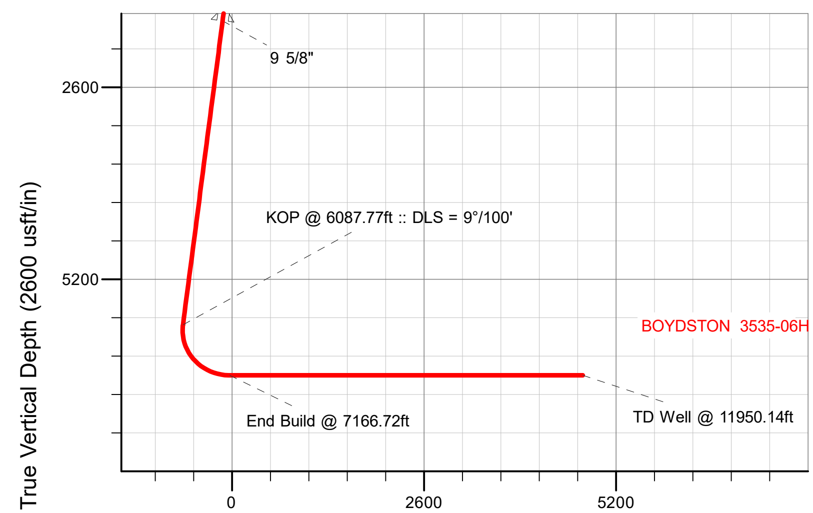


SECTION DETAILS

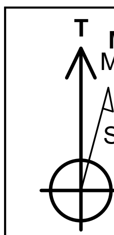
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1177.50	18.55	66.00	1161.38	60.54	135.97	2.00	66.00	-57.87	
4	6087.77	18.55	66.00	5816.55	695.91	1563.03	0.00	0.00	-665.22	
5	7166.72	90.00	178.88	6500.00	68.42	1786.62	9.00	111.81	-33.49	
6	11950.14	90.00	178.88	6500.00	-4714.09	1879.97	0.00	0.00	4749.93	BOYDSTON 3535-06H_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BOYDSTON 3535-06H_SHL	0.00	0.00	0.00	40.712887	-104.067377
BOYDSTON 3535-06H_BHL	6500.00	-4714.09	1879.97	40.699948	-104.060597



Vertical Section at 178.88° (2600 usft/in)



Azimuths to True North
Magnetic North: 7.78°

Magnetic Field
Strength: 52536.7snT
Dip Angle: 67.19°
Date: 3/22/2018
Model: IGRF2015

WELL DETAILS: BOYDSTON 3535-06H

GL = 4945'

RKB = 20' @ 4965.00usft (RIG)

Plan: Design #1 (BOYDSTON 3535-06H/Wellbore #1)

Created By: Date: 3/23/2018
Reviewed: ____________________ Date: __________

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Company:	VERDAD RESOURCES	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site:	9N-60W-35 BOYDSTON PAD	**North Reference:**	True
Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	9N-60W-35 BOYDSTON PAD					
Site Position:		**Northing:**	1,505,754.77 usft	**Latitude:**	40.712886
From:	Lat/Long	**Easting:**	3,397,041.42 usft	**Longitude:**	-104.067738
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.93 °

Well	BOYDSTON 3535-06H					
Well Position	**+N/-S**	0.43 usft	**Northing:**	1,505,756.81 usft	**Latitude:**	40.712887
	+E/-W	100.00 usft	**Easting:**	3,397,141.39 usft	**Longitude:**	-104.067378
Position Uncertainty		3.28 usft	**Wellhead Elevation:**		**Ground Level:**	4,945.00 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/22/2018	7.78	67.19	52,536.74053337

Design Design #1

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	178.88

Plan Survey Tool Program **Date** 3/22/2018

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,700.00	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD Fixed:v2:standard declination	
2	1,700.00	11,950.14	Design #1 (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	
1,177.50	18.55	66.00	1,161.38	60.54	135.97	2.00	2.00	0.00	66.00	
6,087.77	18.55	66.00	5,816.55	695.91	1,563.03	0.00	0.00	0.00	0.00	
7,166.72	90.00	178.88	6,500.00	68.42	1,786.62	9.00	6.62	10.46	111.81	
11,950.14	90.00	178.88	6,500.00	-4,714.09	1,879.97	0.00	0.00	0.00	0.00	BOYDSTON 3535-06

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Company:	VERDAD RESOURCES	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site:	9N-60W-35 BOYDSTON PAD	**North Reference:**	True
Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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 Tangent @ 250.00ft									
300.00	1.00	66.00	300.00	0.18	0.40	-0.17	2.00	2.00	0.00
400.00	3.00	66.00	399.93	1.60	3.59	-1.53	2.00	2.00	0.00
500.00	5.00	66.00	499.68	4.43	9.96	-4.24	2.00	2.00	0.00
600.00	7.00	66.00	599.13	8.69	19.51	-8.30	2.00	2.00	0.00
700.00	9.00	66.00	698.15	14.35	32.22	-13.71	2.00	2.00	0.00
800.00	11.00	66.00	796.63	21.41	48.08	-20.46	2.00	2.00	0.00
900.00	13.00	66.00	894.44	29.86	67.08	-28.55	2.00	2.00	0.00
1,000.00	15.00	66.00	991.46	39.70	89.18	-37.95	2.00	2.00	0.00
1,100.00	17.00	66.00	1,087.58	50.91	114.36	-48.67	2.00	2.00	0.00
1,177.50	18.55	66.00	1,161.38	60.54	135.97	-57.87	2.00	2.00	0.00
End Tangent @ 1177.50ft									
1,200.00	18.55	66.00	1,182.71	63.45	142.51	-60.65	0.00	0.00	0.00
1,300.00	18.55	66.00	1,277.52	76.39	171.57	-73.02	0.00	0.00	0.00
1,400.00	18.55	66.00	1,372.32	89.33	200.63	-85.39	0.00	0.00	0.00
1,500.00	18.55	66.00	1,467.13	102.27	229.70	-97.76	0.00	0.00	0.00
1,600.00	18.55	66.00	1,561.93	115.21	258.76	-110.13	0.00	0.00	0.00
1,700.00	18.55	66.00	1,656.74	128.15	287.82	-122.50	0.00	0.00	0.00
1,745.64	18.55	66.00	1,700.00	134.05	301.08	-128.14	0.00	0.00	0.00
9 5/8"									
1,800.00	18.55	66.00	1,751.54	141.09	316.88	-134.87	0.00	0.00	0.00
1,900.00	18.55	66.00	1,846.34	154.03	345.95	-147.23	0.00	0.00	0.00
2,000.00	18.55	66.00	1,941.15	166.97	375.01	-159.60	0.00	0.00	0.00
2,100.00	18.55	66.00	2,035.95	179.90	404.07	-171.97	0.00	0.00	0.00
2,200.00	18.55	66.00	2,130.76	192.84	433.14	-184.34	0.00	0.00	0.00
2,300.00	18.55	66.00	2,225.56	205.78	462.20	-196.71	0.00	0.00	0.00
2,400.00	18.55	66.00	2,320.37	218.72	491.26	-209.08	0.00	0.00	0.00
2,500.00	18.55	66.00	2,415.17	231.66	520.32	-221.45	0.00	0.00	0.00
2,600.00	18.55	66.00	2,509.98	244.60	549.39	-233.82	0.00	0.00	0.00
2,700.00	18.55	66.00	2,604.78	257.54	578.45	-246.19	0.00	0.00	0.00
2,800.00	18.55	66.00	2,699.59	270.48	607.51	-258.56	0.00	0.00	0.00
2,900.00	18.55	66.00	2,794.39	283.42	636.58	-270.92	0.00	0.00	0.00
3,000.00	18.55	66.00	2,889.20	296.36	665.64	-283.29	0.00	0.00	0.00
3,100.00	18.55	66.00	2,984.00	309.30	694.70	-295.66	0.00	0.00	0.00
3,200.00	18.55	66.00	3,078.81	322.24	723.76	-308.03	0.00	0.00	0.00
3,300.00	18.55	66.00	3,173.61	335.18	752.83	-320.40	0.00	0.00	0.00
3,400.00	18.55	66.00	3,268.41	348.12	781.89	-332.77	0.00	0.00	0.00
3,500.00	18.55	66.00	3,363.22	361.06	810.95	-345.14	0.00	0.00	0.00
3,600.00	18.55	66.00	3,458.02	374.00	840.02	-357.51	0.00	0.00	0.00
3,700.00	18.55	66.00	3,552.83	386.94	869.08	-369.88	0.00	0.00	0.00
3,800.00	18.55	66.00	3,647.63	399.88	898.14	-382.25	0.00	0.00	0.00
3,900.00	18.55	66.00	3,742.44	412.82	927.20	-394.62	0.00	0.00	0.00
4,000.00	18.55	66.00	3,837.24	425.76	956.27	-406.98	0.00	0.00	0.00
4,100.00	18.55	66.00	3,932.05	438.70	985.33	-419.35	0.00	0.00	0.00
4,200.00	18.55	66.00	4,026.85	451.64	1,014.39	-431.72	0.00	0.00	0.00
4,300.00	18.55	66.00	4,121.66	464.58	1,043.45	-444.09	0.00	0.00	0.00
4,400.00	18.55	66.00	4,216.46	477.52	1,072.52	-456.46	0.00	0.00	0.00
4,500.00	18.55	66.00	4,311.27	490.46	1,101.58	-468.83	0.00	0.00	0.00
4,600.00	18.55	66.00	4,406.07	503.39	1,130.64	-481.20	0.00	0.00	0.00

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Company:	VERDAD RESOURCES	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site:	9N-60W-35 BOYDSTON PAD	**North Reference:**	True
Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	18.55	66.00	4,500.87	516.33	1,159.71	-493.57	0.00	0.00	0.00
4,800.00	18.55	66.00	4,595.68	529.27	1,188.77	-505.94	0.00	0.00	0.00
4,900.00	18.55	66.00	4,690.48	542.21	1,217.83	-518.31	0.00	0.00	0.00
5,000.00	18.55	66.00	4,785.29	555.15	1,246.89	-530.67	0.00	0.00	0.00
5,100.00	18.55	66.00	4,880.09	568.09	1,275.96	-543.04	0.00	0.00	0.00
5,200.00	18.55	66.00	4,974.90	581.03	1,305.02	-555.41	0.00	0.00	0.00
5,300.00	18.55	66.00	5,069.70	593.97	1,334.08	-567.78	0.00	0.00	0.00
5,400.00	18.55	66.00	5,164.51	606.91	1,363.15	-580.15	0.00	0.00	0.00
5,500.00	18.55	66.00	5,259.31	619.85	1,392.21	-592.52	0.00	0.00	0.00
5,600.00	18.55	66.00	5,354.12	632.79	1,421.27	-604.89	0.00	0.00	0.00
5,700.00	18.55	66.00	5,448.92	645.73	1,450.33	-617.26	0.00	0.00	0.00
5,800.00	18.55	66.00	5,543.73	658.67	1,479.40	-629.63	0.00	0.00	0.00
5,900.00	18.55	66.00	5,638.53	671.61	1,508.46	-642.00	0.00	0.00	0.00
6,000.00	18.55	66.00	5,733.34	684.55	1,537.52	-654.37	0.00	0.00	0.00
6,087.77	18.55	66.00	5,816.55	695.91	1,563.03	-665.22	0.00	0.00	0.00
KOP @ 6087.77ft :: DLS = 9°/100'									
6,100.00	18.17	69.28	5,828.15	697.37	1,566.59	-666.62	9.00	-3.12	26.81
6,150.00	17.24	83.80	5,875.81	700.93	1,581.26	-669.89	9.00	-1.85	29.04
6,200.00	17.43	98.93	5,923.56	700.57	1,596.03	-669.24	9.00	0.38	30.26
6,250.00	18.70	112.89	5,971.12	696.29	1,610.82	-664.67	9.00	2.53	27.93
6,300.00	20.85	124.61	6,018.19	688.11	1,625.53	-656.21	9.00	4.30	23.44
6,350.00	23.64	133.95	6,064.47	676.10	1,640.08	-643.91	9.00	5.59	18.69
6,400.00	26.88	141.30	6,109.70	660.31	1,654.37	-627.84	9.00	6.47	14.69
6,450.00	30.42	147.11	6,153.58	640.85	1,668.32	-608.12	9.00	7.08	11.62
6,500.00	34.16	151.78	6,195.84	617.84	1,681.84	-584.84	9.00	7.49	9.35
6,550.00	38.06	155.62	6,236.24	591.41	1,694.85	-558.17	9.00	7.78	7.68
6,600.00	42.05	158.84	6,274.50	561.75	1,707.26	-528.27	9.00	7.99	6.43
6,650.00	46.13	161.59	6,310.41	529.01	1,719.00	-495.31	9.00	8.15	5.50
6,700.00	50.26	163.99	6,343.74	493.42	1,730.00	-459.51	9.00	8.26	4.79
6,750.00	54.43	166.11	6,374.28	455.18	1,740.19	-421.08	9.00	8.35	4.25
6,800.00	58.64	168.02	6,401.85	414.54	1,749.51	-380.26	9.00	8.42	3.82
6,850.00	62.87	169.77	6,426.27	371.73	1,757.90	-337.30	9.00	8.47	3.49
6,900.00	67.13	171.39	6,447.39	327.04	1,765.30	-292.47	9.00	8.51	3.24
6,950.00	71.40	172.91	6,465.09	280.73	1,771.68	-246.05	9.00	8.54	3.04
7,000.00	75.68	174.36	6,479.26	233.09	1,776.99	-198.31	9.00	8.56	2.89
7,050.00	79.97	175.75	6,489.80	184.41	1,781.20	-149.55	9.00	8.58	2.78
7,100.00	84.26	177.10	6,496.66	134.99	1,784.28	-100.08	9.00	8.59	2.71
7,150.00	88.56	178.44	6,499.79	85.14	1,786.23	-50.20	9.00	8.60	2.67
7,166.72	90.00	178.88	6,500.00	68.42	1,786.62	-33.49	9.00	8.60	2.66
End Build @ 7166.72ft									
7,200.00	90.00	178.88	6,500.00	35.15	1,787.27	-0.21	0.00	0.00	0.00
7,300.00	90.00	178.88	6,500.00	-64.83	1,789.22	99.79	0.00	0.00	0.00
7,400.00	90.00	178.88	6,500.00	-164.81	1,791.17	199.79	0.00	0.00	0.00
7,500.00	90.00	178.88	6,500.00	-264.79	1,793.12	299.79	0.00	0.00	0.00
7,600.00	90.00	178.88	6,500.00	-364.78	1,795.07	399.79	0.00	0.00	0.00
7,700.00	90.00	178.88	6,500.00	-464.76	1,797.02	499.79	0.00	0.00	0.00
7,800.00	90.00	178.88	6,500.00	-564.74	1,798.98	599.79	0.00	0.00	0.00
7,900.00	90.00	178.88	6,500.00	-664.72	1,800.93	699.79	0.00	0.00	0.00
8,000.00	90.00	178.88	6,500.00	-764.70	1,802.88	799.79	0.00	0.00	0.00
8,100.00	90.00	178.88	6,500.00	-864.68	1,804.83	899.79	0.00	0.00	0.00
8,200.00	90.00	178.88	6,500.00	-964.66	1,806.78	999.79	0.00	0.00	0.00
8,300.00	90.00	178.88	6,500.00	-1,064.64	1,808.73	1,099.79	0.00	0.00	0.00
8,400.00	90.00	178.88	6,500.00	-1,164.62	1,810.69	1,199.79	0.00	0.00	0.00
8,500.00	90.00	178.88	6,500.00	-1,264.60	1,812.64	1,299.79	0.00	0.00	0.00

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Company:	VERDAD RESOURCES	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site:	9N-60W-35 BOYDSTON PAD	**North Reference:**	True
Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
8,600.00	90.00	178.88	6,500.00	-1,364.59	1,814.59	1,399.79	0.00	0.00	0.00
8,700.00	90.00	178.88	6,500.00	-1,464.57	1,816.54	1,499.79	0.00	0.00	0.00
8,800.00	90.00	178.88	6,500.00	-1,564.55	1,818.49	1,599.79	0.00	0.00	0.00
8,900.00	90.00	178.88	6,500.00	-1,664.53	1,820.44	1,699.79	0.00	0.00	0.00
9,000.00	90.00	178.88	6,500.00	-1,764.51	1,822.40	1,799.79	0.00	0.00	0.00
9,100.00	90.00	178.88	6,500.00	-1,864.49	1,824.35	1,899.79	0.00	0.00	0.00
9,200.00	90.00	178.88	6,500.00	-1,964.47	1,826.30	1,999.79	0.00	0.00	0.00
9,300.00	90.00	178.88	6,500.00	-2,064.45	1,828.25	2,099.79	0.00	0.00	0.00
9,400.00	90.00	178.88	6,500.00	-2,164.43	1,830.20	2,199.79	0.00	0.00	0.00
9,500.00	90.00	178.88	6,500.00	-2,264.41	1,832.15	2,299.79	0.00	0.00	0.00
9,600.00	90.00	178.88	6,500.00	-2,364.39	1,834.11	2,399.79	0.00	0.00	0.00
9,700.00	90.00	178.88	6,500.00	-2,464.38	1,836.06	2,499.79	0.00	0.00	0.00
9,800.00	90.00	178.88	6,500.00	-2,564.36	1,838.01	2,599.79	0.00	0.00	0.00
9,900.00	90.00	178.88	6,500.00	-2,664.34	1,839.96	2,699.79	0.00	0.00	0.00
10,000.00	90.00	178.88	6,500.00	-2,764.32	1,841.91	2,799.79	0.00	0.00	0.00
10,100.00	90.00	178.88	6,500.00	-2,864.30	1,843.86	2,899.79	0.00	0.00	0.00
10,200.00	90.00	178.88	6,500.00	-2,964.28	1,845.82	2,999.79	0.00	0.00	0.00
10,300.00	90.00	178.88	6,500.00	-3,064.26	1,847.77	3,099.79	0.00	0.00	0.00
10,400.00	90.00	178.88	6,500.00	-3,164.24	1,849.72	3,199.79	0.00	0.00	0.00
10,500.00	90.00	178.88	6,500.00	-3,264.22	1,851.67	3,299.79	0.00	0.00	0.00
10,600.00	90.00	178.88	6,500.00	-3,364.20	1,853.62	3,399.79	0.00	0.00	0.00
10,700.00	90.00	178.88	6,500.00	-3,464.19	1,855.57	3,499.79	0.00	0.00	0.00
10,800.00	90.00	178.88	6,500.00	-3,564.17	1,857.53	3,599.79	0.00	0.00	0.00
10,900.00	90.00	178.88	6,500.00	-3,664.15	1,859.48	3,699.79	0.00	0.00	0.00
11,000.00	90.00	178.88	6,500.00	-3,764.13	1,861.43	3,799.79	0.00	0.00	0.00
11,100.00	90.00	178.88	6,500.00	-3,864.11	1,863.38	3,899.79	0.00	0.00	0.00
11,200.00	90.00	178.88	6,500.00	-3,964.09	1,865.33	3,999.79	0.00	0.00	0.00
11,300.00	90.00	178.88	6,500.00	-4,064.07	1,867.28	4,099.79	0.00	0.00	0.00
11,400.00	90.00	178.88	6,500.00	-4,164.05	1,869.24	4,199.79	0.00	0.00	0.00
11,500.00	90.00	178.88	6,500.00	-4,264.03	1,871.19	4,299.79	0.00	0.00	0.00
11,600.00	90.00	178.88	6,500.00	-4,364.01	1,873.14	4,399.79	0.00	0.00	0.00
11,700.00	90.00	178.88	6,500.00	-4,463.99	1,875.09	4,499.79	0.00	0.00	0.00
11,800.00	90.00	178.88	6,500.00	-4,563.98	1,877.04	4,599.79	0.00	0.00	0.00
11,900.00	90.00	178.88	6,500.00	-4,663.96	1,878.99	4,699.79	0.00	0.00	0.00
11,950.14	90.00	178.88	6,500.00	-4,714.09	1,879.97	4,749.93	0.00	0.00	0.00

TD Well @ 11950.14ft

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,745.64	1,700.00	9 5/8"	9-5/8	13-1/2

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Company:	VERDAD RESOURCES	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Project:	WATTENBERG FIELD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site:	9N-60W-35 BOYDSTON PAD	**North Reference:**	True
Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
250.00	250.00	0.00	0.00	Begin Tangent @ 250.00ft
1,177.50	1,161.38	60.54	135.97	End Tangent @ 1177.50ft
6,087.77	5,816.55	695.91	1,563.03	KOP @ 6087.77ft :: DLS = 9°/100'
7,166.72	6,500.00	68.42	1,786.62	End Build @ 7166.72ft
11,950.14	6,500.00	-4,714.09	1,879.97	TD Well @ 11950.14ft

VERDAD RESOURCES

WATTENBERG FIELD
9N-60W-35 BOYDSTON PAD
BOYDSTON 3535-06H

Wellbore #1
Design #1

Anticollision Summary Report

22 March, 2018

Hewlett-Packard

Anticollision Summary Report

Company:	VERDAD RESOURCES	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Project:	WATTENBERG FIELD	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Reference Site:	9N-60W-35 BOYDSTON PAD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.45 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.14 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 5,000.00 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.45 **Sigma**	**Casing Method:**	Added to Error Values

Survey Tool Program **Date** 3/22/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,700.00	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD	Fixed:v2:standard declination
1,700.00	11,950.14	Design #1 (Wellbore #1)	ISCWSA REV 2 MWD	Fixed:v2:standard declination

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
9N-60W-25 Offsets						
Shull 1-25-9-60 - Carrizo Original Well - Actual Precision						Out of range
Shull 1-25-9-60 - Carrizo PR Sidetrack Well - Actual Prec						Out of range
Shull 2-25-9-60 - Carrizo PR Well - Actual Precision Surv						Out of range
Shull 3-25-9-60 - Carrizo PR Well - Actual Precision Surv						Out of range
Shull 4-25-9-60 - Carrizo Original Wellbore - Actual Preci						Out of range
Shull 4-25-9-60 - Carrizo PR Sidetrack Well - Actual Prec						Out of range
Shull 5-25-9-60 - Carrizo PR Well - Actual Titan Surveys						Out of range
Shull 6-25-9-60 - Carrizo PR Well - Actual Titan Surveys						Out of range
Shull 7-25-9-60 - Carrizo PR Well - Actual Titan Surveys						Out of range
Shull 8-25-9-60 - Carrizo PR Well - Actual Titan Surveys						Out of range
9N-60W-25 PEGGY PAD						
PEGGY 2501-01H - Wellbore #1 - Design #1	11,950.14	11,690.68	3,464.27	3,218.97	14.123	CC, ES, SF
PEGGY 2501-02H - Wellbore #1 - Design #1	11,950.14	11,591.23	3,771.55	3,526.23	15.374	CC, ES, SF
PEGGY 2501-03H - Wellbore #1 - Design #1	11,950.14	11,700.07	4,067.89	3,822.13	16.552	CC, ES, SF
PEGGY 2501-04H - Wellbore #1 - Design #1	11,950.14	11,436.05	4,382.81	4,137.34	17.855	CC, ES, SF
PEGGY 2501-05H - Wellbore #1 - Design #1	11,950.14	11,383.93	4,690.41	4,444.87	19.102	CC, ES, SF
PEGGY 2501-06H - Wellbore #1 - Design #1	11,950.14	11,348.03	4,997.92	4,752.29	20.348	CC, ES, SF
PEGGY 2501-07H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-08H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-09H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-10H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-11H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-12H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-13H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-14H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-15H - Wellbore #1 - Design #1						Out of range
PEGGY 2501-16H - Wellbore #1 - Design #1						Out of range
9N-60W-27 Offsets						
KEOTA PC #LB26-62HN - Noble PR Well - Actual Sperry	6,422.09	8,109.28	401.54	290.51	3.617	CC, ES
KEOTA PC #LB26-62HN - Noble PR Well - Actual Sperry	6,500.00	8,129.65	413.12	294.82	3.492	SF

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Anticollision Summary Report

Company:	VERDAD RESOURCES	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Project:	WATTENBERG FIELD	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Reference Site:	9N-60W-35 BOYDSTON PAD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.45 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.14 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
9N-60W-35 BOYDSTON PAD						
BOYDSTON 3535-01H - Wellbore #1 - Design #1	200.00	200.00	100.00	92.43	13.212	CC
BOYDSTON 3535-01H - Wellbore #1 - Design #1	200.04	200.04	100.00	92.43	13.212	ES
BOYDSTON 3535-01H - Wellbore #1 - Design #1	11,940.53	11,711.15	1,824.99	1,588.12	7.705	SF
BOYDSTON 3535-02H - Wellbore #1 - Design #1	200.00	200.00	80.01	72.44	10.571	CC, ES
BOYDSTON 3535-02H - Wellbore #1 - Design #1	11,934.58	11,711.73	1,459.98	1,223.50	6.174	SF
BOYDSTON 3535-03H - Wellbore #1 - Design #1	200.00	200.00	59.99	52.42	7.926	CC
BOYDSTON 3535-03H - Wellbore #1 - Design #1	200.00	200.00	59.99	52.42	7.926	ES
BOYDSTON 3535-03H - Wellbore #1 - Design #1	11,939.68	11,914.99	1,108.88	873.49	4.711	SF
BOYDSTON 3535-04H - Wellbore #1 - Design #1	200.00	200.00	40.00	32.44	5.286	CC
BOYDSTON 3535-04H - Wellbore #1 - Design #1	300.00	300.57	40.05	32.39	5.232	ES
BOYDSTON 3535-04H - Wellbore #1 - Design #1	11,950.14	11,799.74	730.00	493.17	3.082	SF
BOYDSTON 3535-05H - Wellbore #1 - Design #1	200.00	200.00	19.99	12.42	2.641	CC
BOYDSTON 3535-05H - Wellbore #1 - Design #1	400.00	400.92	20.12	12.35	2.589	ES
BOYDSTON 3535-05H - Wellbore #1 - Design #1	11,950.14	11,865.16	365.00	128.27	1.542	SF
BOYDSTON 3535-08H - Wellbore #1 - Design #1	283.89	283.67	19.61	11.98	2.568	CC, ES
BOYDSTON 3535-08H - Wellbore #1 - Design #1	11,950.14	12,053.94	365.00	128.26	1.542	SF
9N-60W-35 Offsets						
PINTAIL 2-10HN - Mallard Exploration Planned Well - Pla	11,950.14	6,349.34	1,473.16	1,346.61	11.641	CC, ES, SF
PINTAIL 2-11HC - Mallard Exploration Planned Well - Pla	11,950.14	6,328.81	1,534.07	1,405.13	11.897	CC, ES, SF
PINTAIL 2-12HN - Mallard Exploration Planned Well - Pla	11,950.14	6,242.05	1,760.04	1,630.52	13.589	CC, ES, SF
PINTAIL 2-13HN - Mallard Exploration Planned Well - Pla	11,950.14	6,125.85	2,022.47	1,891.96	15.496	CC, ES, SF
PINTAIL 2-14HN - Mallard Exploration Planned Well - Pla	11,950.14	6,000.39	2,269.01	2,138.32	17.363	CC, ES, SF
PINTAIL 2-15HC - Mallard Exploration Planned Well - Pla	11,950.14	5,985.41	2,320.00	2,188.01	17.577	CC, ES, SF
PINTAIL 2-16HN - Mallard Exploration Planned Well - Pla	11,950.14	5,872.63	2,526.99	2,395.69	19.246	CC, ES, SF
PINTAIL 2-9HN - Mallard Exploration Planned Well - Plan	11,950.14	6,400.00	1,188.74	1,068.51	9.887	CC, ES, SF
PINTAIL FED 2-1HN - Mallard Exploration Planned Well -	11,950.14	6,230.23	1,257.02	1,114.67	8.830	CC, ES, SF
PINTAIL FED 2-2HC - Mallard Exploration Planned Well -	11,950.14	6,352.65	1,048.32	902.99	7.213	CC, ES, SF
PINTAIL FED 2-3HN - Mallard Exploration Planned Well -	11,950.14	6,256.45	965.23	828.77	7.074	CC, ES, SF
PINTAIL FED 2-4HN - Mallard Exploration Planned Well -	11,950.14	6,300.00	728.38	610.68	6.188	CC, ES, SF
PINTAIL FED 2-5HN - Mallard Exploration Planned Well -	11,950.14	6,337.03	614.87	538.53	8.055	CC, ES, SF
PINTAIL FED 2-6HC - Mallard Exploration Planned Well -	11,950.14	6,448.20	512.84	449.71	8.124	CC, ES, SF
PINTAIL FED 2-7HN - Mallard Exploration Planned Well -	11,950.14	6,363.21	687.01	612.64	9.237	CC, ES, SF
PINTAIL FED 2-8HN - Mallard Exploration Planned Well -	11,950.14	6,400.00	894.30	792.10	8.750	CC, ES, SF
Shull 1-35-9-60 - Carrizo PR Well - Actual Precision Surv	7,054.18	5,805.55	2,603.84	2,565.21	67.398	CC, ES
Shull 1-35-9-60 - Carrizo PR Well - Actual Precision Surv	11,950.14	10,722.00	2,840.20	2,597.27	11.691	SF
Shull 2-35-9-60 - Verdad PR Well - Actual Precision Surv	7,074.53	5,984.00	2,499.13	2,460.30	64.346	CC
Shull 2-35-9-60 - Verdad PR Well - Actual Precision Surv	11,700.00	10,653.00	2,543.38	2,307.39	10.777	ES
Shull 2-35-9-60 - Verdad PR Well - Actual Precision Surv	11,950.14	10,653.00	2,562.85	2,318.49	10.488	SF
Shull 3-35-9-60 - Verdad PR Well - Actual Precision Surv	11,383.17	10,447.49	2,221.13	2,020.48	11.070	CC
Shull 3-35-9-60 - Verdad PR Well - Actual Precision Surv	11,700.00	10,688.00	2,225.92	1,994.25	9.608	ES
Shull 3-35-9-60 - Verdad PR Well - Actual Precision Surv	11,950.14	10,688.00	2,248.45	2,008.82	9.383	SF
9N-60W-36 Offsets						
STATE-HUSKY #1 - Bennett D/A Well - No Surveys						Out of range

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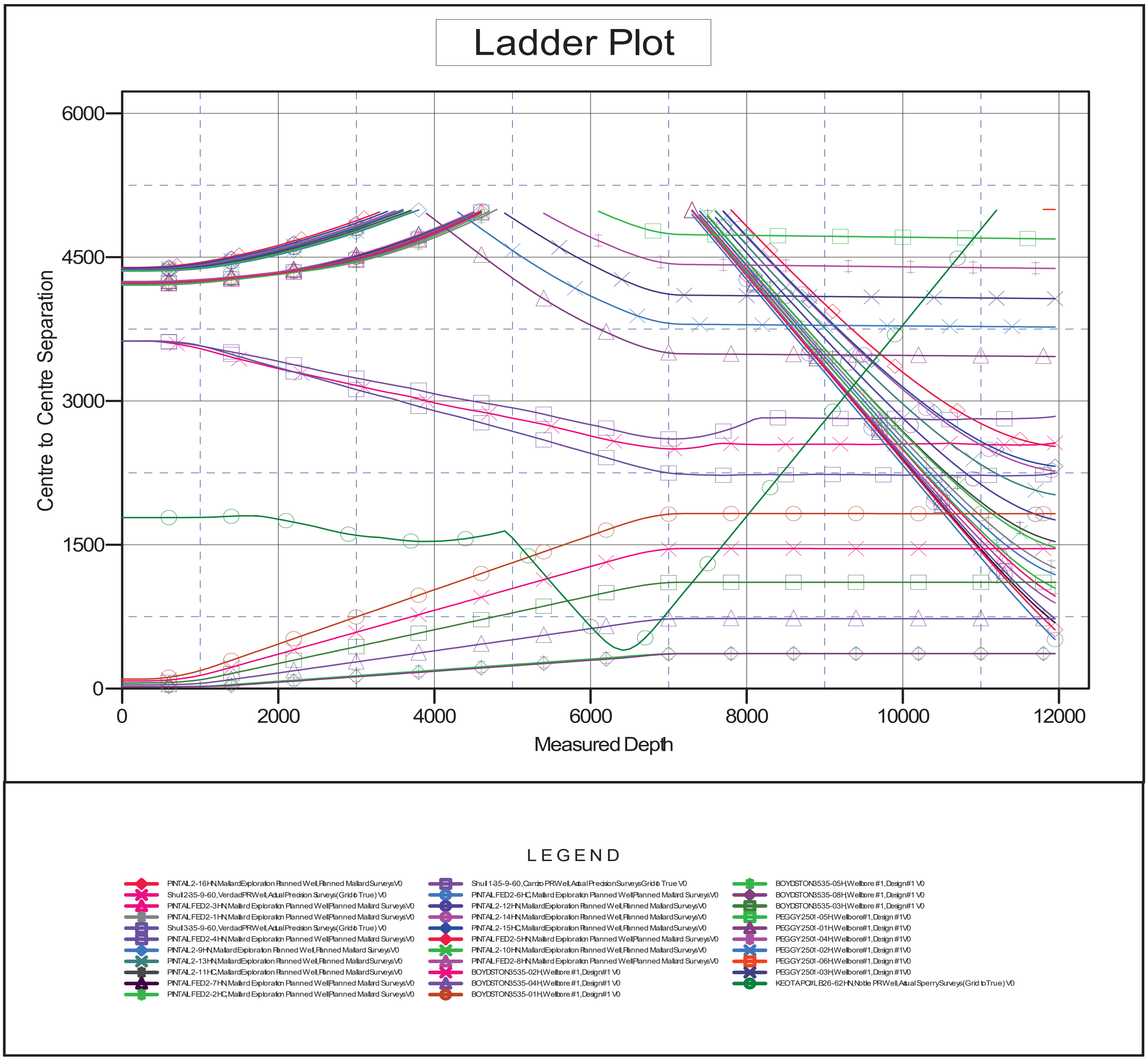
Anticollision Summary Report

Company:	VERDAD RESOURCES	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Project:	WATTENBERG FIELD	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Reference Site:	9N-60W-35 BOYDSTON PAD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.45 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.14 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to RKB = 20' @ 4965.00usft (RIG)	Coordinates are relative to: BOYDSTON 3535-06H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000	Grid Convergence at Surface is: 0.93°



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Anticollision Summary Report

Company:	VERDAD RESOURCES	**Local Co-ordinate Reference:**	Well BOYDSTON 3535-06H
Project:	WATTENBERG FIELD	**TVD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Reference Site:	9N-60W-35 BOYDSTON PAD	**MD Reference:**	RKB = 20' @ 4965.00usft (RIG)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	BOYDSTON 3535-06H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	3.28 usft	**Output errors are at**	2.45 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.14 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to RKB = 20' @ 4965.00usft (RIG)	Coordinates are relative to: BOYDSTON 3535-06H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000	Grid Convergence at Surface is: 0.93°