

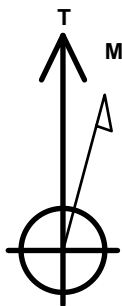
PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **Elbert 11N**

Surface Location: Elbert 1-12 Pad Sec.21-T5N-R65W
 North American Datum 1983 , US State Plane 1983 Colorado Northern Zone
 Ground Elevation: 4638.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1383454.03 3229755.54 40.383050 -104.675250
 Original Well Elev WELL @ 4661.0ft (Original Well Elev)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2059'FSL, 710'FWL, SEC.21	1.0	0.0	0.0	Point
BHL 1275'FSL, 500'FEL, SEC.22	6870.0	-744.9	9348.5	Point
LPL 1315'FSL, 820'FWL, SEC.21	6950.0	-743.2	108.7	Point



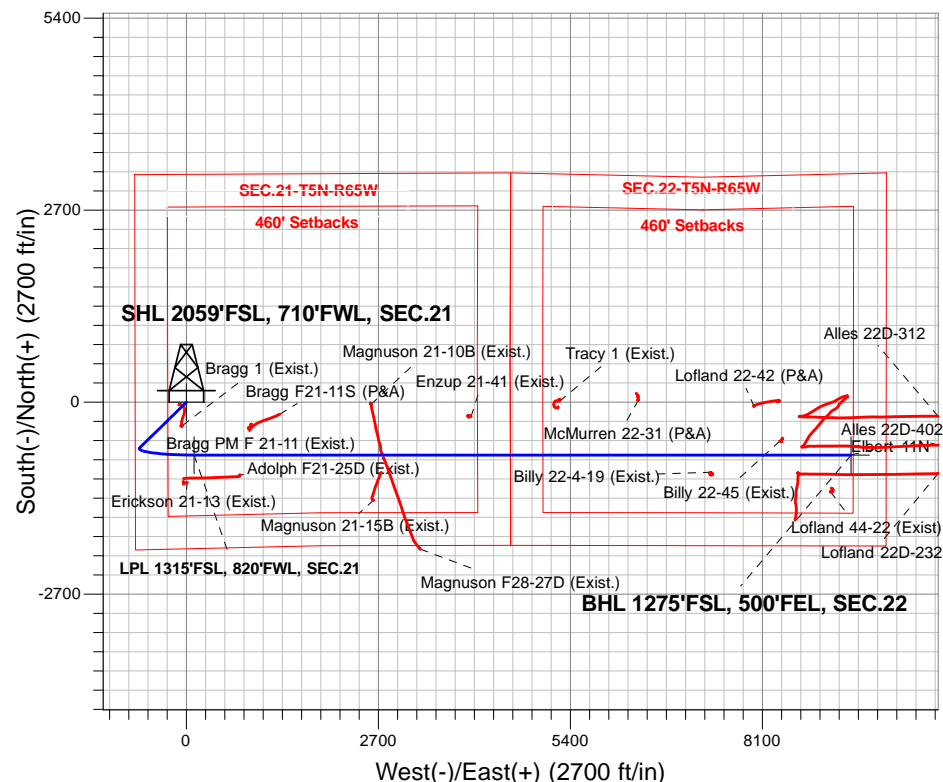
Azimuths to True North
 Magnetic North: 8.06°

Magnetic Field
 Strength: 52547.6snT
 Dip Angle: 66.86°
 Date: 1/5/2017
 Model: IGRF2010

Elbert 1-12 Pad Sec.21-T5N-R65W
 Elbert 11N
 Plan #4 (1-12-17)
 11:48, January 16 2017

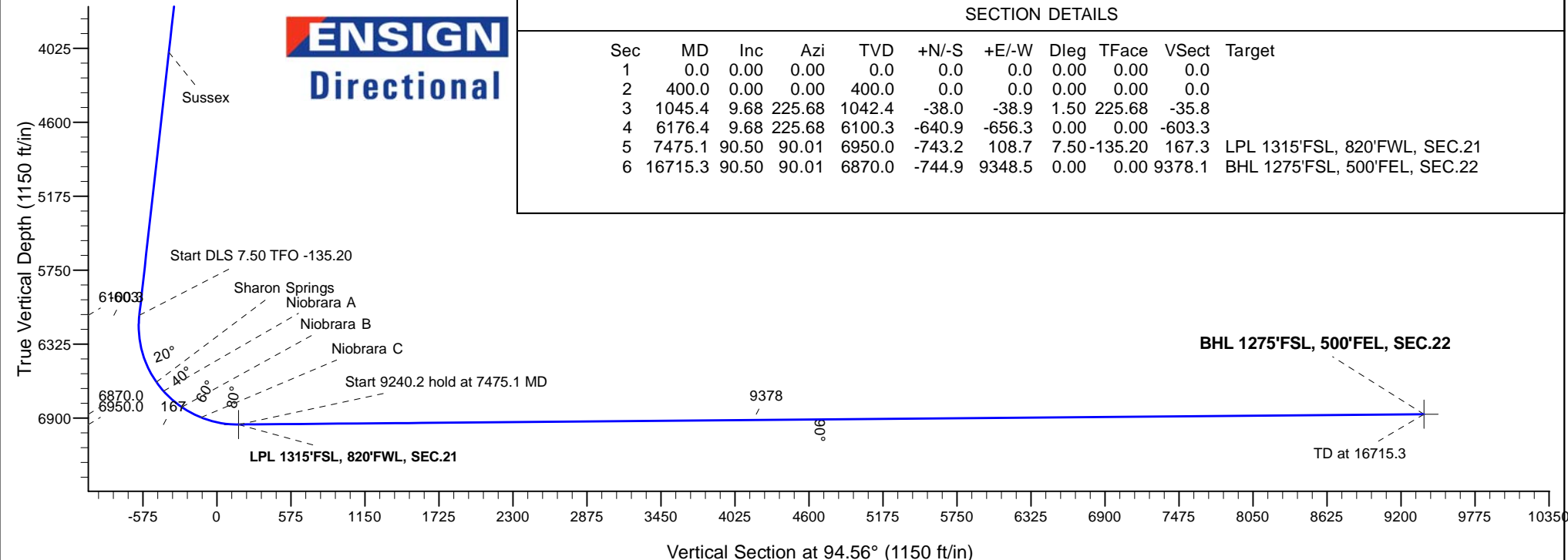
ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP - Start Build 1.50
1042.4	1045.4	Start 5131.0 hold at 1045.4 MD
6100.3	6176.4	Start DLS 7.50 TFO -135.20
6950.0	7475.1	Start 9240.2 hold at 7475.1 MD
6870.0	16715.3	TD at 16715.3



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1045.4	9.68	225.68	1042.4	-38.0	-38.9	1.50	225.68	-35.8	
4	6176.4	9.68	225.68	6100.3	-640.9	-656.3	0.00	0.00	-603.3	
5	7475.1	90.50	90.01	6950.0	-743.2	108.7	7.50	-135.20	167.3	LPL 1315'FSL, 820'FWL, SEC.21
6	16715.3	90.50	90.01	6870.0	-744.9	9348.5	0.00	0.00	9378.1	BHL 1275'FSL, 500'FEL, SEC.22





PETROLEUM DEVELOPMENT CORP DJ Basin

**SEC.21-T5N-R65W
Elbert 1-12 Pad Sec.21-T5N-R65W
Elbert 11N**

**Wellbore #1
Plan #4 (1-12-17)**

Anticollision Report

16 January, 2017



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Elbert 11N
Project:	SEC.21-T5N-R65W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Reference Site:	Elbert 1-12 Pad Sec.21-T5N-R65W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Elbert 11N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (1-12-17)	Offset TVD Reference:	Offset Datum

Reference	Plan #4 (1-12-17)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,200.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.45 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	1/16/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	16,715.3	Plan #4 (1-12-17) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Adolph F21-25D Pad Sec.21-T5N-R65W						
Adolph F21-25D (Exist.) - Wellbore #1 - Wellbore #1	8,121.8	7,022.3	278.0	208.1	3.976	CC, ES, SF
Erickson 21-13 (Exist.) - Wellbore #1 - Wellbore #1	7,383.5	6,926.9	387.9	345.5	9.150	CC, ES
Erickson 21-13 (Exist.) - Wellbore #1 - Wellbore #1	7,400.0	6,928.5	388.3	345.7	9.104	SF
Alles 22S-HZ Pad Sec.22-T5N-R65W						
Alles 22D-312 - Wellbore #1 - Wellbore #1	16,545.3	7,181.0	524.0	172.6	1.491	Level 3, CC
Alles 22D-312 - Wellbore #1 - Wellbore #1	16,715.3	7,331.2	529.8	171.1	1.477	Level 3, ES, SF
Alles 22D-402 - Wellbore #1 - Wellbore #1	16,396.6	7,095.9	128.0	-216.9	0.371	Level 1, CC
Alles 22D-402 - Wellbore #1 - Wellbore #1	16,400.0	7,098.7	128.0	-217.1	0.371	Level 1, ES, SF
Elbert 1-12 Pad Sec.21-T5N-R65W						
Elbert 10N - Wellbore #1 - Plan #5 (1-12-17)	400.0	400.0	14.6	12.6	7.561	CC
Elbert 10N - Wellbore #1 - Plan #5 (1-12-17)	16,715.3	16,624.1	264.5	-382.8	0.409	Level 1, ES, SF
Elbert 12N - Wellbore #1 - Plan #6 (1-13-17)	200.0	200.0	14.6	13.7	17.642	CC
Elbert 12N - Wellbore #1 - Plan #6 (1-13-17)	16,715.3	16,654.6	243.5	-400.7	0.378	Level 1, ES, SF
Elbert 1N - Wellbore #1 - Plan #3 (1-12-17)	200.0	200.0	149.4	148.6	180.856	CC, ES
Elbert 1N - Wellbore #1 - Plan #3 (1-12-17)	3,600.0	3,366.2	1,175.3	1,150.0	46.425	SF
Elbert 2N - Wellbore #1 - Plan #3 (1-12-17)	400.0	400.0	134.8	132.9	69.948	CC, ES
Elbert 2N - Wellbore #1 - Plan #3 (1-12-17)	1,000.0	973.2	207.2	202.0	39.252	SF
Elbert 3N - Wellbore #1 - Plan #4 (1-12-17)	400.0	400.0	120.3	118.3	62.391	CC, ES
Elbert 3N - Wellbore #1 - Plan #4 (1-12-17)	1,000.0	984.8	171.2	166.0	32.761	SF
Elbert 4N - Wellbore #1 - Plan #3 (1-12-17)	400.0	400.0	105.7	103.8	54.835	CC, ES
Elbert 4N - Wellbore #1 - Plan #3 (1-12-17)	1,000.0	992.9	145.1	139.9	27.884	SF
Elbert 5N - Wellbore #1 - Plan #3 (1-12-17)	400.0	400.0	91.1	89.2	47.277	CC, ES
Elbert 5N - Wellbore #1 - Plan #3 (1-12-17)	1,000.0	997.5	127.7	122.5	24.545	SF
Elbert 6N - Wellbore #1 - Plan #3 (1-12-17)	400.0	400.0	72.9	71.0	37.829	CC, ES
Elbert 6N - Wellbore #1 - Plan #3 (1-12-17)	900.0	898.6	97.9	93.3	21.148	SF
Elbert 7N - Wellbore #1 - Plan #4 (1-12-17)	400.0	400.0	58.3	56.4	30.239	CC, ES
Elbert 7N - Wellbore #1 - Plan #4 (1-12-17)	16,715.3	16,684.7	1,016.4	347.5	1.520	SF
Elbert 8N - Wellbore #1 - Plan #4 (1-12-17)	400.0	400.0	43.7	41.8	22.676	CC, ES
Elbert 8N - Wellbore #1 - Plan #4 (1-12-17)	16,715.3	16,607.2	772.0	104.5	1.157	Level 2, SF
Elbert 9N - Wellbore #1 - Plan #4 (1-12-17)	400.0	400.0	29.1	27.2	15.117	CC
Elbert 9N - Wellbore #1 - Plan #4 (1-12-17)	16,715.3	16,689.2	510.0	-158.9	0.763	Level 1, ES, SF
Existing Wells Sec.22-T5N-R65W						
Lofland 44-22 (Exist) - Wellbore #1 - Wellbore #1	16,423.8	6,858.1	511.3	171.3	1.504	CC, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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Project:	SEC.21-T5N-R65W	TVD Reference:	WELL @ 4661.0ft (Original Well Elev)
Reference Site:	Elbert 1-12 Pad Sec.21-T5N-R65W	MD Reference:	WELL @ 4661.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	True
Reference Well:	Elbert 11N	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.45 sigma
Reference Wellbore	Wellbore #1	Database:	US_EDM
Reference Design:	Plan #4 (1-12-17)	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existing Wells Sec.25-T5N-R65W						
Bragg 1 (Exist.) - Wellbore #1 - Wellbore #1	1,255.7	1,228.4	37.2	29.8	5.019	CC, ES
Bragg 1 (Exist.) - Wellbore #1 - Wellbore #1	1,300.0	1,272.1	38.1	30.5	5.004	SF
Bragg F21-11S (P&A) - Wellbore #1 - Wellbore #1	100.0	68.4	957.4	957.1	4,112.623	CC
Bragg F21-11S (P&A) - Wellbore #1 - Wellbore #1	200.0	166.2	957.7	957.0	1,487.817	ES
Bragg F21-11S (P&A) - Wellbore #1 - Wellbore #1	2,900.0	2,733.9	1,187.6	1,170.9	71.030	SF
Magnuson 21-15B (Exist.) - Wellbore #1 - Wellbore #1	9,999.3	6,961.0	634.7	512.4	5.191	CC
Magnuson 21-15B (Exist.) - Wellbore #1 - Wellbore #1	10,000.0	6,961.0	634.7	512.4	5.190	ES
Magnuson 21-15B (Exist.) - Wellbore #1 - Wellbore #1	10,100.0	6,960.9	642.7	517.0	5.115	SF
Tracy 1 (Exist.) - Wellbore #1 - Wellbore #1	12,621.1	6,913.7	767.9	557.5	3.650	CC, ES
Tracy 1 (Exist.) - Wellbore #1 - Wellbore #1	12,700.0	6,911.4	771.9	558.8	3.622	SF
Lofland 22T-HZ Pad Sec.22-T5N-R65W						
Lofland 22D-232 - Wellbore #1 - Wellbore #1	16,665.6	7,255.9	275.0	-83.2	0.768	Level 1, CC
Lofland 22D-232 - Wellbore #1 - Wellbore #1	16,715.3	7,303.1	275.3	-86.2	0.762	Level 1, ES, SF
Lorenz F22-67-1HN Pad Sec.22-T5N-R65W						
Billy 22-4-19 (Exist.) - Wellbore #1 - Wellbore #1	14,741.0	6,865.0	242.6	-39.3	0.861	Level 1, CC, ES, SF
Billy 22-45 (Exist.) - Wellbore #1 - Wellbore #1	15,713.4	6,853.0	200.8	-115.9	0.634	Level 1, CC, ES, SF
Bragg PM F 21-11 (Exist.) - Wellbore #1 - Wellbore #1	8,239.9	6,920.1	385.3	322.1	6.097	CC, ES
Bragg PM F 21-11 (Exist.) - Wellbore #1 - Wellbore #1	8,300.0	6,919.7	390.0	325.0	5.999	SF
Lofland 22-42 (P&A) - Wellbore #1 - Wellbore #1	15,350.1	6,915.0	686.1	382.5	2.260	CC, ES
Lofland 22-42 (P&A) - Wellbore #1 - Wellbore #1	15,400.0	6,914.9	687.9	382.6	2.253	SF
McMurren 22-31 (P&A) - Wellbore #1 - Wellbore #1	13,718.4	6,859.8	769.7	519.0	3.070	CC, ES
McMurren 22-31 (P&A) - Wellbore #1 - Wellbore #1	13,800.0	6,860.5	774.0	520.5	3.053	SF
Lorenz PC F22-33D Pad Sec.21-T5N-R65W						
Enzup 21-41 (Exist.) - Wellbore #1 - Wellbore #1	11,369.8	6,907.1	542.2	374.7	3.236	CC
Enzup 21-41 (Exist.) - Wellbore #1 - Wellbore #1	11,400.0	6,907.0	543.1	374.5	3.221	ES, SF
Magnuson Pad Sec.21-T5N-R65W						
Magnuson 21-10B (Exist.) - Magnuson 21-10B - Magnus	9,962.9	7,065.1	717.3	596.7	5.946	CC
Magnuson 21-10B (Exist.) - Magnuson 21-10B - Magnus	10,000.0	7,065.5	718.3	596.4	5.893	ES
Magnuson 21-10B (Exist.) - Magnuson 21-10B - Magnus	10,100.0	7,066.4	730.3	605.1	5.831	SF
Magnuson F28-27D (Exist.) - Magnuson F28-27D - Magn						Out of range

Offset Design											
Adolph F21-25D Pad Sec.21-T5N-R65W - Adolph F21-25D (Exist.) - Wellbore #1 - Wellbore #1											
Survey Program: 78-											
Offset Site Error: 0.0 ft											
Offset Well Error: 0.0 ft											
Reference		Offset		Semi Major Axis		Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)
0.0	0.0	0.0	0.0	0.0	0.0	-177.92	-1,074.7	-39.0	1,075.5		
100.0	100.0	99.4	99.4	0.1	0.2	-177.93	-1,074.1	-38.9	1,074.9	1,074.6	0.30
200.0	200.0	196.6	196.6	0.4	0.4	-177.95	-1,073.3	-38.5	1,074.1	1,073.2	0.83
300.0	300.0	296.4	296.4	0.7	0.7	-177.98	-1,072.7	-37.8	1,073.4	1,072.0	1.36
400.0	400.0	394.6	394.6	1.0	0.9	-177.99	-1,072.0	-37.5	1,072.7	1,070.8	1.88
500.0	500.0	489.2	489.2	1.2	1.2	-43.73	-1,071.8	-37.7	1,071.5	1,069.1	2.37
600.0	599.9	591.6	591.6	1.5	1.4	-43.88	-1,071.6	-38.2	1,068.5	1,065.6	2.88
700.0	699.7	692.0	692.0	1.7	1.7	-44.17	-1,071.4	-38.3	1,063.6	1,060.2	3.39
800.0	799.3	792.5	792.5	2.0	1.9	-44.64	-1,071.0	-37.4	1,056.6	1,052.7	3.93
900.0	898.6	891.1	891.1	2.3	2.2	-45.33	-1,070.7	-34.6	1,047.9	1,043.4	4.50
1,000.0	997.5	990.8	990.5	2.7	2.5	-46.32	-1,070.3	-29.0	1,037.5	1,032.4	5.09

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation