

# **PDC ENERGY**

**WELD COUNTY, COLORADO**

**NE SW SEC. 7 T4N R64W 6th P.M.**

**HONEBEIN 70-243**

**JOB # 2015-71-123**

**09 August, 2015**

**Survey: FINAL SURVEYS**



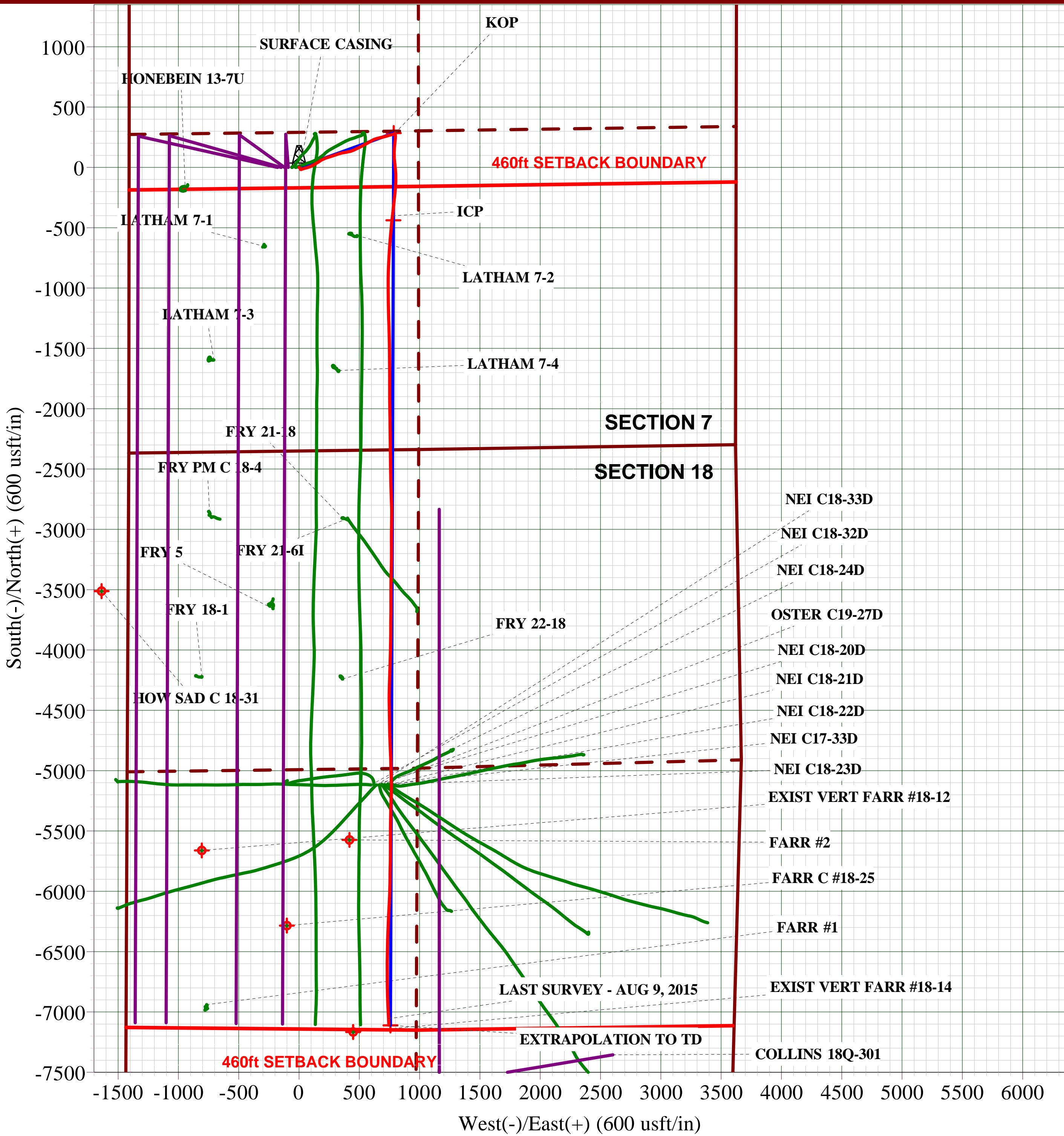
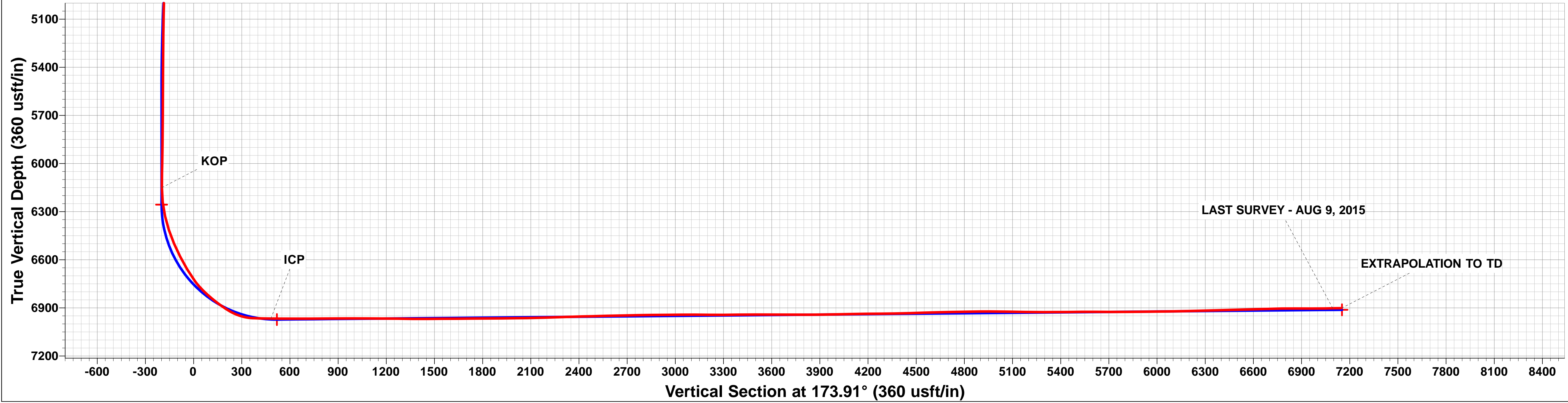
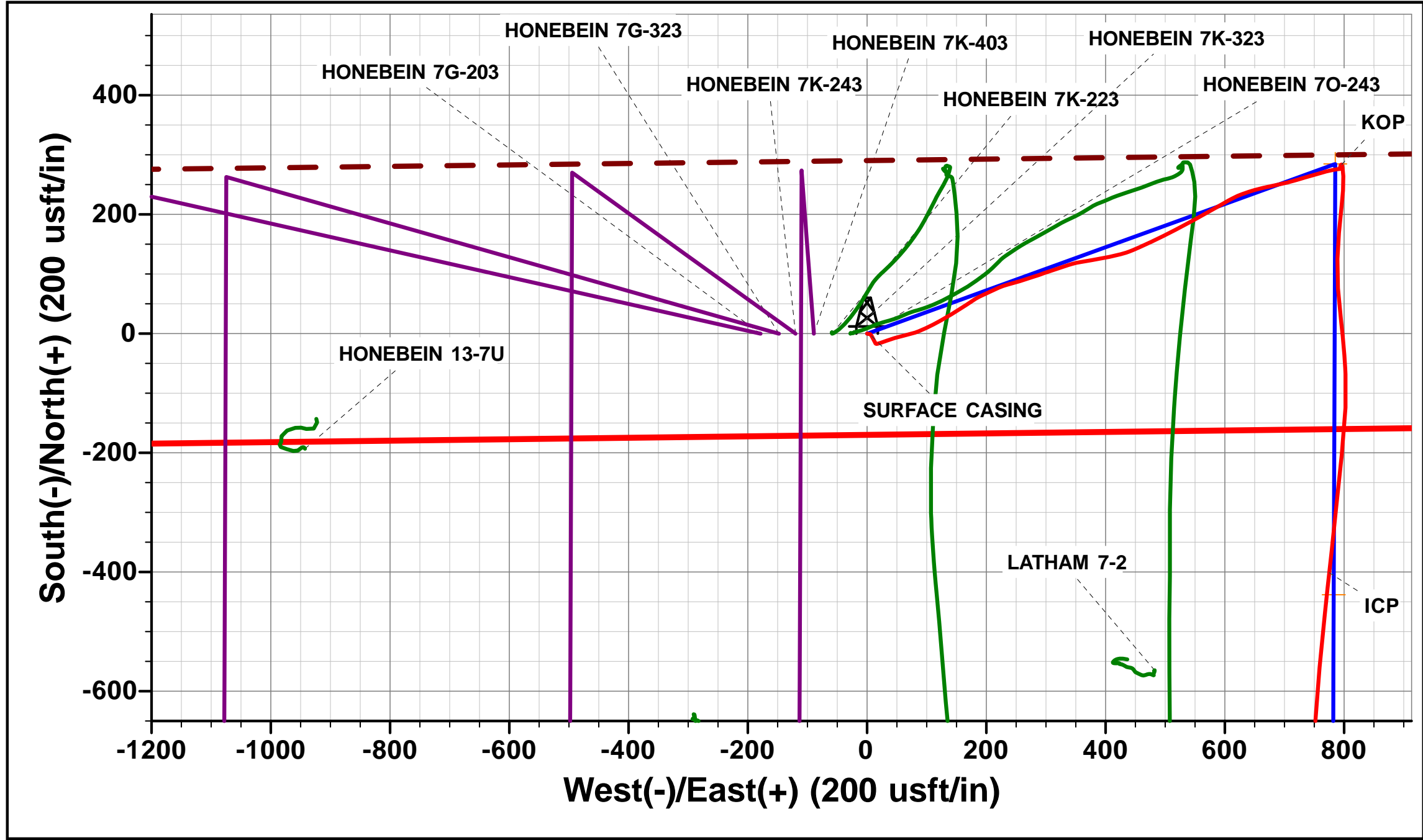
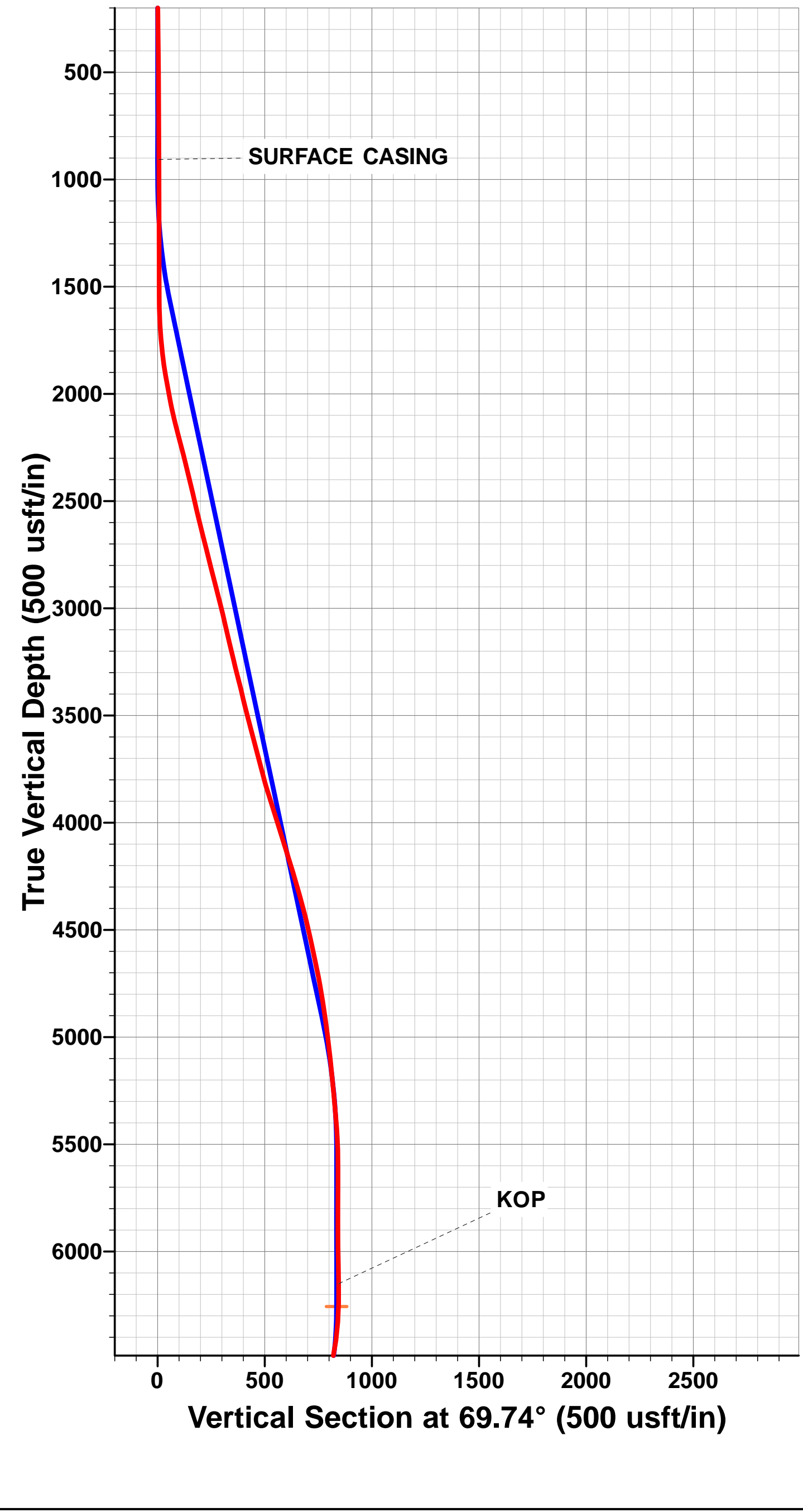


Project: WELD COUNTY, COLORADO  
Site: NE SW SEC. 7 T4N R64W 6th P.M.  
Well: HONEBEIN 70-243  
Wellbore: JOB # 2015-71-123  
Design: FINAL SURVEYS

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation	
906.9	907.0	1.00	147.14	-4.3	7.9	5.1	9.9	SURFACE CASING	
6150.5	6250.0	1.00	83.60	283.7	796.0	-197.6	873.2	KOP	
6966.8	7437.0	89.52	186.18	-401.0	775.2	481.0	1561.5	ICP	
6902.6	14095.0	90.90	177.10	-7055.1	742.5	7094.0	8218.7	LAST SURVEY - AUG 9, 2015	
6901.8	14150.0	90.70	177.20	-7110.0	745.3	7148.9	8273.7	EXTRAPOLATION TO TD	

AS DRILLED LOCAL COORDINATES:  
SHL: 2352ft FSL & 1410t FWL Sec 7  
7" ICP: 1951ft FSL & 2185.2ft FWL Sec 7  
BHL: 501.2ft FSL & 2179.7ft FWL of Sec 18

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
7" ICP *NEW* - HONEBEIN 70-243 (P2)	6972.8	-438.1	782.7	40.324727	-104.594183
BHL - HONEBEIN 70-243 (P2)	6912.0	-7111.2	758.6	40.306410	-104.594270
KOP - HONEBEIN 70-243 (P2)	6256.6	284.6	785.3	40.326711	-104.594174



## Survey Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HONEBEIN 70-243
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Site:</b>	NE SW SEC. 7 T4N R64W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Well:</b>	HONEBEIN 70-243	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2015-71-123	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	WELD COUNTY, COLORADO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	NE SW SEC. 7 T4N R64W 6th P.M.				
Site Position:		Northing:	1,362,859.07 usft	Latitude:	40.325930
From:	Lat/Long	Easting:	3,251,768.07 usft	Longitude:	-104.596990
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000 ft	Grid Convergence:	0.58 °

Well	HONEBEIN 70-243					
Well Position	+N/-S	0.0 usft	Northing:	1,362,859.07 usft	Latitude:	40.325930
	+E/-W	0.0 usft	Easting:	3,251,768.07 usft	Longitude:	-104.596990
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,852.0 usft

<b>Wellbore</b>	JOB # 2015-71-123				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	30/06/2015	8.32	66.87	52,595

Design	FINAL SURVEYS				
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	173.91	

<b>Survey Program</b>	<b>Date</b>	09/08/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
136.0	14,150.0	FINAL SURVEYS (JOB # 2015-71-123)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>Subsea Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>
0.0	0.00	0.00	0.0	-4,865.5	0.0	0.0	0.0	0.00	0.00	0.00
136.0	0.50	98.60	136.0	-4,729.5	-0.1	0.6	0.2	0.37	0.37	0.00
230.0	0.60	102.90	230.0	-4,635.5	-0.3	1.5	0.4	0.12	0.11	4.57
323.0	0.60	103.20	323.0	-4,542.5	-0.5	2.4	0.7	0.00	0.00	0.32
416.0	0.70	85.40	416.0	-4,449.5	-0.5	3.5	0.9	0.24	0.11	-19.14
510.0	0.60	100.20	510.0	-4,355.5	-0.6	4.5	1.1	0.21	-0.11	15.74
603.0	0.70	123.50	603.0	-4,262.5	-1.0	5.5	1.6	0.30	0.11	25.05
697.0	0.70	143.60	697.0	-4,168.5	-1.8	6.3	2.4	0.26	0.00	21.38
790.0	0.80	153.60	790.0	-4,075.5	-2.8	6.9	3.5	0.18	0.11	10.75
883.0	0.90	143.10	882.9	-3,982.6	-4.0	7.6	4.8	0.20	0.11	-11.29
<b>SURFACE CASING</b>										
907.0	1.00	147.14	906.9	-3,958.6	-4.3	7.9	5.1	0.50	0.41	16.83
976.0	1.30	155.20	975.9	-3,889.6	-5.5	8.5	6.4	0.50	0.44	11.68

# Survey Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HONEBEIN 70-243
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Site:</b>	NE SW SEC. 7 T4N R64W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Well:</b>	HONEBEIN 70-243	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2015-71-123	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	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)
1,008.0	1.30	149.90	1,007.9	-3,857.6	-6.2	8.9	7.1	0.38	0.00	-16.56
1,101.0	1.20	155.40	1,100.9	-3,764.6	-8.0	9.8	8.9	0.17	-0.11	5.91
1,194.0	1.00	149.90	1,193.9	-3,671.6	-9.5	10.6	10.6	0.24	-0.22	-5.91
1,287.0	1.30	147.80	1,286.9	-3,578.6	-11.1	11.6	12.3	0.33	0.32	-2.26
1,380.0	1.00	160.50	1,379.8	-3,485.7	-12.8	12.4	14.0	0.42	-0.32	13.66
1,473.0	1.10	153.20	1,472.8	-3,392.7	-14.4	13.1	15.7	0.18	0.11	-7.85
1,567.0	1.50	150.40	1,566.8	-3,298.7	-16.2	14.1	17.6	0.43	0.43	-2.98
1,660.0	3.40	88.00	1,659.7	-3,205.8	-17.2	17.5	18.9	3.24	2.04	-67.10
1,753.0	4.60	62.50	1,752.5	-3,113.0	-15.4	23.5	17.8	2.28	1.29	-27.42
1,846.0	7.60	72.50	1,845.0	-3,020.5	-11.8	32.7	15.2	3.41	3.23	10.75
1,939.0	10.60	71.60	1,936.8	-2,928.7	-7.3	46.7	12.2	3.23	3.23	-0.97
2,029.0	10.60	79.40	2,025.3	-2,840.2	-3.1	62.7	9.7	1.59	0.00	8.67
2,119.0	13.50	71.30	2,113.3	-2,752.2	1.8	80.8	6.8	3.72	3.22	-9.00
2,209.0	14.90	63.30	2,200.5	-2,665.0	10.3	101.1	0.4	2.68	1.56	-8.89
2,299.0	14.60	61.30	2,287.6	-2,577.9	21.0	121.3	-8.0	0.66	-0.33	-2.22
2,389.0	13.90	59.40	2,374.8	-2,490.7	31.9	140.6	-16.8	0.94	-0.78	-2.11
2,479.0	13.10	57.60	2,462.3	-2,403.2	42.9	158.5	-25.9	1.00	-0.89	-2.00
2,569.0	13.90	54.90	2,549.8	-2,315.7	54.6	176.0	-35.6	1.13	0.89	-3.00
2,658.0	14.30	66.90	2,636.2	-2,229.3	65.1	194.8	-44.0	3.31	0.45	13.48
2,748.0	14.00	63.20	2,723.4	-2,142.1	74.3	214.8	-51.1	1.06	-0.33	-4.11
2,838.0	14.10	75.20	2,810.8	-2,054.7	82.0	235.1	-56.6	3.23	0.11	13.33
2,928.0	14.50	72.80	2,898.0	-1,967.5	88.2	256.5	-60.5	0.79	0.44	-2.67
3,017.0	14.30	71.80	2,984.2	-1,881.3	94.9	277.5	-64.9	0.36	-0.22	-1.12
3,107.0	12.80	70.80	3,071.7	-1,793.8	101.6	297.5	-69.5	1.69	-1.67	-1.11
3,197.0	13.80	72.00	3,159.2	-1,706.3	108.2	317.1	-74.0	1.15	1.11	1.33
3,287.0	13.10	71.30	3,246.8	-1,618.7	114.8	337.0	-78.4	0.80	-0.78	-0.78
3,377.0	14.90	79.90	3,334.1	-1,531.4	120.1	358.1	-81.5	3.05	2.00	9.56
3,467.0	13.10	81.40	3,421.4	-1,444.1	123.7	379.5	-82.7	2.04	-2.00	1.67
3,557.0	15.60	77.40	3,508.6	-1,356.9	127.8	401.4	-84.5	2.99	2.78	-4.44
3,647.0	14.10	77.30	3,595.6	-1,269.9	132.9	423.9	-87.2	1.67	-1.67	-0.11
3,737.0	15.60	66.80	3,682.6	-1,182.9	140.1	445.8	-92.0	3.42	1.67	-11.67
3,827.0	14.00	65.20	3,769.6	-1,095.9	149.4	466.8	-99.1	1.83	-1.78	-1.78
3,916.0	17.30	64.50	3,855.3	-1,010.2	159.6	488.5	-106.9	3.71	3.71	-0.79
4,006.0	17.80	62.30	3,941.1	-924.4	171.8	512.8	-116.4	0.92	0.56	-2.44
4,096.0	18.00	61.70	4,026.8	-838.7	184.8	537.2	-126.7	0.30	0.22	-0.67
4,186.0	17.60	60.80	4,112.5	-753.0	198.0	561.3	-137.3	0.54	-0.44	-1.00
4,275.0	16.50	60.70	4,197.6	-667.9	210.7	584.1	-147.6	1.24	-1.24	-0.11
4,365.0	16.60	60.10	4,283.8	-581.7	223.4	606.4	-157.8	0.22	0.11	-0.67
4,455.0	16.00	69.60	4,370.2	-495.3	234.1	629.1	-166.1	3.03	-0.67	10.56
4,545.0	13.20	75.60	4,457.3	-408.2	241.0	650.7	-170.6	3.53	-3.11	6.67
4,634.0	12.50	77.50	4,544.1	-321.4	245.6	670.0	-173.2	0.92	-0.79	2.13
4,724.0	12.20	77.40	4,632.0	-233.5	249.8	688.8	-175.4	0.33	-0.33	-0.11
4,814.0	10.90	75.90	4,720.2	-145.3	254.0	706.3	-177.6	1.48	-1.44	-1.67
4,904.0	9.40	73.60	4,808.8	-56.7	258.1	721.6	-180.1	1.73	-1.67	-2.56
4,993.0	8.30	73.20	4,896.7	31.2	262.0	734.7	-182.6	1.24	-1.24	-0.45
5,083.0	7.20	74.00	4,985.9	120.4	265.5	746.4	-184.8	1.23	-1.22	0.89
5,173.0	6.50	74.60	5,075.2	209.7	268.4	756.7	-186.6	0.78	-0.78	0.67
5,263.0	5.40	72.70	5,164.8	299.3	271.0	765.6	-188.2	1.24	-1.22	-2.11
5,353.0	5.50	77.80	5,254.4	388.9	273.1	773.9	-189.5	0.55	0.11	5.67
5,442.0	5.20	79.30	5,343.0	477.5	274.8	782.0	-190.3	0.37	-0.34	1.69
5,532.0	4.40	84.30	5,432.6	567.1	275.9	789.5	-190.6	1.00	-0.89	5.56
5,622.0	1.40	59.50	5,522.5	657.0	276.8	793.9	-191.0	3.54	-3.33	-27.56
5,712.0	0.10	359.10	5,612.5	747.0	277.4	794.8	-191.6	1.50	-1.44	-67.11

## Survey Report



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<b>Wellbore:</b>	JOB # 2015-71-123	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	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)
5,802.0	0.60	315.30	5,702.5	837.0	277.9	794.5	-192.0	0.59	0.56	-48.67
5,892.0	0.70	326.00	5,792.5	927.0	278.6	793.8	-192.9	0.17	0.11	11.89
5,981.0	0.90	355.00	5,881.5	1,016.0	279.8	793.5	-194.0	0.50	0.22	32.58
6,071.0	1.00	20.10	5,971.5	1,106.0	281.2	793.7	-195.5	0.47	0.11	27.89
6,161.0	1.30	37.60	6,061.5	1,196.0	282.8	794.6	-196.9	0.51	0.33	19.44
<b>KOP</b>										
6,250.0	1.00	83.60	6,150.5	1,285.0	283.7	796.0	-197.6	1.06	-0.34	51.69
6,340.0	6.10	171.50	6,240.3	1,374.8	279.0	797.4	-192.9	6.83	5.67	97.67
6,430.0	13.10	177.30	6,329.0	1,463.5	264.1	798.6	-177.9	7.84	7.78	6.44
6,519.0	18.50	182.90	6,414.6	1,549.1	239.9	798.4	-153.8	6.30	6.07	6.29
6,609.0	23.70	187.40	6,498.5	1,633.0	207.7	795.3	-122.1	6.05	5.78	5.00
6,699.0	27.60	184.00	6,579.6	1,714.1	168.9	791.6	-84.0	4.63	4.33	-3.78
6,789.0	30.50	183.00	6,658.3	1,792.8	125.3	788.9	-40.9	3.27	3.22	-1.11
6,878.0	36.60	175.90	6,732.5	1,867.0	76.2	789.6	8.0	8.14	6.85	-7.98
6,968.0	46.20	173.20	6,799.9	1,934.4	17.1	795.4	67.4	10.85	10.67	-3.00
7,058.0	51.80	176.20	6,858.9	1,993.4	-50.5	801.6	135.3	6.71	6.22	3.33
7,148.0	57.40	182.10	6,911.1	2,045.6	-123.8	802.6	208.2	8.20	6.22	6.56
7,237.0	72.10	186.90	6,949.0	2,083.5	-203.8	796.1	287.1	17.22	16.52	5.39
7,327.0	88.00	185.20	6,964.5	2,099.0	-291.7	786.8	373.5	17.76	17.67	-1.89
7,400.0	89.10	186.60	6,966.3	2,100.8	-364.3	779.3	444.9	2.44	1.51	1.92
<b>ICP</b>										
7,437.0	89.52	186.18	6,966.8	2,101.3	-401.0	775.2	481.0	1.60	1.13	-1.13
7,462.0	89.80	185.90	6,966.9	2,101.4	-425.9	772.5	505.4	1.60	1.13	-1.13
7,507.0	89.80	186.20	6,967.1	2,101.6	-470.6	767.8	549.4	0.67	0.00	0.67
7,597.0	89.80	185.20	6,967.4	2,101.9	-560.2	758.8	637.5	1.11	0.00	-1.11
7,687.0	90.40	183.70	6,967.2	2,101.7	-649.9	751.9	726.0	1.80	0.67	-1.67
7,777.0	90.30	183.20	6,966.7	2,101.2	-739.7	746.4	814.7	0.57	-0.11	-0.56
7,867.0	90.50	182.60	6,966.0	2,100.5	-829.6	741.9	903.6	0.70	0.22	-0.67
7,957.0	89.90	180.60	6,965.7	2,100.2	-919.6	739.4	992.8	2.32	-0.67	-2.22
8,050.0	89.80	179.50	6,966.0	2,100.5	-1,012.6	739.3	1,085.3	1.19	-0.11	-1.18
8,144.0	89.70	179.20	6,966.4	2,100.9	-1,106.6	740.4	1,178.9	0.34	-0.11	-0.32
8,237.0	89.20	178.60	6,967.3	2,101.8	-1,199.6	742.1	1,271.5	0.84	-0.54	-0.65
8,331.0	89.30	177.50	6,968.5	2,103.0	-1,293.5	745.3	1,365.3	1.17	0.11	-1.17
8,424.0	90.60	179.40	6,968.6	2,103.1	-1,386.4	747.9	1,458.0	2.48	1.40	2.04
8,518.0	90.00	179.00	6,968.1	2,102.6	-1,480.4	749.2	1,551.6	0.77	-0.64	-0.43
8,611.0	90.60	179.40	6,967.6	2,102.1	-1,573.4	750.5	1,644.2	0.78	0.65	0.43
8,705.0	90.60	179.70	6,966.6	2,101.1	-1,667.4	751.2	1,737.7	0.32	0.00	0.32
8,798.0	89.80	179.20	6,966.3	2,100.8	-1,760.4	752.1	1,830.3	1.01	-0.86	-0.54
8,892.0	91.30	180.80	6,965.4	2,099.9	-1,854.4	752.1	1,923.7	2.33	1.60	1.70
8,985.0	90.00	178.50	6,964.3	2,098.8	-1,947.4	752.7	2,016.2	2.84	-1.40	-2.47
9,079.0	91.60	179.90	6,963.0	2,097.5	-2,041.4	754.0	2,109.8	2.26	1.70	1.49
9,172.0	91.80	179.40	6,960.3	2,094.8	-2,134.3	754.6	2,202.3	0.58	0.22	-0.54
9,266.0	91.80	178.80	6,957.3	2,091.8	-2,228.3	756.0	2,295.9	0.64	0.00	-0.64
9,359.0	91.60	179.40	6,954.6	2,089.1	-2,321.2	757.5	2,388.5	0.68	-0.22	0.65
9,453.0	91.50	179.40	6,952.0	2,086.5	-2,415.2	758.5	2,482.0	0.11	-0.11	0.00
9,546.0	91.30	179.30	6,949.7	2,084.2	-2,508.1	759.5	2,574.6	0.24	-0.22	-0.11
9,640.0	91.30	178.60	6,947.6	2,082.1	-2,602.1	761.2	2,668.2	0.74	0.00	-0.74
9,733.0	91.20	177.80	6,945.6	2,080.1	-2,695.0	764.2	2,760.9	0.87	-0.11	-0.86
9,827.0	90.60	178.60	6,944.1	2,078.6	-2,789.0	767.1	2,854.6	1.06	-0.64	0.85
9,917.0	90.30	180.00	6,943.4	2,077.9	-2,879.0	768.2	2,944.2	1.59	-0.33	1.56
10,006.0	90.50	181.10	6,942.8	2,077.3	-2,967.9	767.4	3,032.6	1.26	0.22	1.24
10,096.0	90.00	180.10	6,942.4	2,076.9	-3,057.9	766.4	3,122.0	1.24	-0.56	-1.11
10,185.0	89.10	179.30	6,943.1	2,077.6	-3,146.9	766.9	3,210.5	1.35	-1.01	-0.90



## Survey Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HONEBEIN 70-243
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Site:</b>	NE SW SEC. 7 T4N R64W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Well:</b>	HONEBEIN 70-243	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2015-71-123	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	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)
10,274.0	90.60	180.90	6,943.3	2,077.8	-3,235.9	766.7	3,299.0	2.46	1.69	1.80
10,364.0	90.40	181.40	6,942.5	2,077.0	-3,325.9	764.9	3,388.3	0.60	-0.22	0.56
10,453.0	90.20	181.20	6,942.1	2,076.6	-3,414.9	762.9	3,476.5	0.32	-0.22	-0.22
10,543.0	90.10	180.10	6,941.8	2,076.3	-3,504.9	761.9	3,565.9	1.23	-0.11	-1.22
10,632.0	89.90	179.80	6,941.8	2,076.3	-3,593.9	762.0	3,654.4	0.41	-0.22	-0.34
10,722.0	89.00	180.30	6,942.7	2,077.2	-3,683.9	761.9	3,743.9	1.14	-1.00	0.56
10,812.0	91.10	180.80	6,942.6	2,077.1	-3,773.9	761.0	3,833.3	2.40	2.33	0.56
10,901.0	90.30	179.70	6,941.5	2,076.0	-3,862.9	760.6	3,921.7	1.53	-0.90	-1.24
10,991.0	91.30	181.90	6,940.3	2,074.8	-3,952.8	759.4	4,011.1	2.68	1.11	2.44
11,081.0	91.00	181.10	6,938.5	2,073.0	-4,042.8	757.0	4,100.3	0.95	-0.33	-0.89
11,171.0	90.90	181.90	6,937.0	2,071.5	-4,132.7	754.7	4,189.5	0.90	-0.11	0.89
11,261.0	90.10	181.70	6,936.2	2,070.7	-4,222.7	751.8	4,278.6	0.92	-0.89	-0.22
11,351.0	91.20	182.30	6,935.2	2,069.7	-4,312.6	748.7	4,367.7	1.39	1.22	0.67
11,441.0	91.70	179.40	6,932.9	2,067.4	-4,402.6	747.4	4,457.0	3.27	0.56	-3.22
11,531.0	91.60	178.90	6,930.3	2,064.8	-4,492.5	748.7	4,546.6	0.57	-0.11	-0.56
11,621.0	91.70	179.10	6,927.7	2,062.2	-4,582.5	750.3	4,636.2	0.25	0.11	0.22
11,711.0	91.00	178.70	6,925.6	2,060.1	-4,672.4	752.0	4,725.8	0.90	-0.78	-0.44
11,801.0	90.90	177.90	6,924.1	2,058.6	-4,762.4	754.7	4,815.6	0.90	-0.11	-0.89
11,890.0	91.00	177.30	6,922.6	2,057.1	-4,851.3	758.4	4,904.4	0.68	0.11	-0.67
11,980.0	89.20	178.80	6,922.5	2,057.0	-4,941.2	761.5	4,994.1	2.60	-2.00	1.67
12,070.0	89.00	178.30	6,923.9	2,058.4	-5,031.2	763.7	5,083.8	0.60	-0.22	-0.56
12,160.0	89.10	179.30	6,925.4	2,059.9	-5,121.2	765.6	5,173.5	1.12	0.11	1.11
12,250.0	89.70	182.10	6,926.3	2,060.8	-5,211.1	764.5	5,262.8	3.18	0.67	3.11
12,340.0	90.40	181.60	6,926.2	2,060.7	-5,301.1	761.6	5,352.0	0.96	0.78	-0.56
12,430.0	90.30	181.10	6,925.7	2,060.2	-5,391.1	759.5	5,441.2	0.57	-0.11	-0.56
12,520.0	90.70	180.50	6,924.9	2,059.4	-5,481.0	758.2	5,530.6	0.80	0.44	-0.67
12,610.0	89.70	180.20	6,924.6	2,059.1	-5,571.0	757.7	5,620.0	1.16	-1.11	-0.33
12,700.0	89.60	179.50	6,925.1	2,059.6	-5,661.0	757.9	5,709.5	0.79	-0.11	-0.78
12,789.0	90.60	181.40	6,925.0	2,059.5	-5,750.0	757.2	5,797.9	2.41	1.12	2.13
12,879.0	90.60	180.90	6,924.0	2,058.5	-5,840.0	755.4	5,887.2	0.56	0.00	-0.56
12,969.0	90.40	180.60	6,923.2	2,057.7	-5,930.0	754.2	5,976.5	0.40	-0.22	-0.33
13,059.0	90.90	182.60	6,922.2	2,056.7	-6,020.0	751.7	6,065.7	2.29	0.56	2.22
13,149.0	90.90	182.30	6,920.8	2,055.3	-6,109.9	747.9	6,154.7	0.33	0.00	-0.33
13,239.0	91.70	183.30	6,918.8	2,053.3	-6,199.7	743.5	6,243.6	1.42	0.89	1.11
13,329.0	91.90	182.30	6,915.9	2,050.4	-6,289.6	739.1	6,332.5	1.13	0.22	-1.11
13,419.0	91.10	182.30	6,913.6	2,048.1	-6,379.5	735.5	6,421.5	0.89	-0.89	0.00
13,509.0	91.30	181.10	6,911.7	2,046.2	-6,469.4	732.8	6,510.6	1.35	0.22	-1.33
13,598.0	92.40	179.90	6,908.8	2,043.3	-6,558.4	732.0	6,599.0	1.83	1.24	-1.35
13,688.0	90.90	180.40	6,906.2	2,040.7	-6,648.3	731.8	6,688.4	1.76	-1.67	0.56
13,778.0	91.50	179.40	6,904.4	2,038.9	-6,738.3	732.0	6,777.9	1.30	0.67	-1.11
13,868.0	89.30	178.90	6,903.7	2,038.2	-6,828.3	733.3	6,867.5	2.51	-2.44	-0.56
13,958.0	90.10	177.70	6,904.2	2,038.7	-6,918.2	736.0	6,957.3	1.60	0.89	-1.33
14,048.0	91.00	177.00	6,903.3	2,037.8	-7,008.1	740.1	7,047.1	1.27	1.00	-0.78
LAST SURVEY - AUG 9, 2015										
14,095.0	90.90	177.10	6,902.6	2,037.1	-7,055.1	742.5	7,094.0	0.30	-0.21	0.21
EXTRAPOLATION TO TD										
14,150.0	90.70	177.20	6,901.8	2,036.3	-7,110.0	745.3	7,148.9	0.41	-0.36	0.18

## Survey Report



<b>Company:</b>	PDC ENERGY	<b>Local Co-ordinate Reference:</b>	Well HONEBEIN 70-243
<b>Project:</b>	WELD COUNTY, COLORADO	<b>TVD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Site:</b>	NE SW SEC. 7 T4N R64W 6th P.M.	<b>MD Reference:</b>	KB-EST @ 4865.5usft (ENS 123)
<b>Well:</b>	HONEBEIN 70-243	<b>North Reference:</b>	True
<b>Wellbore:</b>	JOB # 2015-71-123	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL SURVEYS	<b>Database:</b>	EDM 5000.1 Single User Db

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP - HONEBEIN 70-24 - survey misses target center by 26.4usft at 6354.8usft MD (6255.0 TVD, 277.3 N, 797.7 E) - Point	0.00	0.00	6,256.7	285.2	772.5	1,363,152.11	3,252,537.59	40.326713	-104.594219
7" ICP *NEW* - HONEB - survey misses target center by 12.8usft at 7473.1usft MD (6966.9 TVD, -436.9 N, 771.4 E) - Point	0.00	0.00	6,972.8	-438.1	782.7	1,362,428.98	3,252,555.15	40.324727	-104.594183
KOP - HONEBEIN 70-24 - survey misses target center by 14.4usft at 6355.0usft MD (6255.2 TVD, 277.3 N, 797.7 E) - Point	0.00	0.00	6,256.6	284.6	785.3	1,363,151.64	3,252,550.39	40.326711	-104.594174
EXIST VERT FARR #18 - survey misses target center by 1604.6usft at 12711.9usft MD (6925.2 TVD, -5673.0 N, 758.0 E) - Circle (radius 30.0)	0.00	0.00	7,283.5	-5,661.3	-806.0	1,357,190.08	3,251,019.80	40.310390	-104.599880
HOW SAD C 18-31 - survey misses target center by 2424.5usft at 10547.9usft MD (6941.8 TVD, -3509.8 N, 761.9 E) - Circle (radius 30.0)	0.00	0.00	7,293.5	-3,511.9	-1,636.9	1,359,330.86	3,250,167.04	40.316290	-104.602860
BHL - HONEBEIN 70-24 - survey misses target center by 28.4usft at 11520.2usft MD (6930.6 TVD, -4481.7 N, 748.5 E) - Point	0.00	0.00	6,915.5	-4,481.0	772.5	1,358,386.40	3,252,586.11	40.313630	-104.594220
7" ICP *NEW* - HONEB - survey misses target center by 6.0usft at 7477.2usft MD (6967.0 TVD, -441.0 N, 771.0 E) - Point	0.00	0.00	6,972.8	-441.1	772.5	1,362,425.88	3,252,544.99	40.324719	-104.594220
BHL - HONEBEIN 70-24 - survey misses target center by 16.9usft at 14150.0usft MD (6901.8 TVD, -7110.0 N, 745.3 E) - Point	0.00	0.00	6,912.0	-7,111.2	758.6	1,355,756.22	3,252,599.03	40.306410	-104.594270
EXIST VERT FARR #2 - survey misses target center by 478.2usft at 12614.0usft MD (6924.6 TVD, -5575.1 N, 757.7 E) - Circle (radius 30.0)	0.00	0.00	7,261.5	-5,573.9	418.3	1,357,289.96	3,252,243.12	40.310630	-104.595490
EXIST VERT FARR C # - survey misses target center by 886.2usft at 13349.9usft MD (6915.3 TVD, -6310.5 N, 738.2 E) - Circle (radius 30.0)	0.00	0.00	7,200.5	-6,284.3	-100.4	1,356,574.35	3,251,731.66	40.308680	-104.597350
EXIST VERT FARR #18 - survey misses target center by 471.6usft at 14150.0usft MD (6901.8 TVD, -7110.0 N, 745.3 E) - Circle (radius 30.0)	0.00	0.00	7,264.5	-7,165.9	449.0	1,355,698.41	3,252,290.03	40.306260	-104.595380

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
+N/-S (usft)	+E/-W (usft)			
907.0	906.9	-4.3	7.9	SURFACE CASING
6,250.0	6,150.5	283.7	796.0	KOP
7,437.0	6,966.8	-401.0	775.2	ICP
14,095.0	6,902.6	-7,055.1	742.5	LAST SURVEY - AUG 9, 2015
14,150.0	6,901.8	-7,110.0	745.3	EXTRAPOLATION TO TD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_