

BONANZA CREEK ENERGY INC.

WELD COUNTY, COLORADO (NAD 83)

NW NW SEC. 22 T5N R61W 6th P.M.

PRONGHORN 21-24-22HNB

JOB # 2009-444

17 January, 2015

Survey: FINAL SURVEYS





Project: WELD COUNTY, COLORADO (NAD 83)
Site: NW NW SEC. 22 T5N R61W 6th P.M.
Well: PRONGHORN 21-24-22HNB
Wellbore: JOB # 2009-444
Design: FINAL SURVEYS

ANNOTATIONS

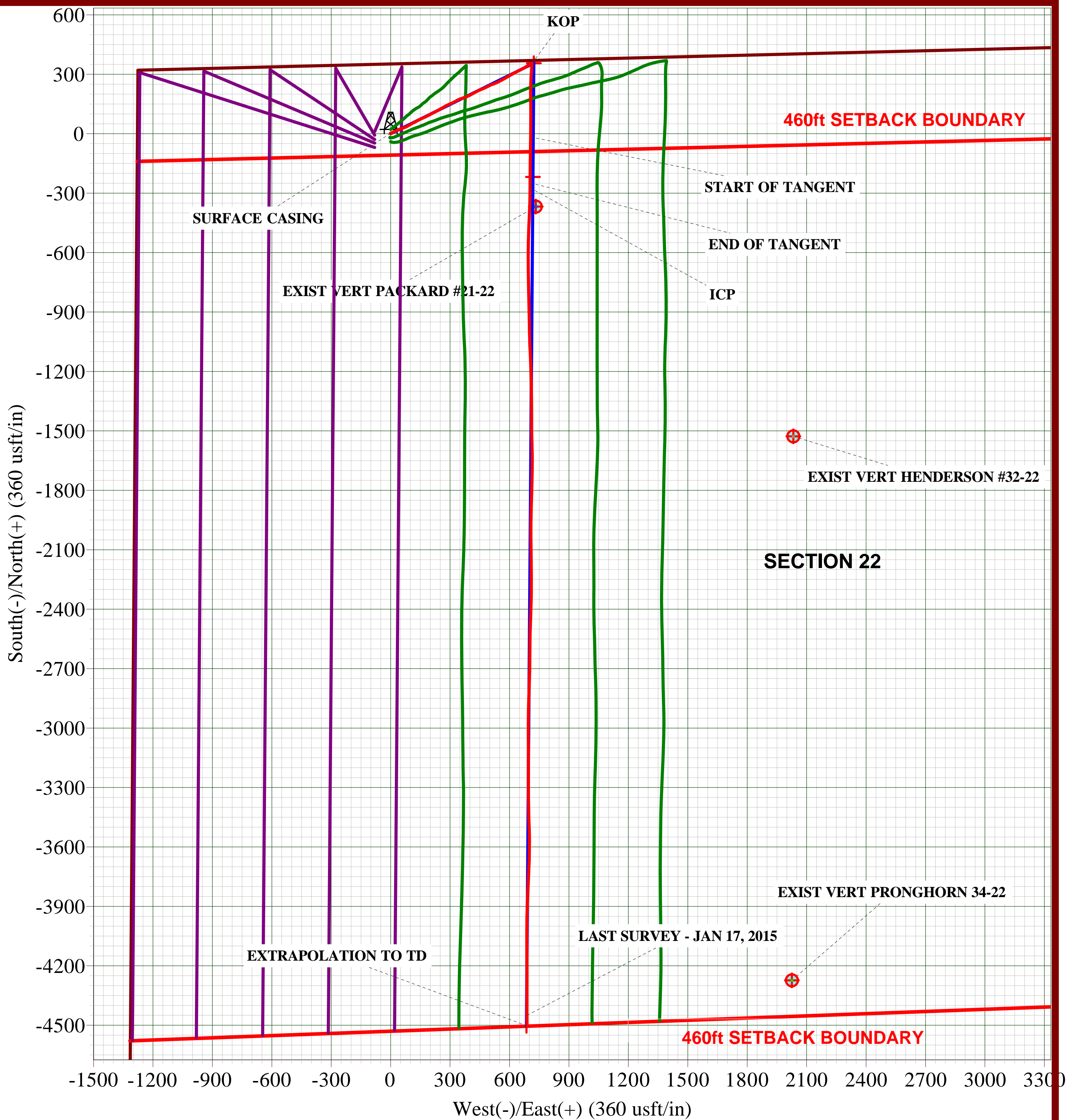
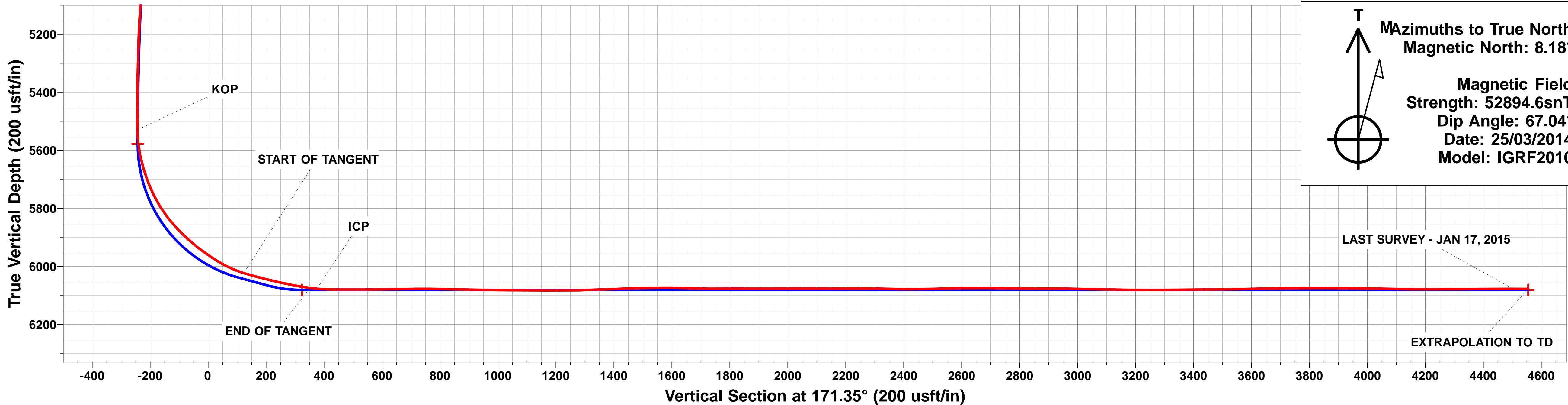
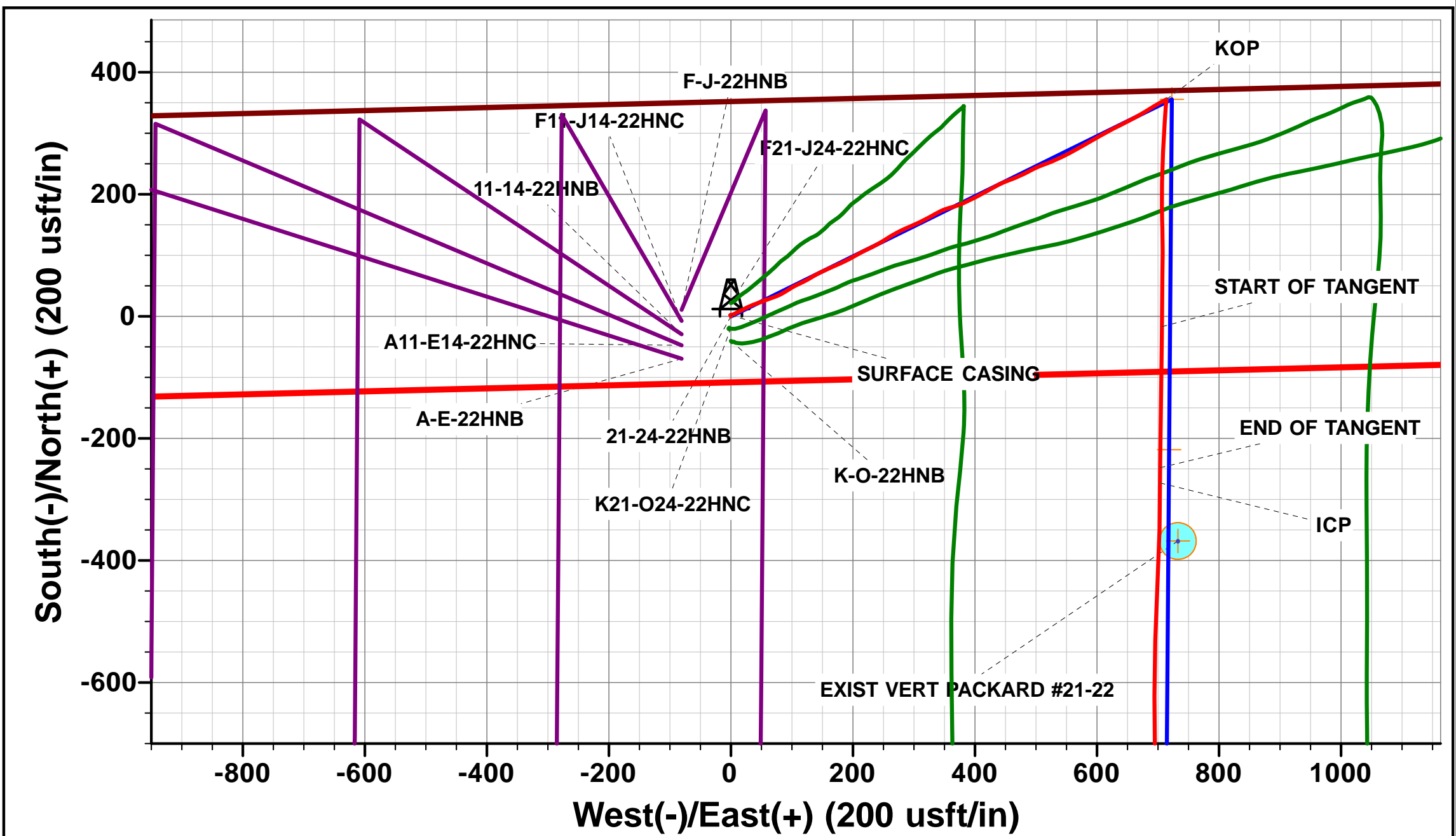
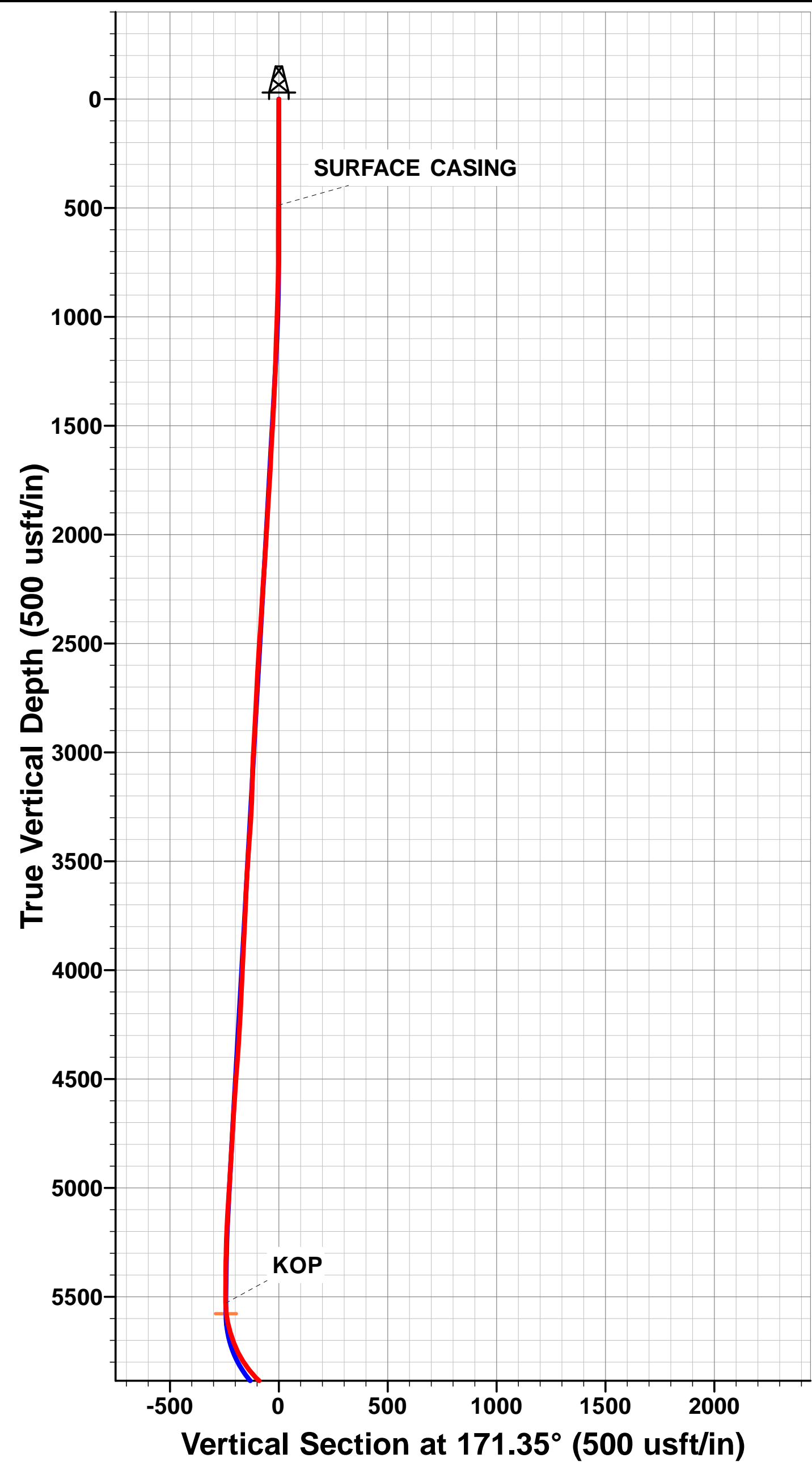
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation
487.8	487.8	0.39	349.00	1.6	-0.3	-1.6	1.7	SURFACE CASING
5529.1	5600.0	0.64	231.04	355.9	714.3	-244.4	803.4	KOP
6023.0	6258.0	72.96	180.75	-16.8	706.7	122.9	1176.5	START OF TANGENT
6074.1	6495.0	82.76	180.75	-248.0	703.7	351.0	1407.7	END OF TANGENT
6076.8	6520.0	84.92	180.62	-272.8	703.4	375.6	1432.5	ICP
6077.2	10699.0	89.80	179.40	-4450.1	688.0	4503.0	5610.9	LAST SURVEY - JAN 17, 2015
6077.4	10751.6	89.80	179.40	-4502.7	688.6	4555.1	5663.5	EXTRAPOLATION TO TD

AS DRILLED LOCAL COORDINATES:

SHL: 353ft FNL & 1278ft FWL Sec 22
7" ICP: 642ft FNL & 1984ft FWL Sec 22
TOP PRODUCTION: 732ft FNL & 1983ft FWL Sec 22
BHL: 470.2ft FSL & 1997.4ft FWL of Sec 22

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
7" ICP *NEW* - PRONGHORN 21-24-22HNB (P3)	6081.0	-218.3	718.3	40.392101	-104.197271
BHL - PRONGHORN 21-24-22HNB (P3)	6081.0	-4502.9	685.4	40.380340	-104.197390
KOP - PRONGHORN 21-24-22HNB (P3)	5577.7	355.7	722.7	40.393676	-104.197255



Survey Report



Company:	BONANZA CREEK ENERGY INC.	Local Co-ordinate Reference:	Well PRONGHORN 21-24-22HNB
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4678.0usft (CADE 25)
Site:	NW NW SEC. 22 T5N R61W 6th P.M.	MD Reference:	KB @ 4678.0usft (CADE 25)
Well:	PRONGHORN 21-24-22HNB	North Reference:	True
Wellbore:	JOB # 2009-444	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Project	WELD COUNTY, COLORADO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	NW NW SEC. 22 T5N R61W 6th P.M.				
Site Position:		Northing:	1,388,515.79 usft	Latitude:	40.392590
From:	Lat/Long	Easting:	3,362,131.84 usft	Longitude:	-104.199850
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft	Grid Convergence:	0.84 °

Well	PRONGHORN 21-24-22HNB					
Well Position	+N-S	0.0 usft	Northing:	1,388,555.84 usfi	Latitude:	40.392700
	+E-W	0.0 usft	Easting:	3,362,131.26 usfi	Longitude:	-104.199850
Position Uncertainty		0.0 usft	Wellhead Elevation:	usfi	Ground Level:	4,661.0 usfi

Wellbore	JOB # 2009-444				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	25/03/2014	8.18	67.04	52,895

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	171.35	

Survey Program	Date	17/01/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
504.0	10,751.6	FINAL SURVEYS (JOB # 2009-444)	MWD	MWD - Standard	

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)
0.0	0.00	0.00	0.0	4,678.0	0.0	0.0	0.0	0.00	0.00	0.00
SURFACE CASING										
487.8	0.39	349.00	487.8	4,190.2	1.6	-0.3	-1.6	0.08	0.08	0.00
504.0	0.40	349.00	504.0	4,174.0	1.7	-0.3	-1.8	0.08	0.08	0.00
597.0	0.10	320.20	597.0	4,081.0	2.1	-0.4	-2.2	0.34	-0.32	-30.97
689.0	0.20	218.20	689.0	3,989.0	2.0	-0.6	-2.1	0.26	0.11	-110.87
782.0	3.30	71.80	781.9	3,896.1	2.8	1.8	-2.4	3.73	3.33	-157.42
872.0	4.70	64.40	871.7	3,806.3	5.2	7.6	-3.9	1.65	1.56	-8.22
962.0	6.30	61.60	961.3	3,716.7	9.1	15.3	-6.7	1.80	1.78	-3.11
1,052.0	6.80	63.70	1,050.7	3,627.3	13.8	24.4	-10.0	0.62	0.56	2.33
1,145.0	8.40	70.10	1,142.9	3,535.1	18.6	35.7	-13.0	1.94	1.72	6.88
1,238.0	9.80	67.90	1,234.7	3,443.3	23.8	49.5	-16.1	1.55	1.51	-2.37
1,330.0	11.30	71.30	1,325.2	3,352.8	29.7	65.3	-19.5	1.76	1.63	3.70

Survey Report



Company:	BONANZA CREEK ENERGY INC.	Local Co-ordinate Reference:	Well PRONGHORN 21-24-22HNB
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4678.0usft (CADE 25)
Site:	NW NW SEC. 22 T5N R61W 6th P.M.	MD Reference:	KB @ 4678.0usft (CADE 25)
Well:	PRONGHORN 21-24-22HNB	North Reference:	True
Wellbore:	JOB # 2009-444	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)
1,422.0	9.80	64.10	1,415.6	3,262.4	36.0	80.8	-23.4	2.17	-1.63	-7.83
1,515.0	9.50	55.60	1,507.3	3,170.7	43.8	94.3	-29.1	1.56	-0.32	-9.14
1,607.0	8.30	64.80	1,598.2	3,079.8	50.9	106.6	-34.3	2.02	-1.30	10.00
1,697.0	9.50	64.40	1,687.1	2,990.9	56.9	119.1	-38.3	1.34	1.33	-0.44
1,789.0	10.60	57.60	1,777.7	2,900.3	64.7	133.1	-43.9	1.76	1.20	-7.39
1,881.0	10.40	65.00	1,868.2	2,809.8	72.7	147.8	-49.7	1.48	-0.22	8.04
1,977.0	11.70	66.90	1,962.4	2,715.6	80.2	164.6	-54.5	1.41	1.35	1.98
2,072.0	13.30	64.40	2,055.1	2,622.9	88.7	183.3	-60.1	1.78	1.68	-2.63
2,167.0	10.90	59.70	2,148.0	2,530.0	98.0	200.9	-66.6	2.73	-2.53	-4.95
2,262.0	10.90	64.30	2,241.3	2,436.7	106.4	216.8	-72.6	0.92	0.00	4.84
2,359.0	11.00	62.90	2,336.5	2,341.5	114.6	233.3	-78.2	0.29	0.10	-1.44
2,455.0	10.40	58.30	2,430.9	2,247.1	123.3	248.8	-84.5	1.09	-0.62	-4.79
2,549.0	10.10	59.00	2,523.4	2,154.6	132.0	263.1	-90.9	0.35	-0.32	0.74
2,645.0	9.40	63.50	2,618.0	2,060.0	139.9	277.3	-96.5	1.08	-0.73	4.69
2,739.0	10.90	66.90	2,710.5	1,967.5	146.8	292.4	-101.1	1.72	1.60	3.62
2,834.0	10.20	64.40	2,803.9	1,874.1	153.9	308.2	-105.8	0.88	-0.74	-2.63
2,928.0	8.90	62.10	2,896.6	1,781.4	160.9	322.2	-110.6	1.44	-1.38	-2.45
3,023.0	9.90	60.90	2,990.3	1,687.7	168.3	335.8	-115.9	1.07	1.05	-1.26
3,119.0	8.20	68.10	3,085.1	1,592.9	174.9	349.4	-120.3	2.12	-1.77	7.50
3,214.0	10.60	76.00	3,178.9	1,499.1	179.5	364.1	-122.7	2.86	2.53	8.32
3,310.0	12.80	65.50	3,272.9	1,405.1	186.1	382.4	-126.4	3.18	2.29	-10.94
3,405.0	12.20	62.10	3,365.6	1,312.4	195.2	400.8	-132.6	1.00	-0.63	-3.58
3,501.0	10.60	62.10	3,459.7	1,218.3	204.0	417.6	-138.9	1.67	-1.67	0.00
3,596.0	10.70	59.00	3,553.1	1,124.9	212.7	432.9	-145.1	0.61	0.11	-3.26
3,690.0	10.80	69.30	3,645.4	1,032.6	220.3	448.6	-150.3	2.04	0.11	10.96
3,785.0	10.70	67.60	3,738.8	939.2	226.8	465.1	-154.2	0.35	-0.11	-1.79
3,881.0	10.30	63.90	3,833.2	844.8	234.0	481.0	-158.9	0.82	-0.42	-3.85
3,976.0	9.70	61.80	3,926.7	751.3	241.5	495.7	-164.1	0.74	-0.63	-2.21
4,072.0	9.40	70.90	4,021.4	656.6	247.9	510.2	-168.3	1.60	-0.31	9.48
4,167.0	11.30	67.60	4,114.8	563.2	253.9	526.2	-171.9	2.09	2.00	-3.47
4,263.0	11.30	64.30	4,209.0	469.0	261.6	543.3	-176.9	0.67	0.00	-3.44
4,358.0	10.60	60.60	4,302.3	375.7	269.9	559.3	-182.7	1.04	-0.74	-3.89
4,453.0	11.30	61.10	4,395.5	282.5	278.7	575.1	-189.0	0.74	0.74	0.53
4,547.0	11.10	58.80	4,487.7	190.3	287.9	590.9	-195.7	0.52	-0.21	-2.45
4,642.0	10.70	60.60	4,581.0	97.0	296.9	606.4	-202.3	0.55	-0.42	1.89
4,738.0	10.90	64.60	4,675.3	2.7	305.2	622.4	-208.1	0.81	0.21	4.17
4,833.0	10.20	60.60	4,768.7	-90.7	313.2	637.8	-213.6	1.07	-0.74	-4.21
4,928.0	10.20	64.10	4,862.2	-184.2	321.0	652.7	-219.1	0.65	0.00	3.68
5,023.0	10.30	60.20	4,955.7	-277.7	328.9	667.6	-224.7	0.74	0.11	-4.11
5,118.0	9.40	58.60	5,049.3	-371.3	337.1	681.6	-230.7	0.99	-0.95	-1.68
5,213.0	8.00	58.30	5,143.2	-465.2	344.7	693.9	-236.3	1.47	-1.47	-0.32
5,309.0	6.00	63.20	5,238.5	-560.5	350.4	704.1	-240.5	2.17	-2.08	5.10
5,404.0	2.70	59.20	5,333.2	-655.2	353.8	710.4	-242.9	3.49	-3.47	-4.21
5,499.0	1.50	70.90	5,428.1	-750.1	355.4	713.5	-244.0	1.33	-1.26	12.32
5,596.0	0.50	290.10	5,525.1	-847.1	355.9	714.3	-244.4	1.97	-1.03	-145.15
KOP										
5,600.0	0.64	231.04	5,529.1	-851.1	355.9	714.3	-244.4	14.44	3.60	-1,476.45
5,644.0	6.80	187.10	5,573.0	-895.0	353.2	713.8	-241.8	14.44	13.99	-99.87
5,691.0	12.80	186.30	5,619.3	-941.3	345.2	712.8	-234.0	12.77	12.77	-1.70
5,739.0	16.90	183.40	5,665.7	-987.7	333.0	711.8	-222.1	8.68	8.54	-6.04
5,787.0	21.00	182.00	5,711.1	-1,033.1	317.4	711.1	-206.8	8.59	8.54	-2.92
5,835.0	27.40	184.00	5,754.8	-1,076.8	297.8	710.1	-187.5	13.44	13.33	4.17
5,882.0	32.50	183.40	5,795.6	-1,117.6	274.4	708.6	-164.6	10.87	10.85	-1.28

Survey Report



Company:	BONANZA CREEK ENERGY INC.	Local Co-ordinate Reference:	Well PRONGHORN 21-24-22HNB
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4678.0usft (CADE 25)
Site:	NW NW SEC. 22 T5N R61W 6th P.M.	MD Reference:	KB @ 4678.0usft (CADE 25)
Well:	PRONGHORN 21-24-22HNB	North Reference:	True
Wellbore:	JOB # 2009-444	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)
5,930.0	38.30	182.20	5,834.7	-1,156.7	246.6	707.2	-137.4	12.17	12.08	-2.50
5,978.0	44.40	180.40	5,870.7	-1,192.7	214.9	706.5	-106.2	12.95	12.71	-3.75
6,026.0	47.70	179.00	5,904.0	-1,226.0	180.4	706.7	-72.0	7.19	6.87	-2.92
6,073.0	52.20	178.90	5,934.2	-1,256.2	144.4	707.4	-36.3	9.58	9.57	-0.21
6,121.0	56.30	180.40	5,962.3	-1,284.3	105.5	707.6	2.2	8.91	8.54	3.12
6,168.0	60.10	180.40	5,987.0	-1,309.0	65.5	707.3	41.7	8.09	8.09	0.00
6,216.0	66.70	180.30	6,008.5	-1,330.5	22.6	707.1	84.0	13.75	13.75	-0.21
START OF TANGENT										
6,258.0	72.96	180.75	6,023.0	-1,345.0	-16.8	706.7	122.9	14.93	14.89	1.07
6,263.0	73.70	180.80	6,024.4	-1,346.4	-21.6	706.6	127.6	14.93	14.89	1.02
6,311.0	75.50	181.10	6,037.2	-1,359.2	-67.8	705.9	173.3	3.80	3.75	0.62
6,357.0	76.80	180.80	6,048.2	-1,370.2	-112.5	705.1	217.3	2.90	2.83	-0.65
6,405.0	78.30	180.60	6,058.5	-1,380.5	-159.3	704.6	263.6	3.15	3.12	-0.42
6,453.0	79.70	180.40	6,067.7	-1,389.7	-206.5	704.1	310.1	2.95	2.92	-0.42
END OF TANGENT										
6,495.0	82.76	180.75	6,074.1	-1,396.1	-248.0	703.7	351.0	7.34	7.29	0.83
6,501.0	83.20	180.80	6,074.8	-1,396.8	-253.9	703.6	356.9	7.34	7.29	0.83
ICP										
6,520.0	84.92	180.62	6,076.8	-1,398.8	-272.8	703.4	375.6	9.10	9.05	-0.96
6,543.0	87.00	180.40	6,078.4	-1,400.4	-295.8	703.2	398.2	9.10	9.05	-0.95
6,596.0	89.80	181.00	6,079.9	-1,401.9	-348.7	702.6	450.5	5.40	5.28	1.13
6,688.0	90.20	183.30	6,079.9	-1,401.9	-440.7	699.1	540.8	2.54	0.43	2.50
6,778.0	91.60	181.30	6,078.5	-1,400.5	-530.6	695.5	629.2	2.71	1.56	-2.22
6,870.0	90.20	180.10	6,077.0	-1,399.0	-622.5	694.4	719.9	2.00	-1.52	-1.30
6,962.0	88.70	179.20	6,077.9	-1,399.9	-714.5	694.9	811.0	1.90	-1.63	-0.98
7,057.0	88.60	178.50	6,080.1	-1,402.1	-809.5	696.8	905.1	0.74	-0.11	-0.74
7,151.0	89.40	178.70	6,081.8	-1,403.8	-903.4	699.1	998.4	0.88	0.85	0.21
7,246.0	90.20	179.20	6,082.1	-1,404.1	-998.4	700.9	1,092.5	0.99	0.84	0.53
7,341.0	89.30	177.30	6,082.5	-1,404.5	-1,093.4	703.8	1,186.8	2.21	-0.95	-2.00
7,435.0	91.20	177.80	6,082.1	-1,404.1	-1,187.3	707.8	1,280.3	2.09	2.02	0.53
7,530.0	92.70	179.20	6,078.9	-1,400.9	-1,282.2	710.3	1,374.5	2.16	1.58	1.47
7,626.0	91.70	179.60	6,075.2	-1,397.2	-1,378.1	711.3	1,469.5	1.12	-1.04	0.42
7,721.0	90.50	179.90	6,073.4	-1,395.4	-1,473.1	711.7	1,563.4	1.30	-1.26	0.32
7,817.0	87.50	178.20	6,075.1	-1,397.1	-1,569.1	713.3	1,658.5	3.59	-3.12	-1.77
7,912.0	90.20	179.60	6,077.0	-1,399.0	-1,664.0	715.1	1,752.7	3.20	2.84	1.47
8,008.0	90.40	182.70	6,076.5	-1,398.5	-1,760.0	713.2	1,847.2	3.24	0.21	3.23
8,103.0	89.60	180.80	6,076.5	-1,398.5	-1,854.9	710.3	1,940.7	2.17	-0.84	-2.00
8,197.0	90.10	181.00	6,076.7	-1,398.7	-1,948.9	708.8	2,033.4	0.57	0.53	0.21
8,293.0	90.10	179.70	6,076.5	-1,398.5	-2,044.9	708.2	2,128.2	1.35	0.00	-1.35
8,388.0	90.40	179.40	6,076.1	-1,398.1	-2,139.9	709.0	2,222.2	0.45	0.32	-0.32
8,484.0	88.90	179.20	6,076.7	-1,398.7	-2,235.9	710.1	2,317.3	1.58	-1.56	-0.21
8,580.0	89.30	181.10	6,078.2	-1,400.2	-2,331.9	709.9	2,412.1	2.02	0.42	1.98
8,676.0	92.10	182.40	6,077.0	-1,399.0	-2,427.8	707.0	2,506.5	3.22	2.92	1.35
8,771.0	90.60	181.30	6,074.8	-1,396.8	-2,522.7	703.9	2,599.9	1.96	-1.58	-1.16
8,866.0	89.60	180.10	6,074.6	-1,396.6	-2,617.7	702.7	2,693.7	1.64	-1.05	-1.26
8,961.0	89.00	181.10	6,075.8	-1,397.8	-2,712.7	701.7	2,787.4	1.23	-0.63	1.05
9,057.0	90.30	182.40	6,076.4	-1,398.4	-2,808.7	698.8	2,881.8	1.92	1.35	1.35
9,153.0	89.10	181.00	6,076.9	-1,398.9	-2,904.6	696.0	2,976.3	1.92	-1.25	-1.46
9,248.0	88.80	180.30	6,078.6	-1,400.6	-2,999.6	694.9	3,070.0	0.80	-0.32	-0.74
9,343.0	88.60	179.00	6,080.8	-1,402.8	-3,094.6	695.5	3,164.0	1.38	-0.21	-1.37
9,438.0	90.80	180.80	6,081.3	-1,403.3	-3,189.5	695.6	3,257.9	2.99	2.32	1.89
9,533.0	90.10	179.90	6,080.5	-1,402.5	-3,284.5	695.1	3,351.7	1.20	-0.74	-0.95
9,628.0	90.80	179.20	6,079.8	-1,401.8	-3,379.5	695.8	3,445.8	1.04	0.74	-0.74

Survey Report



Company:	BONANZA CREEK ENERGY INC.	Local Co-ordinate Reference:	Well PRONGHORN 21-24-22HNB
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4678.0usft (CADE 25)
Site:	NW NW SEC. 22 T5N R61W 6th P.M.	MD Reference:	KB @ 4678.0usft (CADE 25)
Well:	PRONGHORN 21-24-22HNB	North Reference:	True
Wellbore:	JOB # 2009-444	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)
9,724.0	90.90	177.60	6,078.4	-1,400.4	-3,475.5	698.5	3,541.0	1.67	0.10	-1.67
9,820.0	91.40	180.10	6,076.4	-1,398.4	-3,571.4	700.4	3,636.2	2.66	0.52	2.60
9,915.0	90.20	181.30	6,075.1	-1,397.1	-3,666.4	699.2	3,729.9	1.79	-1.26	1.26
10,011.0	90.30	183.30	6,074.7	-1,396.7	-3,762.3	695.4	3,824.1	2.09	0.10	2.08
10,107.0	89.30	182.20	6,075.0	-1,397.0	-3,858.2	690.8	3,918.2	1.55	-1.04	-1.15
10,203.0	89.50	181.10	6,076.0	-1,398.0	-3,954.2	688.0	4,012.7	1.16	0.21	-1.15
10,298.0	88.60	179.90	6,077.6	-1,399.6	-4,049.2	687.2	4,106.5	1.58	-0.95	-1.26
10,393.0	90.10	179.70	6,078.7	-1,400.7	-4,144.1	687.5	4,200.4	1.59	1.58	-0.21
10,489.0	90.30	179.40	6,078.4	-1,400.4	-4,240.1	688.3	4,295.4	0.38	0.21	-0.31
10,585.0	90.80	181.10	6,077.4	-1,399.4	-4,336.1	687.9	4,390.3	1.85	0.52	1.77
10,681.0	89.60	179.00	6,077.1	-1,399.1	-4,432.1	687.8	4,485.1	2.52	-1.25	-2.19
LAST SURVEY - JAN 17, 2015										
10,699.0	89.80	179.40	6,077.2	-1,399.2	-4,450.1	688.0	4,503.0	2.48	1.11	2.22
EXTRAPOLATION TO TD										
10,751.6	89.80	179.40	6,077.4	-1,399.4	-4,502.7	688.6	4,555.1	0.00	0.00	0.00

Survey Report



Company:	BONANZA CREEK ENERGY INC.	Local Co-ordinate Reference:	Well PRONGHORN 21-24-22HNB
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4678.0usft (CADE 25)
Site:	NW NW SEC. 22 T5N R61W 6th P.M.	MD Reference:	KB @ 4678.0usft (CADE 25)
Well:	PRONGHORN 21-24-22HNB	North Reference:	True
Wellbore:	JOB # 2009-444	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEYS	Database:	EDM 5000.1 Single User Db

Targets									
Target Name	- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	
- Shape		(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	
7" ICP *NEW* - PRONGHORN		0.00	0.00	6,081.0	-218.3	718.3	1,388,348.11	3,362,852.65	40.392101
- survey misses target center by 18.1usft at 6466.6usft MD (6070.0 TVD, -219.8 N, 704.0 E)									-104.197271
- Point									
KOP - PRONGHORN		0.00	0.00	5,558.2	360.7	722.7	1,388,927.08	3,362,848.56	40.393690
- survey misses target center by 10.6usft at 5628.6usft MD (5557.7 TVD, 354.7 N, 714.0 E)									-104.197255
- Point									
EXIST VERT HENDE		0.00	0.00	6,870.0	-1,527.5	2,032.7	1,387,058.40	3,364,186.07	40.388507
- survey misses target center by 1541.1usft at 7811.2usft MD (6074.8 TVD, -1563.2 N, 713.1 E)									-104.192553
- Circle (radius 30.0)									
KOP - PRONGHORN		0.00	0.00	5,577.7	355.7	722.7	1,388,922.09	3,362,848.63	40.393676
- survey misses target center by 9.5usft at 5648.0usft MD (5577.0 TVD, 352.7 N, 713.7 E)									-104.197255
- Point									
BHL - PRONGHORN		0.00	0.00	6,068.0	-4,502.9	685.4	1,384,063.70	3,362,882.53	40.380340
- survey misses target center by 9.9usft at 10751.6usft MD (6077.4 TVD, -4502.7 N, 688.6 E)									-104.197390
- Point									
7" ICP *NEW* - PRONGHORN		0.00	0.00	6,105.0	-256.7	718.0	1,388,309.70	3,362,852.91	40.391995
- survey misses target center by 33.0usft at 6506.7usft MD (6075.5 TVD, -259.6 N, 703.6 E)									-104.197272
- Point									
EXIST VERT PACKAI		0.00	0.00	6,820.0	-367.9	732.6	1,388,198.70	3,362,869.14	40.391690
- survey misses target center by 740.7usft at 6614.1usft MD (6079.9 TVD, -366.8 N, 702.2 E)									-104.197220
- Circle (radius 30.0)									
7" ICP *NEW* - PRONGHORN		0.00	0.00	6,068.0	-218.3	718.3	1,388,348.11	3,362,852.65	40.392101
- survey misses target center by 14.3usft at 6464.6usft MD (6069.7 TVD, -217.9 N, 704.1 E)									-104.197271
- Point									
BHL - PRONGHORN		0.00	0.00	6,105.0	-4,502.9	685.4	1,384,063.70	3,362,882.53	40.380340
- survey misses target center by 27.8usft at 10751.6usft MD (6077.4 TVD, -4502.7 N, 688.6 E)									-104.197390
- Point									
KOP - PRONGHORN		0.00	0.00	5,564.7	355.7	722.7	1,388,922.09	3,362,848.63	40.393676
- survey misses target center by 9.0usft at 5635.4usft MD (5564.5 TVD, 354.1 N, 713.9 E)									-104.197255
- Point									
EXIST VERT PRONG		0.00	0.00	6,815.0	-4,273.3	2,025.4	1,384,312.90	3,364,219.03	40.380970
- survey misses target center by 1526.6usft at 10509.2usft MD (6078.2 TVD, -4260.4 N, 688.4 E)									-104.192580
- Circle (radius 30.0)									
BHL - PRONGHORN		0.00	0.00	6,081.0	-4,502.9	685.4	1,384,063.70	3,362,882.53	40.380340
- survey misses target center by 4.8usft at 10751.6usft MD (6077.4 TVD, -4502.7 N, 688.6 E)									-104.197390
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
487.8	487.8	1.6	-0.3	SURFACE CASING
5,600.0	5,529.1	355.9	714.3	KOP
6,258.0	6,023.0	-16.8	706.7	START OF TANGENT
6,495.0	6,074.1	-248.0	703.7	END OF TANGENT
6,520.0	6,076.8	-272.8	703.4	ICP
10,699.0	6,077.2	-4,450.1	688.0	LAST SURVEY - JAN 17, 2015
10,751.6	6,077.4	-4,502.7	688.6	EXTRAPOLATION TO TD

Checked By: _____ Approved By: _____ Date: _____