

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

NE SE SEC. 7 T4N R68W 6th P.M.

BERTHOUD FARMS 8E-10-7N

JOB # 2017-521-88

12 December, 2017

Survey: FINAL SURVEYS - SURFACE



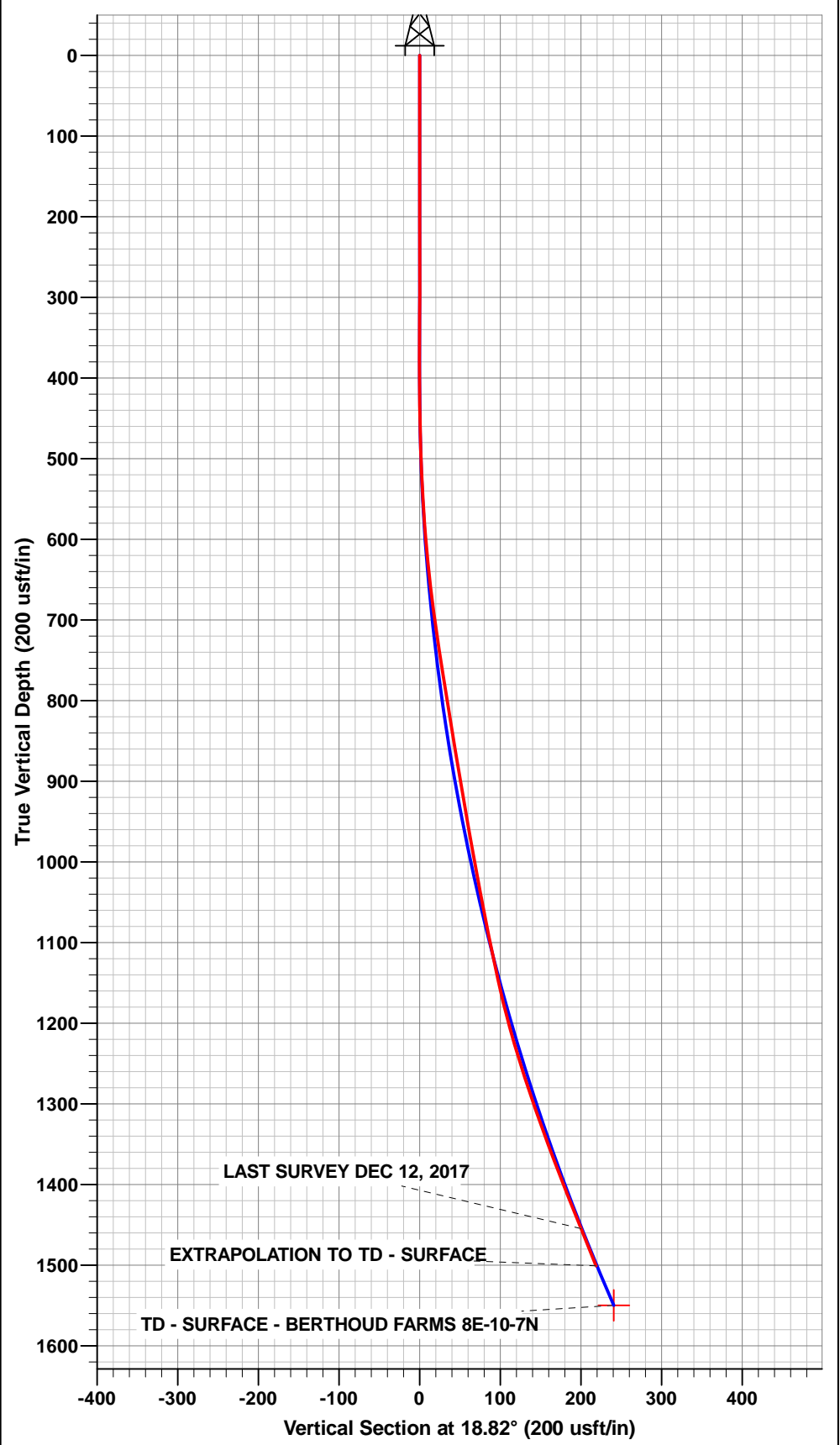
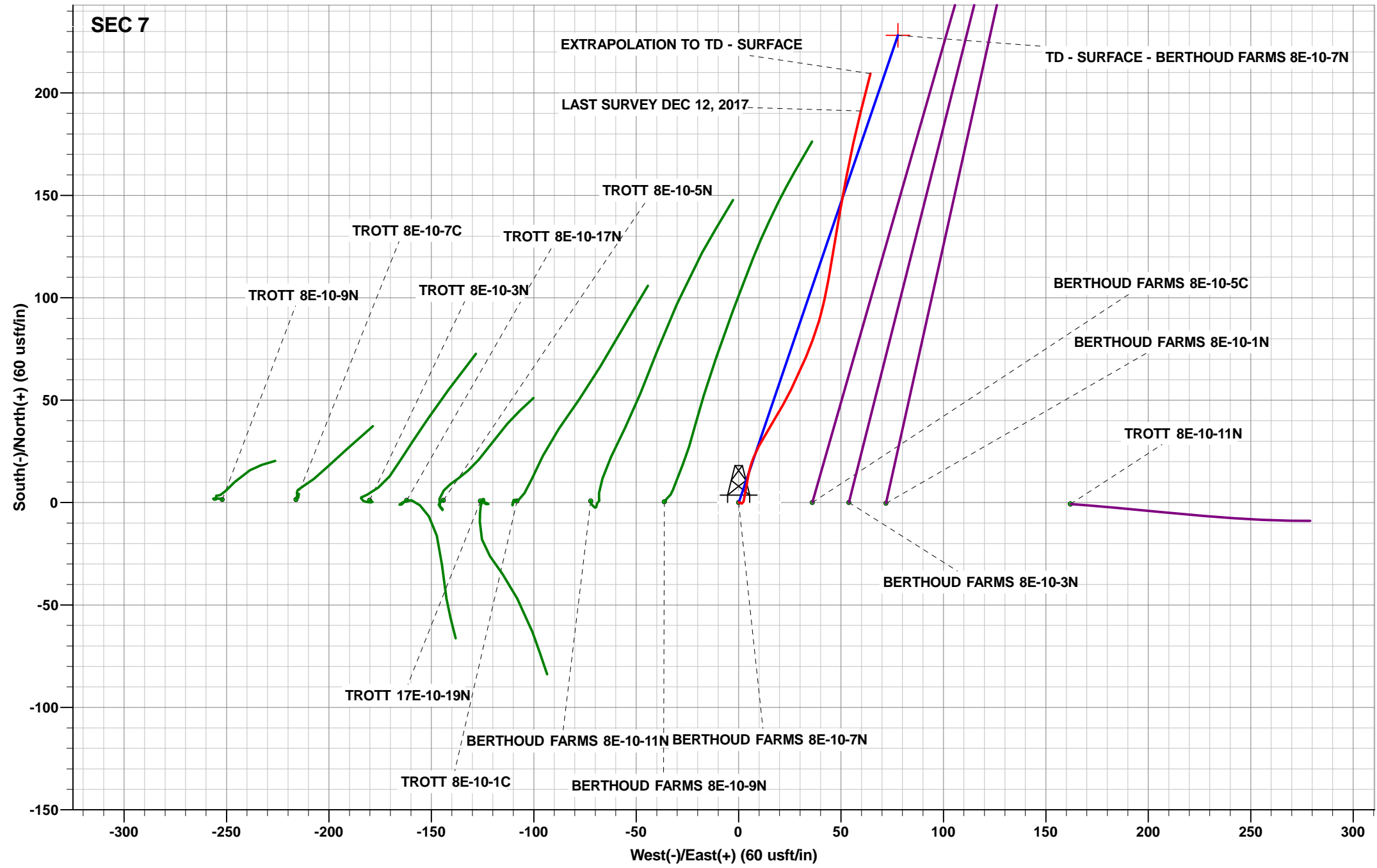


Project: WELD COUNTY, COLORADO (NAD 83)
Site: NE SE SEC. 7 T4N R68W 6th P.M.
Well: BERTHOUD FARMS 8E-10-7N
Wellbore: JOB # 2017-521-88
Design: SURFACE



ANNOTATIONS								
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
1454.67	1480.00	22.10	14.30	191.18	59.71	200.22	204.96	LAST SURVEY DEC 12, 2017
1501.00	1530.00	22.10	14.30	209.41	64.35	218.97	223.77	EXTRAPOLATION TO TD - SURFACE

WELL DETAILS: BERTHOUD FARMS 8E-10-7N							
		Ground Level:		5033.00			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
0.00	0.00	1361363.00	3128192.03	40.324430	-105.040233		
DESIGN TARGET DETAILS							
Name			TVD	+N/-S	+E/-W	Northing	Easting
TD - SURFACE - BERTHOUD FARMS 8E-10-7N			1550.00	228.07	77.73	1361591.47	3128268.58



Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well BERTHOUD FARMS 8E-10-7N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB (8') @ 5041.00usft (CARTEL 88)
Site:	NE SE SEC. 7 T4N R68W 6th P.M.	MD Reference:	KB (8') @ 5041.00usft (CARTEL 88)
Well:	BERTHOUD FARMS 8E-10-7N	North Reference:	True
Wellbore:	JOB # 2017-521-88	Survey Calculation Method:	Minimum Curvature
Design:	SURFACE	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		NE SE SEC. 7 T4N R68W 6th P.M.			
Site Position:		Northing:	1,361,363.03 usft	Latitude:	40.324429
From:	Lat/Long	Easting:	3,128,263.97 usft	Longitude:	-105.039975
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000 ft	Grid Convergence:	0.30 °

Well	BERTHOUD FARMS 8E-10-7N					
Well Position	+N/-S	0.00 usft	Northing:	1,361,363.00 usft	Latitude:	40.324430
	+E/-W	0.00 usft	Easting:	3,128,192.03 usft	Longitude:	-105.040233
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,033.00 usft

Wellbore	JOB # 2017-521-88				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	03/12/2017	8.30	66.74	52,269

Design		SURFACE		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	18.82

Survey Program	Date	12/12/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
105.00	1,530.00	FINAL SURVEYS - SURFACE (JOB # 201	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)
0.00	0.00	0.00	0.00	5,041.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00	0.09	29.75	105.00	4,936.00	0.07	0.04	0.08	0.09	0.09	0.00
200.00	0.04	62.00	200.00	4,841.00	0.15	0.11	0.18	0.06	-0.05	33.95
296.00	0.57	105.16	296.00	4,745.00	0.04	0.60	0.23	0.56	0.55	44.96
391.00	0.79	132.67	390.99	4,650.01	-0.52	1.54	0.00	0.41	0.23	28.96
485.00	1.80	13.84	484.98	4,556.02	0.47	2.37	1.21	2.43	1.07	-126.41
581.00	4.17	8.92	580.84	4,460.16	5.38	3.27	6.15	2.48	2.47	-5.12
676.00	7.43	11.82	675.34	4,365.66	14.81	5.06	15.65	3.44	3.43	3.05
770.00	9.10	27.72	768.37	4,272.63	27.34	9.76	29.03	3.00	1.78	16.91
865.00	9.76	32.29	862.09	4,178.91	40.80	17.56	44.28	1.05	0.69	4.81
960.00	10.11	26.14	955.67	4,085.33	55.09	25.54	60.38	1.18	0.37	-6.47
1,056.00	10.81	23.42	1,050.07	3,990.93	70.92	32.83	77.72	0.89	0.73	-2.83
1,151.00	12.22	16.39	1,143.16	3,897.84	88.74	39.21	96.64	2.09	1.48	-7.40

Survey Report



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Well:	BERTHOUD FARMS 8E-10-7N	North Reference:	True
Wellbore:	JOB # 2017-521-88	Survey Calculation Method:	Minimum Curvature
Design:	SURFACE	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)
1,246.00	17.05	9.62	1,235.06	3,805.94	112.13	44.37	120.45	5.39	5.08	-7.13
1,342.00	20.04	9.71	1,326.06	3,714.94	142.23	49.50	150.59	3.11	3.11	0.09
1,436.00	21.81	12.26	1,413.86	3,627.14	175.17	55.93	183.85	2.12	1.88	2.71
LAST SURVEY DEC 12, 2017										
1,480.00	22.10	14.30	1,454.67	3,586.33	191.18	59.71	200.22	1.85	0.66	4.64
EXTRAPOLATION TO TD - SURFACE										
1,530.00	22.10	14.30	1,501.00	3,540.00	209.41	64.35	218.97	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
TD - SURFACE - BERTHOUD	0.00	0.00	1,550.00	228.07	77.73	1,361,591.47	3,128,268.58	40.325056	-105.039954
- survey misses target center by 54.12usft at 1530.00usft MD (1501.00 TVD, 209.41 N, 64.35 E)									
- Point									

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,480.00	1,454.67	191.18	59.71	LAST SURVEY DEC 12, 2017	
1,530.00	1,501.00	209.41	64.35	EXTRAPOLATION TO TD - SURFACE	

Checked By: _____ Approved By: _____ Date: _____