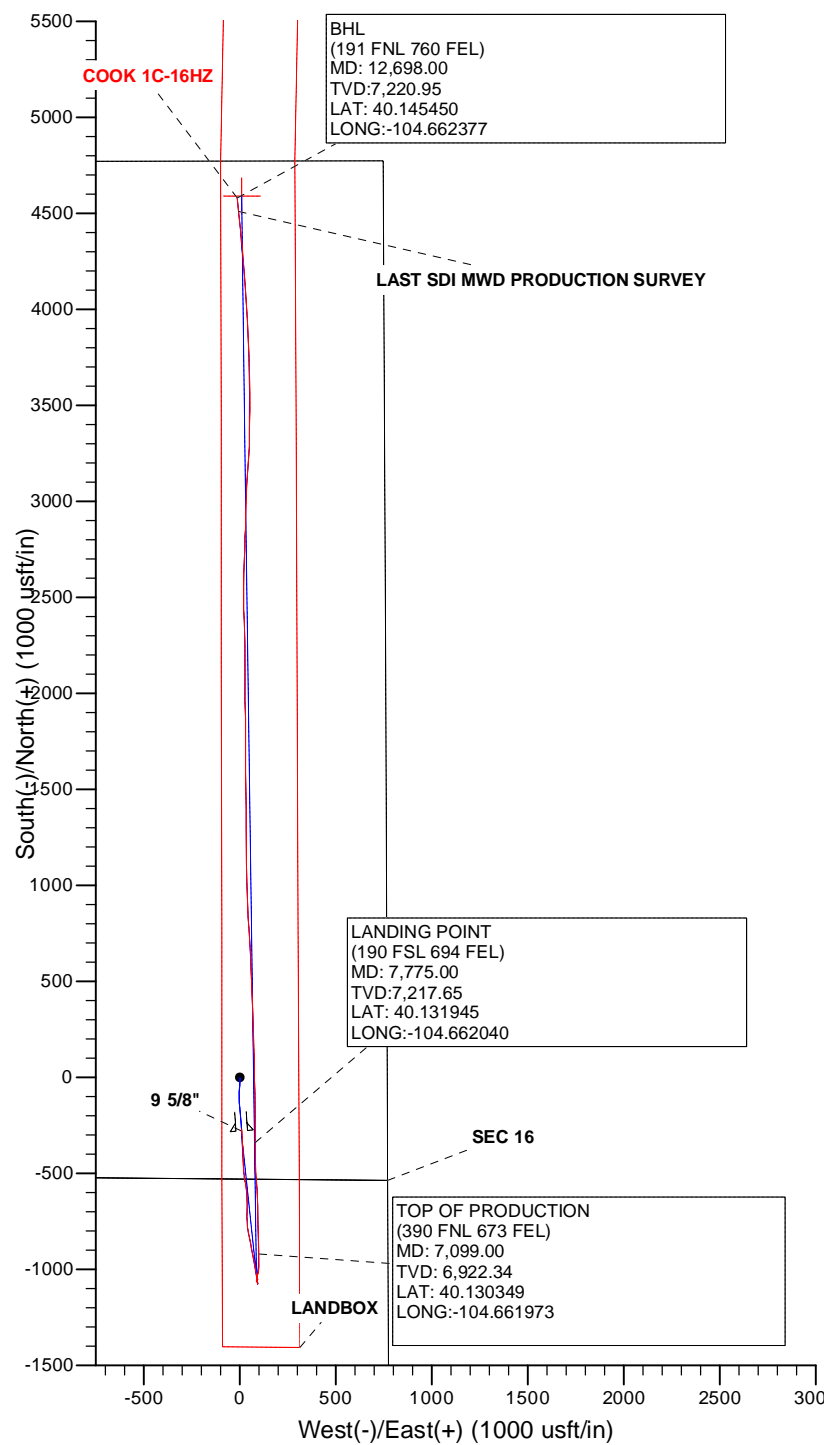
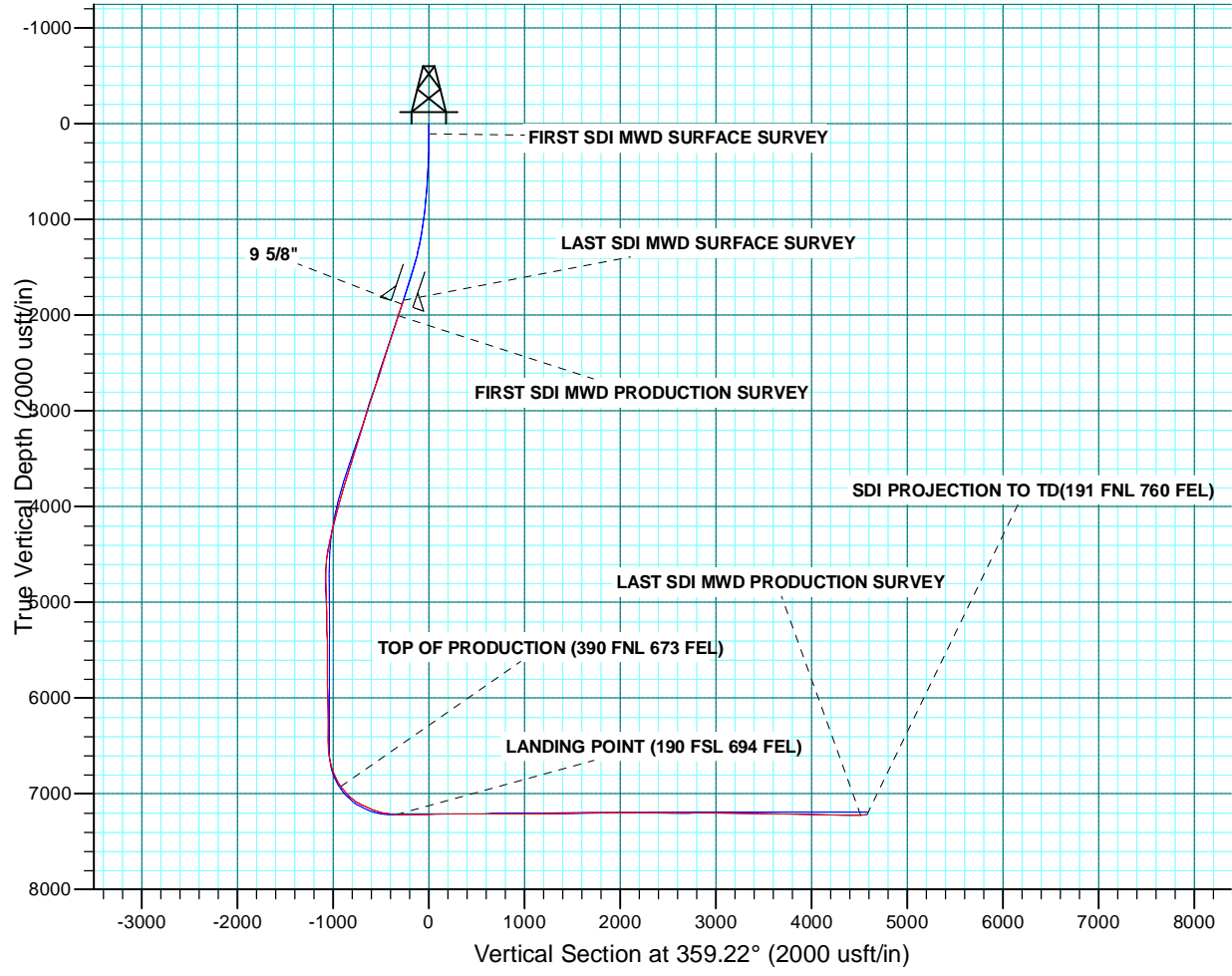


WELL DETAILS: COOK 1C-16HZ					
GL 4878 & KB 25 @ 4903.00usft (HP 307)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14575297.74	1734798.13	40.132873	-104.662330

PROJECT DETAILS: WELD-NAD83-UTMFT13N
Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)
Location:
System Datum: Mean Sea Level



Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well COOK 1C-16HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Site:	2N-65W-16 Cook 16-16HZ	MD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Well:	COOK 1C-16HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	2N-65W-16 Cook 16-16HZ				
Site Position:		Northing:	14,575,370.71 usft	Latitude:	40.133073
From:	Lat/Long	Easting:	1,734,893.26 usft	Longitude:	-104.661989
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.22 °

Well	COOK 1C-16HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,575,297.74 usft	Latitude:	40.132873
	+E/-W	0.00 usft	Easting:	1,734,798.13 usft	Longitude:	-104.662330
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,878.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/18/2015	8.38	66.67	52,487

Design	Plan A				
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	359.22	

Survey Program	Date	1/5/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
18.00	1,875.00	Survey #1 SDI MWD SURFACE (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
2,047.00	12,698.00	Survey #2 SDI MWD PRODUCTION (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

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	0.00
18.00	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104.00	0.38	129.35	104.00	-0.18	0.22	-0.18	0.44	0.44	0.00	
FIRST SDI MWD SURFACE SURVEY										
191.00	1.05	147.64	190.99	-1.04	0.87	-1.05	0.80	0.77	21.02	
281.00	1.75	165.81	280.97	-3.07	1.65	-3.09	0.91	0.78	20.19	
388.00	1.98	176.01	387.91	-6.49	2.18	-6.52	0.38	0.21	9.53	
478.00	2.33	184.32	477.85	-9.87	2.15	-9.90	0.52	0.39	9.23	
568.00	3.33	182.44	567.73	-14.31	1.90	-14.33	1.12	1.11	-2.09	
658.00	3.91	180.58	657.55	-19.99	1.76	-20.01	0.66	0.64	-2.07	

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well COOK 1C-16HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Site:	2N-65W-16 Cook 16-16HZ	MD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Well:	COOK 1C-16HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)	
748.00	4.64	189.06	747.30	-26.65	1.15	-26.66	1.07	0.81	9.42	
838.00	5.47	183.86	836.95	-34.52	0.29	-34.52	1.05	0.92	-5.78	
929.00	6.45	184.15	927.46	-43.95	-0.37	-43.94	1.08	1.08	0.32	
1,019.00	7.82	185.05	1,016.76	-55.09	-1.28	-55.07	1.53	1.52	1.00	
1,109.00	9.32	182.69	1,105.75	-68.47	-2.16	-68.43	1.71	1.67	-2.62	
1,199.00	10.74	182.66	1,194.38	-84.13	-2.89	-84.08	1.58	1.58	-0.03	
1,334.00	12.89	179.32	1,326.51	-111.75	-3.29	-111.70	1.67	1.59	-2.47	
1,424.00	14.19	176.26	1,414.01	-132.80	-2.46	-132.75	1.65	1.44	-3.40	
1,514.00	15.77	173.36	1,500.95	-155.96	-0.32	-155.94	1.94	1.76	-3.22	
1,604.00	17.35	173.72	1,587.21	-181.45	2.56	-181.46	1.76	1.76	0.40	
1,695.00	18.33	175.07	1,673.84	-209.19	5.28	-209.24	1.17	1.08	1.48	
1,785.00	18.07	176.17	1,759.33	-237.22	7.42	-237.30	0.48	-0.29	1.22	
1,875.00	18.34	176.17	1,844.83	-265.27	9.30	-265.37	0.30	0.30	0.00	
LAST SDI MWD SURFACE SURVEY										
1,917.00	18.45	176.29	1,884.68	-278.50	10.17	-278.61	0.28	0.26	0.28	
9 5/8"										
2,047.00	18.79	176.65	2,007.88	-319.92	12.73	-320.07	0.28	0.26	0.28	
FIRST SDI MWD PRODUCTION SURVEY										
2,141.00	18.02	175.56	2,097.07	-349.53	14.74	-349.70	0.90	-0.82	-1.16	
2,236.00	18.48	178.69	2,187.29	-379.24	16.22	-379.42	1.14	0.48	3.29	
2,330.00	17.54	176.43	2,276.69	-408.27	17.44	-408.47	1.25	-1.00	-2.40	
2,424.00	17.95	177.35	2,366.22	-436.88	18.99	-437.09	0.53	0.44	0.98	
2,519.00	18.13	177.63	2,456.54	-466.27	20.28	-466.50	0.21	0.19	0.29	
2,613.00	17.31	175.60	2,546.09	-494.82	21.96	-495.08	1.09	-0.87	-2.16	
2,708.00	18.00	172.79	2,636.61	-523.48	24.89	-523.77	1.15	0.73	-2.96	
2,802.00	18.42	170.70	2,725.90	-552.54	29.11	-552.89	0.83	0.45	-2.22	
2,896.00	17.95	170.87	2,815.21	-581.50	33.81	-581.91	0.50	-0.50	0.18	
2,991.00	17.94	177.02	2,905.60	-610.57	36.89	-611.01	1.99	-0.01	6.47	
3,085.00	17.92	176.54	2,995.03	-639.46	38.52	-639.93	0.16	-0.02	-0.51	
3,180.00	17.15	179.60	3,085.62	-668.06	39.50	-668.53	1.26	-0.81	3.22	
3,274.00	17.29	183.07	3,175.41	-695.86	38.85	-696.33	1.10	0.15	3.69	
3,369.00	16.74	180.87	3,266.25	-723.64	37.88	-724.09	0.89	-0.58	-2.32	
3,463.00	17.01	177.61	3,356.20	-750.92	38.25	-751.37	1.05	0.29	-3.47	
3,557.00	17.07	172.63	3,446.08	-778.34	40.59	-778.82	1.55	0.06	-5.30	
3,652.00	17.83	168.75	3,536.71	-806.43	45.22	-806.97	1.46	0.80	-4.08	
3,746.00	18.13	168.80	3,626.12	-834.89	50.87	-835.51	0.32	0.32	0.05	
3,841.00	17.58	168.19	3,716.55	-863.43	56.67	-864.13	0.61	-0.58	-0.64	
3,935.00	16.52	168.13	3,806.41	-890.41	62.33	-891.18	1.13	-1.13	-0.06	
4,030.00	16.23	169.98	3,897.56	-916.70	67.42	-917.53	0.63	-0.31	1.95	
4,124.00	14.99	168.60	3,988.09	-941.55	72.11	-942.45	1.38	-1.32	-1.47	
4,218.00	14.56	168.72	4,078.98	-965.06	76.82	-966.01	0.46	-0.46	0.13	
4,313.00	14.80	171.12	4,170.88	-988.76	81.03	-989.77	0.69	0.25	2.53	
4,407.00	13.58	169.60	4,262.01	-1,011.48	84.87	-1,012.54	1.36	-1.30	-1.62	
4,502.00	12.19	171.13	4,354.62	-1,032.36	88.43	-1,033.46	1.51	-1.46	1.61	

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well COOK 1C-16HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Site:	2N-65W-16 Cook 16-16HZ	MD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Well:	COOK 1C-16HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)	
4,596.00	10.51	171.27	4,446.78	-1,050.64	91.27	-1,051.78	1.79	-1.79	0.15	
4,691.00	7.45	170.91	4,540.60	-1,065.29	93.55	-1,066.46	3.22	-3.22	-0.38	
4,785.00	2.62	179.74	4,634.21	-1,073.46	94.53	-1,074.64	5.19	-5.14	9.39	
4,974.00	1.51	354.00	4,823.16	-1,075.30	94.29	-1,076.48	2.18	-0.59	92.20	
5,069.00	1.62	342.11	4,918.13	-1,072.78	93.74	-1,073.95	0.36	0.12	-12.52	
5,163.00	2.09	323.77	5,012.08	-1,070.13	92.32	-1,071.29	0.80	0.50	-19.51	
5,258.00	1.99	324.34	5,107.02	-1,067.39	90.34	-1,068.52	0.11	-0.11	0.60	
5,447.00	0.92	337.15	5,295.96	-1,063.33	87.83	-1,064.43	0.59	-0.57	6.78	
5,541.00	0.83	358.07	5,389.94	-1,061.95	87.52	-1,063.05	0.35	-0.10	22.26	
5,636.00	1.07	341.78	5,484.93	-1,060.42	87.22	-1,061.51	0.38	0.25	-17.15	
5,731.00	0.91	6.60	5,579.92	-1,058.83	87.03	-1,059.92	0.48	-0.17	26.13	
5,825.00	0.57	7.83	5,673.91	-1,057.63	87.18	-1,058.71	0.36	-0.36	1.31	
5,920.00	0.77	23.48	5,768.90	-1,056.57	87.50	-1,057.67	0.28	0.21	16.47	
6,014.00	1.00	19.60	5,862.89	-1,055.22	88.02	-1,056.32	0.25	0.24	-4.13	
6,109.00	0.89	13.50	5,957.88	-1,053.72	88.47	-1,054.83	0.16	-0.12	-6.42	
6,297.00	0.97	41.83	6,145.86	-1,051.12	89.88	-1,052.24	0.25	0.04	15.07	
6,392.00	0.69	91.89	6,240.85	-1,050.54	90.98	-1,051.68	0.79	-0.29	52.69	
6,486.00	0.75	124.94	6,334.84	-1,050.91	92.05	-1,052.06	0.44	0.06	35.16	
6,581.00	0.33	171.19	6,429.84	-1,051.53	92.60	-1,052.70	0.60	-0.44	48.68	
6,676.00	4.13	339.92	6,524.76	-1,048.59	91.47	-1,049.74	4.69	4.00	177.61	
6,770.00	10.23	10.86	6,618.01	-1,037.20	91.88	-1,038.35	7.46	6.49	32.91	
6,865.00	15.84	9.31	6,710.52	-1,016.10	95.57	-1,017.31	5.92	5.91	-1.63	
6,959.00	22.70	3.84	6,799.21	-985.31	98.87	-986.56	7.54	7.30	-5.82	
7,054.00	29.97	359.66	6,884.30	-943.23	99.96	-944.50	7.89	7.65	-4.40	
7,099.00	34.59	358.99	6,922.34	-919.21	99.66	-920.48	10.29	10.26	-1.49	
TOP OF PRODUCTION (390 FNL 673 FEL)										
7,148.00	39.62	358.42	6,961.40	-889.66	98.99	-890.93	10.29	10.27	-1.16	
7,243.00	46.33	356.93	7,030.87	-825.00	96.31	-826.23	7.14	7.06	-1.57	
7,337.00	57.97	0.08	7,088.46	-750.94	94.54	-752.16	12.66	12.38	3.35	
7,432.00	63.76	357.79	7,134.70	-668.02	92.95	-669.22	6.45	6.09	-2.41	
7,526.00	71.12	355.73	7,170.74	-581.42	88.00	-582.56	8.09	7.83	-2.19	
7,621.00	76.48	357.29	7,197.23	-490.39	82.47	-491.47	5.86	5.64	1.64	
7,716.00	83.88	0.48	7,213.43	-396.88	80.68	-397.94	8.46	7.79	3.36	
7,775.00	87.91	0.03	7,217.65	-338.05	80.94	-339.12	6.87	6.83	-0.77	
LANDING POINT (190 FSL 694 FEL)										
7,810.00	90.30	359.76	7,218.20	-303.05	80.87	-304.13	6.87	6.83	-0.76	
7,905.00	90.47	359.64	7,217.56	-208.06	80.38	-209.13	0.22	0.18	-0.13	
7,999.00	89.80	359.12	7,217.34	-114.06	79.36	-115.13	0.90	-0.71	-0.55	
8,094.00	90.74	358.78	7,216.89	-19.08	77.62	-20.14	1.05	0.99	-0.36	
8,188.00	91.17	358.37	7,215.33	74.88	75.28	73.84	0.63	0.46	-0.44	
8,283.00	90.77	358.06	7,213.72	169.82	72.32	168.82	0.53	-0.42	-0.33	
8,377.00	89.80	357.17	7,213.25	263.73	68.41	262.78	1.40	-1.03	-0.95	
8,472.00	89.50	358.83	7,213.83	358.67	65.10	357.75	1.78	-0.32	1.75	

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well COOK 1C-16HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Site:	2N-65W-16 Cook 16-16HZ	MD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Well:	COOK 1C-16HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)	
8,566.00	90.13	358.39	7,214.13	452.64	62.82	451.74	0.82	0.67	-0.47	
8,661.00	91.38	358.04	7,212.88	547.58	59.86	546.72	1.37	1.32	-0.37	
8,755.00	91.81	356.56	7,210.27	641.44	55.43	640.63	1.64	0.46	-1.57	
8,850.00	90.54	357.04	7,208.32	736.27	50.13	735.52	1.43	-1.34	0.51	
8,944.00	90.03	356.67	7,207.85	830.13	44.97	829.44	0.67	-0.54	-0.39	
9,039.00	89.20	357.35	7,208.49	924.99	40.02	924.36	1.13	-0.87	0.72	
9,133.00	88.59	357.91	7,210.30	1,018.89	36.13	1,018.31	0.88	-0.65	0.60	
9,228.00	90.10	0.04	7,211.39	1,113.86	34.43	1,113.29	2.75	1.59	2.24	
9,322.00	90.74	359.51	7,210.70	1,207.86	34.06	1,207.29	0.88	0.68	-0.56	
9,417.00	91.14	0.85	7,209.14	1,302.85	34.36	1,302.26	1.47	0.42	1.41	
9,511.00	91.57	359.09	7,206.92	1,396.82	34.31	1,396.22	1.93	0.46	-1.87	
9,605.00	91.44	358.46	7,204.45	1,490.76	32.30	1,490.18	0.68	-0.14	-0.67	
9,700.00	91.68	358.26	7,201.86	1,585.69	29.59	1,585.14	0.33	0.25	-0.21	
9,794.00	90.17	0.31	7,200.34	1,679.66	28.41	1,679.12	2.71	-1.61	2.18	
9,889.00	91.17	359.82	7,199.23	1,774.65	28.52	1,774.10	1.17	1.05	-0.52	
9,984.00	89.83	0.16	7,198.40	1,869.65	28.50	1,869.08	1.46	-1.41	0.36	
10,078.00	89.60	358.74	7,198.87	1,963.64	27.60	1,963.08	1.53	-0.24	-1.51	
10,173.00	89.56	0.65	7,199.57	2,058.63	27.10	2,058.07	2.01	-0.04	2.01	
10,267.00	91.14	0.39	7,198.99	2,152.62	27.95	2,152.04	1.70	1.68	-0.28	
10,362.00	90.97	359.51	7,197.24	2,247.60	27.87	2,247.02	0.94	-0.18	-0.93	
10,456.00	88.90	357.81	7,197.35	2,341.57	25.67	2,341.00	2.85	-2.20	-1.81	
10,551.00	87.99	357.34	7,199.93	2,436.45	21.65	2,435.93	1.08	-0.96	-0.49	
10,645.00	89.33	359.69	7,202.13	2,530.38	19.22	2,529.89	2.88	1.43	2.50	
10,740.00	89.77	2.57	7,202.87	2,625.35	21.09	2,624.82	3.07	0.46	3.03	
10,834.00	90.60	2.34	7,202.57	2,719.26	25.12	2,718.67	0.92	0.88	-0.24	
10,929.00	91.11	0.42	7,201.15	2,814.22	27.40	2,813.59	2.09	0.54	-2.02	
11,023.00	90.03	1.81	7,200.22	2,908.19	29.23	2,907.53	1.87	-1.15	1.48	
11,118.00	89.50	2.70	7,200.61	3,003.12	32.97	3,002.39	1.09	-0.56	0.94	
11,212.00	89.06	3.09	7,201.79	3,096.99	37.72	3,096.19	0.63	-0.47	0.41	
11,307.00	89.13	4.38	7,203.29	3,191.77	43.90	3,190.88	1.36	0.07	1.36	
11,401.00	88.79	1.80	7,205.00	3,285.61	48.97	3,284.64	2.77	-0.36	-2.74	
11,496.00	89.20	1.09	7,206.66	3,380.57	51.37	3,379.56	0.86	0.43	-0.75	
11,590.00	88.93	0.45	7,208.20	3,474.55	52.63	3,473.51	0.74	-0.29	-0.68	
11,779.00	88.99	358.35	7,211.63	3,663.49	50.65	3,662.47	1.11	0.03	-1.11	
11,874.00	89.50	357.91	7,212.88	3,758.44	47.55	3,757.44	0.71	0.54	-0.46	
11,968.00	90.74	356.69	7,212.68	3,852.33	43.12	3,851.38	1.85	1.32	-1.30	
12,062.00	87.92	357.86	7,213.78	3,946.20	38.65	3,945.31	3.25	-3.00	1.24	
12,157.00	88.49	357.47	7,216.76	4,041.08	34.79	4,040.23	0.73	0.60	-0.41	
12,346.00	88.46	354.65	7,221.79	4,229.54	21.81	4,228.86	1.49	-0.02	-1.49	
12,440.00	88.66	354.05	7,224.15	4,323.06	12.55	4,322.49	0.67	0.21	-0.64	
12,535.00	90.64	354.65	7,224.73	4,417.59	3.20	4,417.14	2.18	2.08	0.63	
12,629.00	91.61	354.12	7,222.88	4,511.12	-5.99	4,510.78	1.18	1.03	-0.56	
LAST SDI MWD PRODUCTION SURVEY										
12,698.00	91.61	354.12	7,220.95	4,579.73	-13.06	4,579.48	0.00	0.00	0.00	

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well COOK 1C-16HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Site:	2N-65W-16 Cook 16-16HZ	MD Reference:	GL 4878 & KB 25 @ 4903.00usft (HP 307)
Well:	COOK 1C-16HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	Plan A	Database:	Denver Sales

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)
SDI PROJECTION TO TD(191 FNL 760 FEL)									

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,917.00	1,884.68	9 5/8"	9.625	13.500

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
104.00	104.00	-0.18	0.22	FIRST SDI MWD SURFACE SURVEY
1,875.00	1,844.83	-265.27	9.30	LAST SDI MWD SURFACE SURVEY
2,047.00	2,007.88	-319.92	12.73	FIRST SDI MWD PRODUCTION SURVEY
7,099.00	6,922.34	-919.21	99.66	TOP OF PRODUCTION (390 FNL 673 FEL)
7,775.00	7,217.65	-338.05	80.94	LANDING POINT (190 FSL 694 FEL)
12,629.00	7,222.88	4,511.12	-5.99	LAST SDI MWD PRODUCTION SURVEY
12,698.00	7,220.95	4,579.73	-13.06	SDI PROJECTION TO TD(191 FNL 760 FEL)

Checked By: _____ Approved By: _____ Date: _____