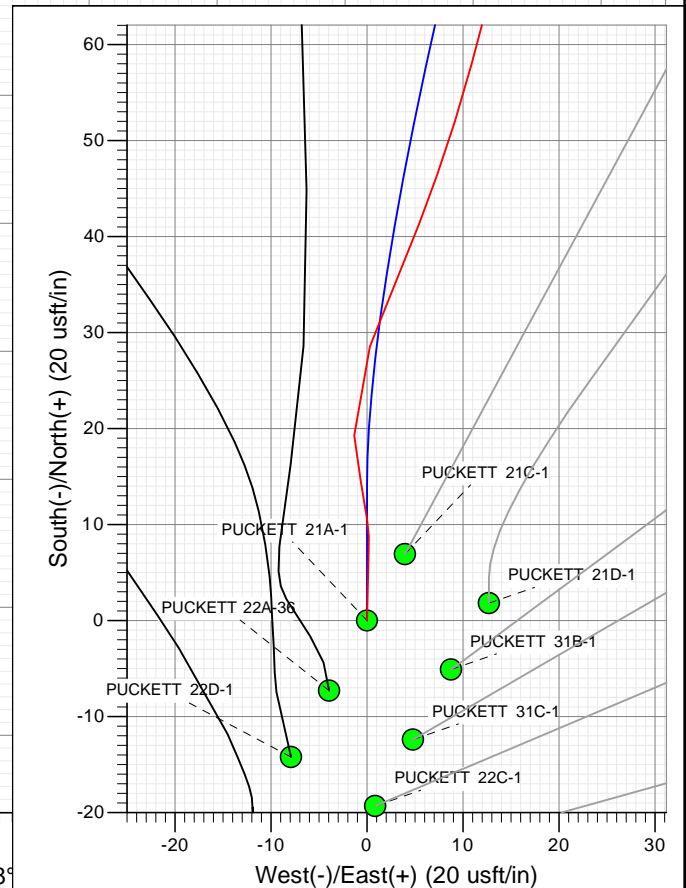
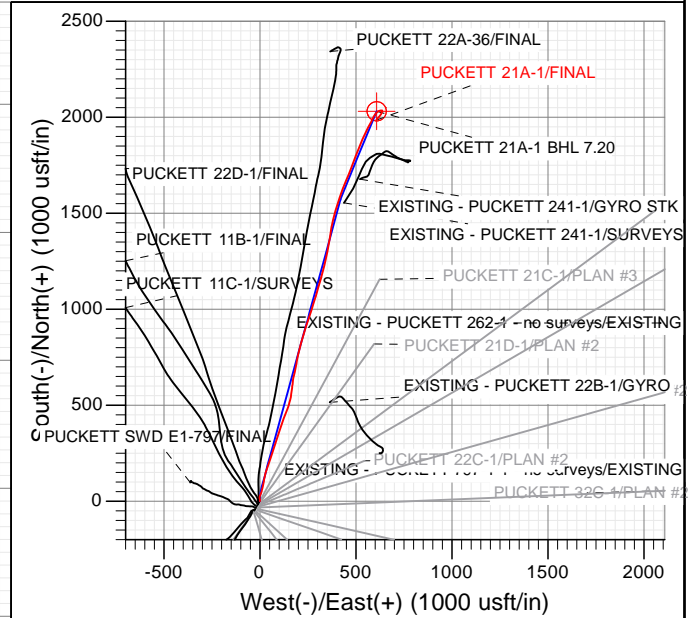
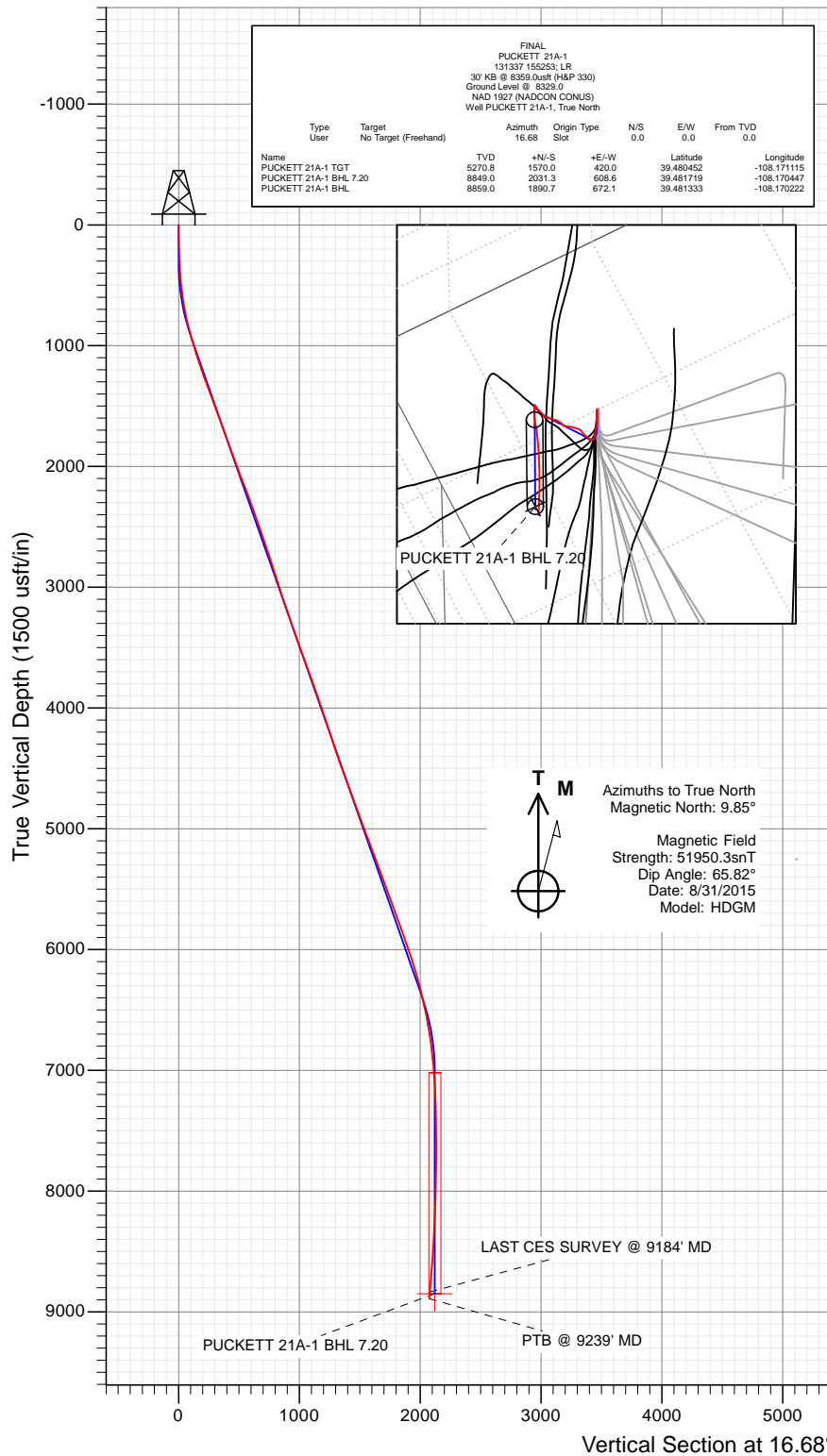




Project: Garfield County, CO
Site: S1-T7S-R97W (Mesa E1 797)
Well: PUCKETT 21A-1
Wellbore: OH
Design: FINAL



WELL DETAILS: PUCKETT 21A-1

Ground Level: 8329.0
+N/-S 0.0 +E/-W 0.0 Northing 609398.27 Easting 1245666.64 Latitude 39.476142 Longitude -108.172603



Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21A-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 21A-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	Garfield County, CO		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site		S1-T7S-R97W (Mesa E1 797)			
Site Position:		Northing:	609,370.34 usft	Latitude:	39.476064
From:	Lat/Long	Easting:	1,245,650.28 usft	Longitude:	-108.172658
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.69 °

Well	PUCKETT 21A-1					
Well Position	+N/-S	0.0 usft	Northing:	609,398.27 usft	Latitude:	39.476142
	+E/-W	0.0 usft	Easting:	1,245,666.64 usft	Longitude:	-108.172603
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,329.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/31/2015	9.85	65.82	51,950

Design	FINAL				
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	16.68	

Survey Program	Date	9/2/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
286.0	9,239.0	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
286.0	2.90	1.30	285.9	7.2	0.2	7.0	1.01	1.01		
316.0	3.10	0.80	315.8	8.8	0.2	8.5	0.67	0.67		
346.0	3.30	349.00	345.8	10.5	0.0	10.0	2.29	0.67		
468.0	5.10	352.60	467.5	19.3	-1.3	18.1	1.49	1.48		
559.0	7.20	22.30	558.0	28.6	0.3	27.5	4.12	2.31		
654.0	9.50	21.50	651.9	41.4	5.4	41.2	2.42	2.42		
748.0	12.00	15.60	744.3	58.0	10.9	58.7	2.90	2.66		
843.0	14.10	10.50	836.8	78.9	15.7	80.1	2.52	2.21		
938.0	15.50	10.70	928.7	102.8	20.2	104.2	1.47	1.47		
1,032.0	17.00	12.30	1,018.9	128.5	25.4	130.4	1.67	1.60		
1,127.0	18.40	15.60	1,109.4	156.5	32.4	159.3	1.81	1.47		
1,221.0	19.10	19.00	1,198.4	185.4	41.4	189.5	1.38	0.74		

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21A-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 21A-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
1,316.0	20.00	20.40	1,288.0	215.3	52.1	221.2	1.07	0.95	
1,411.0	21.00	20.70	1,376.9	246.4	63.8	254.4	1.06	1.05	
1,505.0	20.50	17.80	1,464.8	277.9	74.8	287.7	1.22	-0.53	
1,600.0	19.80	15.80	1,554.0	309.2	84.3	320.4	1.03	-0.74	
1,694.0	20.10	16.60	1,642.4	340.0	93.2	352.4	0.43	0.32	
1,789.0	20.60	18.80	1,731.5	371.5	103.3	385.5	0.96	0.53	
1,884.0	19.20	19.50	1,820.8	402.0	113.9	417.8	1.49	-1.47	
1,978.0	20.00	21.20	1,909.3	431.6	124.8	449.2	1.05	0.85	
2,073.0	20.60	21.50	1,998.4	462.3	136.8	482.1	0.64	0.63	
2,167.0	21.10	18.80	2,086.3	493.7	148.3	515.5	1.15	0.53	
2,262.0	20.90	12.90	2,175.0	526.4	157.6	549.5	2.23	-0.21	
2,357.0	20.60	8.70	2,263.8	559.4	163.9	582.9	1.60	-0.32	
2,451.0	20.20	6.10	2,351.9	591.9	168.2	615.3	1.05	-0.43	
2,470.0	20.70	6.20	2,369.7	598.5	168.9	621.8	2.64	2.63	
2,502.0	20.30	5.60	2,399.7	609.6	170.0	632.8	1.41	-1.25	
2,596.0	19.50	12.20	2,488.1	641.2	174.9	664.4	2.54	-0.85	
2,691.0	18.60	11.40	2,577.9	671.6	181.3	695.3	0.99	-0.95	
2,785.0	18.90	11.60	2,666.9	701.2	187.3	725.4	0.33	0.32	
2,880.0	17.70	9.90	2,757.1	730.5	192.9	755.1	1.38	-1.26	
2,975.0	18.50	14.20	2,847.4	759.3	199.1	784.5	1.64	0.84	
3,069.0	17.40	12.70	2,936.8	787.5	205.8	813.4	1.27	-1.17	
3,164.0	17.00	13.20	3,027.6	814.9	212.1	841.5	0.45	-0.42	
3,258.0	19.50	17.30	3,116.9	843.2	219.9	870.9	2.99	2.66	
3,353.0	18.70	17.40	3,206.6	872.9	229.2	901.9	0.84	-0.84	
3,448.0	17.90	17.30	3,296.8	901.4	238.1	931.8	0.84	-0.84	
3,542.0	19.40	18.40	3,385.9	930.0	247.3	961.8	1.64	1.60	
3,637.0	21.70	17.90	3,474.8	961.7	257.7	995.2	2.43	2.42	
3,731.0	20.30	17.80	3,562.6	993.7	268.0	1,028.8	1.49	-1.49	
3,826.0	19.20	17.50	3,652.0	1,024.3	277.7	1,060.9	1.16	-1.16	
3,920.0	18.40	17.20	3,741.0	1,053.2	286.8	1,091.2	0.86	-0.85	
4,015.0	19.70	15.50	3,830.8	1,083.0	295.5	1,122.2	1.49	1.37	
4,109.0	19.90	16.30	3,919.2	1,113.6	304.2	1,154.1	0.36	0.21	
4,204.0	18.70	15.80	4,008.9	1,143.8	312.9	1,185.5	1.28	-1.26	
4,299.0	19.00	15.70	4,098.8	1,173.3	321.2	1,216.2	0.32	0.32	
4,393.0	18.50	15.20	4,187.8	1,202.4	329.3	1,246.4	0.56	-0.53	
4,487.0	17.20	15.00	4,277.3	1,230.3	336.8	1,275.2	1.38	-1.38	
4,582.0	18.40	11.30	4,367.7	1,258.5	343.4	1,304.1	1.74	1.26	
4,676.0	20.80	10.90	4,456.3	1,289.5	349.4	1,335.5	2.56	2.55	
4,771.0	20.20	10.40	4,545.3	1,322.2	355.6	1,368.6	0.66	-0.63	
4,865.0	20.50	10.10	4,633.4	1,354.3	361.4	1,401.1	0.34	0.32	
4,960.0	19.70	8.30	4,722.6	1,386.6	366.6	1,433.4	1.06	-0.84	
5,055.0	20.00	9.80	4,812.0	1,418.4	371.7	1,465.4	0.62	0.32	
5,149.0	21.60	13.30	4,899.8	1,451.1	378.4	1,498.7	2.15	1.70	
5,244.0	19.60	12.30	4,988.7	1,483.7	385.8	1,532.0	2.14	-2.11	
5,338.0	21.50	16.90	5,076.8	1,515.6	394.2	1,565.0	2.65	2.02	
5,433.0	21.10	18.30	5,165.3	1,548.5	404.6	1,599.5	0.68	-0.42	
5,527.0	20.00	18.60	5,253.3	1,579.8	415.1	1,632.4	1.18	-1.17	
5,622.0	18.80	18.70	5,342.9	1,609.7	425.2	1,664.0	1.26	-1.26	
5,716.0	20.70	22.70	5,431.4	1,639.3	436.4	1,695.6	2.48	2.02	
5,811.0	20.70	23.80	5,520.2	1,670.2	449.7	1,729.0	0.41	0.00	
5,906.0	20.80	22.10	5,609.1	1,701.2	462.8	1,762.4	0.64	0.11	
6,000.0	20.00	21.10	5,697.2	1,731.6	474.9	1,795.1	0.93	-0.85	
6,095.0	19.40	20.10	5,786.6	1,761.6	486.2	1,827.0	0.72	-0.63	

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21A-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 21A-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
6,189.0	19.80	19.80	5,875.2	1,791.3	496.9	1,858.5	0.44	0.43	
6,284.0	19.10	20.60	5,964.8	1,820.9	507.8	1,890.1	0.79	-0.74	
6,378.0	19.00	22.30	6,053.6	1,849.5	519.0	1,920.7	0.60	-0.11	
6,473.0	16.60	22.60	6,144.1	1,876.3	530.1	1,949.6	2.53	-2.53	
6,568.0	15.80	24.40	6,235.3	1,900.6	540.7	1,975.9	0.99	-0.84	
6,662.0	14.50	28.10	6,326.0	1,922.7	551.5	2,000.1	1.72	-1.38	
6,757.0	12.80	28.10	6,418.3	1,942.5	562.1	2,022.1	1.79	-1.79	
6,851.0	12.20	28.20	6,510.1	1,960.4	571.7	2,042.0	0.64	-0.64	
6,946.0	11.30	25.20	6,603.1	1,977.7	580.4	2,061.0	1.14	-0.95	
7,040.0	8.70	25.00	6,695.7	1,992.4	587.3	2,077.2	2.77	-2.77	
7,135.0	7.00	29.00	6,789.8	2,004.0	593.2	2,089.9	1.88	-1.79	
7,230.0	6.20	39.20	6,884.2	2,013.1	599.2	2,100.3	1.49	-0.84	
7,324.0	5.20	34.70	6,977.7	2,020.5	604.8	2,109.1	1.16	-1.06	
7,419.0	5.40	48.50	7,072.3	2,027.0	610.6	2,117.0	1.35	0.21	
7,513.0	3.60	68.40	7,166.0	2,031.0	616.7	2,122.6	2.51	-1.91	
7,608.0	3.00	65.80	7,260.8	2,033.1	621.7	2,126.0	0.65	-0.63	
7,702.0	2.10	71.10	7,354.7	2,034.7	625.6	2,128.7	0.99	-0.96	
7,797.0	1.80	80.30	7,449.7	2,035.5	628.7	2,130.3	0.46	-0.32	
7,891.0	1.90	93.40	7,543.6	2,035.7	631.7	2,131.3	0.46	0.11	
7,986.0	1.50	73.00	7,638.6	2,035.9	634.5	2,132.4	0.76	-0.42	
8,081.0	1.10	119.60	7,733.6	2,035.9	636.5	2,132.9	1.15	-0.42	
8,175.0	0.60	137.80	7,827.6	2,035.0	637.6	2,132.4	0.60	-0.53	
8,270.0	1.50	182.70	7,922.6	2,033.4	637.9	2,131.0	1.22	0.95	
8,364.0	2.30	189.50	8,016.5	2,030.3	637.5	2,127.9	0.88	0.85	
8,459.0	2.00	218.50	8,111.4	2,027.2	636.2	2,124.5	1.17	-0.32	
8,553.0	2.50	193.90	8,205.4	2,023.9	634.6	2,120.9	1.14	0.53	
8,648.0	3.30	208.60	8,300.2	2,019.5	632.8	2,116.1	1.14	0.84	
8,742.0	2.90	211.50	8,394.1	2,015.1	630.3	2,111.2	0.46	-0.43	
8,837.0	4.40	216.00	8,488.9	2,010.1	626.9	2,105.4	1.61	1.58	
8,931.0	4.60	225.10	8,582.6	2,004.5	622.1	2,098.7	0.79	0.21	
9,026.0	4.60	214.90	8,677.3	1,998.7	617.2	2,091.8	0.86	0.00	
9,120.0	4.50	216.60	8,771.0	1,992.6	612.9	2,084.7	0.18	-0.11	
9,184.0	5.00	224.00	8,834.8	1,988.6	609.4	2,079.9	1.23	0.78	LAST CES SURVEY @ 9184' MD
9,239.0	5.00	224.00	8,889.6	1,985.2	606.1	2,075.6	0.00	0.00	PTB @ 9239' MD

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21A-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 21A-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users 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
PUCKETT 21A-1 TGT - actual wellpath misses target center by 15.3usft at 5541.0usft MD (5266.4 TVD, 1584.3 N, 416.6 E) - Point	0.00	0.00	5,270.8	1,570.0	420.0	610,955.24	1,246,132.64	39.480452	-108.171115
PUCKETT 21A-1 BHL 7. - actual wellpath misses target center by 45.0usft at 9184.0usft MD (8834.8 TVD, 1988.6 N, 609.4 E) - Circle (radius 50.0)	0.00	0.00	8,849.0	2,031.3	608.6	611,410.83	1,246,334.69	39.481719	-108.170447
PUCKETT 21A-1 BHL - actual wellpath misses target center by 118.7usft at 9184.0usft MD (8834.8 TVD, 1988.6 N, 609.4 E) - Circle (radius 50.0)	0.00	0.00	8,859.0	1,890.7	672.1	611,268.43	1,246,394.04	39.481333	-108.170222

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,184.0	8,834.8	1,988.6	609.4	LAST CES SURVEY @ 9184' MD	
9,239.0	8,889.6	1,985.2	606.1	PTB @ 9239' MD	

Checked By: _____	Approved By: _____	Date: _____
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