

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	Eric Kolstad
Address	1515 Arapahoe St., Suite 1000 Denver, CO 80202

1.2 Well Information

Well	RGU 413-35-198	Wellbore No.	
Well Name	FEDERAL RGU 413-35-198	Common Name	RGU 413-35-198
Project	RG 35-01S-098W	Site	RGU 23-35-198 Pad
Vertical Section	245.79 (°)	North Reference	
Azimuth		Origin E/W	
Origin N/S		UWI	RGU 413-35-198
Spud Date	8/24/2011		
Active Datum	KB @6,799.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	Cathedral
Date Started	8/24/2011	Ended	
Tool Name	MWD	Engineer	Bill Odell

2.1.1 Tie On Point

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)
0.0	0.00	0.00	0.00	0.00	0.00

2.1.2 Survey Stations

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
8/24/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/24/2011	NORMAL	126.0	1.60	242.60	125.98	-0.81	-1.56	1.76	1.27	1.27	0.00	242.60
	NORMAL	218.0	2.80	246.10	217.91	-2.31	-4.76	5.29	1.31	1.30	3.80	8.14
	NORMAL	310.0	4.30	241.40	309.74	-4.87	-9.84	10.97	1.66	1.63	-5.11	346.67
	NORMAL	402.0	6.40	241.60	401.33	-8.96	-17.38	19.53	2.28	2.28	0.22	0.61
	NORMAL	495.0	8.70	246.10	493.52	-14.28	-28.37	31.73	2.55	2.47	4.84	16.66
	NORMAL	587.0	10.50	242.80	584.23	-20.93	-42.19	47.06	2.05	1.96	-3.59	341.37
	NORMAL	679.0	11.80	244.10	674.49	-28.87	-58.11	64.84	1.44	1.41	1.41	11.58
	NORMAL	772.0	12.40	243.60	765.42	-37.46	-75.61	84.32	0.65	0.65	-0.54	349.85
	NORMAL	864.0	13.50	244.80	855.08	-46.43	-94.17	104.93	1.23	1.20	1.30	14.32
	NORMAL	958.0	14.30	244.90	946.33	-56.03	-114.61	127.51	0.85	0.85	0.11	1.77
	NORMAL	1,051.0	15.00	244.70	1,036.30	-66.04	-135.89	151.02	0.75	0.75	-0.22	355.77
	NORMAL	1,145.0	14.30	247.20	1,127.25	-75.74	-157.59	174.79	1.00	-0.74	2.66	139.11
	NORMAL	1,239.0	14.90	245.50	1,218.21	-85.25	-179.29	198.48	0.78	0.64	-1.81	323.64
	NORMAL	1,333.0	12.70	244.90	1,309.49	-94.64	-199.65	220.90	2.35	-2.34	-0.64	183.43
	NORMAL	1,428.0	13.00	240.60	1,402.12	-104.32	-218.42	241.98	1.05	0.32	-4.53	285.31
	NORMAL	1,523.0	12.30	240.10	1,494.81	-114.61	-236.50	262.70	0.75	-0.74	-0.53	188.65
	NORMAL	1,617.0	12.60	240.20	1,586.60	-124.70	-254.07	282.86	0.32	0.32	0.11	4.16
	NORMAL	1,742.0	13.00	246.40	1,708.50	-137.10	-278.79	310.49	1.14	0.32	4.96	76.80
	NORMAL	1,837.0	12.70	248.00	1,801.12	-145.29	-298.26	331.61	0.49	-0.32	1.68	130.91

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (%/100ft)	Build Rate (%/100ft)	Turn (%/100ft)	TFace (°)
8/24/2011	NORMAL	1,931.0	13.30	248.00	1,892.71	-153.21	-317.87	352.74	0.64	0.64	0.00	0.00
	NORMAL	2,025.0	13.30	248.10	1,984.19	-161.30	-337.93	374.35	0.02	0.00	0.11	90.05
	NORMAL	2,119.0	13.30	245.90	2,075.67	-169.74	-357.83	395.97	0.54	0.00	-2.34	268.93
	NORMAL	2,213.0	15.00	253.00	2,166.82	-177.72	-379.33	418.85	2.58	1.81	7.55	49.08
	NORMAL	2,308.0	14.90	254.00	2,258.60	-184.68	-402.83	443.13	0.29	-0.11	1.05	111.67
	NORMAL	2,403.0	15.00	253.40	2,350.39	-191.56	-426.35	467.41	0.19	0.11	-0.63	302.57
	NORMAL	2,497.0	14.90	245.00	2,441.22	-200.14	-448.97	491.55	2.31	-0.11	-8.94	263.30
	NORMAL	2,592.0	14.90	245.20	2,533.02	-210.42	-471.12	515.98	0.05	0.00	0.21	90.10
	NORMAL	2,687.0	15.00	245.00	2,624.81	-220.74	-493.35	540.48	0.12	0.11	-0.21	332.61
	NORMAL	2,780.0	14.70	245.40	2,714.70	-230.74	-514.99	564.32	0.34	-0.32	0.43	161.33
	NORMAL	2,874.0	14.90	245.90	2,805.58	-240.64	-536.87	588.33	0.25	0.21	0.53	32.80
	NORMAL	2,969.0	14.50	245.60	2,897.47	-250.54	-558.85	612.44	0.43	-0.42	-0.32	190.63
	NORMAL	3,063.0	13.60	243.60	2,988.66	-260.32	-579.46	635.25	1.09	-0.96	-2.13	207.38
	NORMAL	3,158.0	14.20	243.60	3,080.88	-270.46	-599.90	658.05	0.63	0.63	0.00	0.00
	NORMAL	3,250.0	14.30	244.10	3,170.05	-280.44	-620.23	680.69	0.17	0.11	0.54	51.15
8/25/2011	NORMAL	3,345.0	13.80	243.20	3,262.20	-290.68	-640.90	703.73	0.57	-0.53	-0.95	203.17
	NORMAL	3,439.0	14.20	245.70	3,353.41	-300.48	-661.41	726.46	0.77	0.43	2.66	57.74
	NORMAL	3,534.0	14.40	249.90	3,445.47	-309.33	-683.13	749.90	1.11	0.21	4.42	81.13
	NORMAL	3,627.0	14.30	249.10	3,535.57	-317.40	-704.72	772.90	0.24	-0.11	-0.86	242.85
	NORMAL	3,721.0	13.80	248.00	3,626.76	-325.74	-725.96	795.69	0.60	-0.53	-1.17	207.57
	NORMAL	3,816.0	14.20	248.20	3,718.94	-334.32	-747.28	818.65	0.42	0.42	0.21	6.99
	NORMAL	3,845.0	13.60	246.60	3,747.09	-336.99	-753.71	825.62	2.46	-2.07	-5.52	211.87
8/27/2011	NORMAL	3,903.0	13.40	245.20	3,803.48	-342.52	-766.07	839.16	0.66	-0.34	-2.41	237.86
	NORMAL	3,997.0	12.30	243.30	3,895.13	-351.59	-784.91	860.05	1.25	-1.17	-2.02	200.09
	NORMAL	4,091.0	11.40	243.50	3,987.13	-360.23	-802.16	879.34	0.96	-0.96	0.21	177.49
	NORMAL	4,186.0	11.80	243.50	4,080.18	-368.75	-819.26	898.42	0.42	0.42	0.00	0.00
	NORMAL	4,281.0	12.00	243.80	4,173.14	-377.45	-836.81	918.00	0.22	0.21	0.32	17.33
	NORMAL	4,375.0	10.60	242.90	4,265.32	-385.70	-853.28	936.40	1.50	-1.49	-0.96	186.74
	NORMAL	4,469.0	12.30	250.00	4,357.45	-393.07	-870.39	955.02	2.35	1.81	7.55	43.18
	NORMAL	4,564.0	13.10	253.00	4,450.13	-399.67	-890.19	975.80	1.09	0.84	3.16	40.97
	NORMAL	4,658.0	13.10	248.50	4,541.68	-406.69	-910.29	997.01	1.08	0.00	-4.79	267.81
	NORMAL	4,752.0	13.40	247.20	4,633.18	-414.82	-930.24	1,018.54	0.45	0.32	-1.38	314.56
	NORMAL	4,847.0	13.50	246.00	4,725.57	-423.59	-950.52	1,040.63	0.31	0.11	-1.26	289.13
	NORMAL	4,941.0	11.70	242.80	4,817.31	-432.41	-969.02	1,061.12	2.05	-1.91	-3.40	199.64
	NORMAL	5,035.0	11.50	241.70	4,909.39	-441.21	-985.75	1,079.99	0.32	-0.21	-1.17	227.34
	NORMAL	5,129.0	11.30	242.50	5,001.53	-449.91	-1,002.17	1,098.53	0.27	-0.21	0.85	142.06
	NORMAL	5,224.0	10.60	244.70	5,094.80	-457.94	-1,018.33	1,116.56	0.86	-0.74	2.32	150.24
	NORMAL	5,318.0	10.90	246.80	5,187.15	-465.14	-1,034.31	1,134.09	0.52	0.32	2.23	53.59
	NORMAL	5,413.0	11.30	246.80	5,280.38	-472.34	-1,051.12	1,152.37	0.42	0.42	0.00	0.00
	NORMAL	5,506.0	10.80	246.40	5,371.65	-479.42	-1,067.48	1,170.20	0.54	-0.54	-0.43	188.52
	NORMAL	5,601.0	10.70	247.20	5,464.98	-486.40	-1,083.77	1,187.91	0.19	-0.11	0.84	124.22
8/28/2011	NORMAL	5,696.0	10.30	244.50	5,558.39	-493.47	-1,099.56	1,205.22	0.67	-0.42	-2.84	229.57
	NORMAL	5,790.0	9.60	243.40	5,650.98	-500.60	-1,114.16	1,221.45	0.77	-0.74	-1.17	194.65
	NORMAL	5,885.0	9.00	245.10	5,744.73	-507.28	-1,127.98	1,236.80	0.69	-0.63	1.79	156.24
	NORMAL	5,980.0	9.30	240.90	5,838.52	-514.14	-1,141.43	1,251.88	0.77	0.32	-4.42	292.11
	NORMAL	6,074.0	9.10	239.70	5,931.31	-521.58	-1,154.48	1,266.84	0.29	-0.21	-1.28	223.22
	NORMAL	6,169.0	8.50	243.60	6,025.20	-528.50	-1,167.26	1,281.32	0.89	-0.63	4.11	137.08
	NORMAL	6,263.0	7.70	247.90	6,118.26	-533.95	-1,179.31	1,294.56	1.07	-0.85	4.57	144.98
	NORMAL	6,358.0	6.50	252.50	6,212.53	-537.97	-1,190.34	1,306.26	1.40	-1.26	4.84	156.92
	NORMAL	6,452.0	6.50	247.20	6,305.93	-541.63	-1,200.32	1,316.86	0.64	0.00	-5.64	267.37
	NORMAL	6,544.0	6.10	245.60	6,397.37	-545.66	-1,209.57	1,326.95	0.47	-0.43	-1.74	202.90
	NORMAL	6,639.0	4.90	252.20	6,491.93	-548.99	-1,218.03	1,336.03	1.43	-1.26	6.95	155.46
	NORMAL	6,733.0	4.30	246.10	6,585.63	-551.65	-1,225.08	1,343.55	0.82	-0.64	-6.49	216.18
	NORMAL	6,828.0	3.50	254.10	6,680.41	-553.88	-1,231.12	1,349.98	1.02	-0.84	8.42	149.73
	NORMAL	6,923.0	2.00	235.40	6,775.30	-555.62	-1,235.27	1,354.48	1.82	-1.58	-19.68	201.77
	NORMAL	7,017.0	0.80	262.30	6,869.27	-556.64	-1,237.28	1,356.72	1.42	-1.28	28.62	164.29
	NORMAL	7,111.0	1.00	252.70	6,963.26	-556.97	-1,238.71	1,358.17	0.27	0.21	-10.21	318.12

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
8/28/2011	NORMAL	7,205.0	1.10	244.30	7,057.24	-557.60	-1,240.30	1,359.88	0.19	0.11	-8.94	298.76
	NORMAL	7,299.0	1.10	229.10	7,151.23	-558.59	-1,241.80	1,361.65	0.31	0.00	-16.17	262.40
8/29/2011	NORMAL	7,393.0	1.40	244.10	7,245.20	-559.68	-1,243.51	1,363.66	0.47	0.32	15.96	55.15
	NORMAL	7,488.0	1.80	239.90	7,340.17	-560.93	-1,245.85	1,366.30	0.44	0.42	-4.42	341.55
	NORMAL	7,582.0	1.20	252.40	7,434.13	-561.97	-1,248.07	1,368.75	0.72	-0.64	13.30	157.55
	NORMAL	7,676.0	1.40	241.80	7,528.11	-562.81	-1,250.02	1,370.87	0.33	0.21	-11.28	304.37
	NORMAL	7,770.0	1.60	241.20	7,622.08	-563.99	-1,252.18	1,373.33	0.21	0.21	-0.64	355.21
	NORMAL	7,864.0	1.40	239.90	7,716.04	-565.20	-1,254.32	1,375.78	0.22	-0.21	-1.38	189.01
	NORMAL	7,958.0	1.40	238.50	7,810.02	-566.37	-1,256.29	1,378.06	0.04	0.00	-1.49	269.30
	NORMAL	8,052.0	1.80	228.40	7,903.98	-567.95	-1,258.38	1,380.61	0.52	0.43	-10.74	319.70
	NORMAL	8,146.0	1.90	234.90	7,997.93	-569.83	-1,260.76	1,383.55	0.25	0.11	6.91	67.79
	NORMAL	8,240.0	1.60	250.90	8,091.89	-571.15	-1,263.27	1,386.38	0.61	-0.32	17.02	129.38
	NORMAL	8,333.0	0.70	268.30	8,184.87	-571.59	-1,265.07	1,388.20	1.03	-0.97	18.71	167.34
	NORMAL	8,427.0	1.20	244.40	8,278.86	-572.04	-1,266.53	1,389.72	0.67	0.53	-25.43	309.24
8/30/2011	NORMAL	8,520.0	1.10	267.80	8,371.84	-572.49	-1,268.30	1,391.52	0.51	-0.11	25.16	113.56
	NORMAL	8,612.0	0.50	337.00	8,463.83	-572.16	-1,269.34	1,392.33	1.12	-0.65	75.22	153.13
	NORMAL	8,706.0	1.00	356.60	8,557.82	-570.96	-1,269.55	1,392.03	0.59	0.53	20.85	37.19
	NORMAL	8,800.0	1.10	3.00	8,651.81	-569.24	-1,269.55	1,391.32	0.16	0.11	6.81	52.78
	NORMAL	8,893.0	1.00	14.30	8,744.79	-567.56	-1,269.30	1,390.41	0.25	-0.11	12.15	121.35
	NORMAL	8,986.0	2.00	41.80	8,837.76	-565.57	-1,268.02	1,388.42	1.30	1.08	29.57	50.03
	NORMAL	9,079.0	1.90	66.90	8,930.71	-563.75	-1,265.52	1,385.40	0.92	-0.11	26.99	109.11
	NORMAL	9,173.0	1.30	77.10	9,024.67	-562.90	-1,263.04	1,382.79	0.70	-0.64	10.85	159.65
	NORMAL	9,267.0	1.00	38.90	9,118.65	-562.03	-1,261.49	1,381.02	0.86	-0.32	-40.64	230.26
	NORMAL	9,361.0	2.00	41.10	9,212.62	-560.15	-1,259.90	1,378.80	1.07	1.06	2.34	4.40
	NORMAL	9,454.0	1.20	35.10	9,305.58	-558.13	-1,258.27	1,376.48	0.88	-0.86	-6.45	188.84
8/31/2011	NORMAL	9,548.0	1.90	48.70	9,399.55	-556.30	-1,256.53	1,374.15	0.84	0.74	14.47	34.63
	NORMAL	9,642.0	1.00	36.00	9,493.52	-554.61	-1,254.88	1,371.95	1.01	-0.96	-13.51	193.38
	NORMAL	9,736.0	1.50	76.20	9,587.49	-553.65	-1,253.20	1,370.02	1.04	0.53	42.77	81.44
	NORMAL	9,830.0	1.80	96.20	9,681.46	-553.51	-1,250.54	1,367.54	0.69	0.32	21.28	72.72
	NORMAL	9,924.0	1.10	129.80	9,775.43	-554.25	-1,248.38	1,365.87	1.14	-0.74	35.74	145.44
	NORMAL	10,018.0	1.20	181.90	9,869.41	-555.81	-1,247.72	1,365.91	1.08	0.11	55.43	110.96
9/1/2011	NORMAL	10,111.0	1.50	192.00	9,962.38	-557.98	-1,248.00	1,367.06	0.41	0.32	10.86	43.54
	NORMAL	10,206.0	1.80	212.80	10,057.35	-560.45	-1,249.07	1,369.04	0.70	0.32	21.89	74.04
	NORMAL	10,299.0	0.80	182.80	10,150.32	-562.32	-1,249.89	1,370.56	1.27	-1.08	-32.26	199.86
	NORMAL	10,393.0	1.90	204.30	10,244.29	-564.40	-1,250.57	1,372.03	1.27	1.17	22.87	35.73
	NORMAL	10,487.0	2.40	237.70	10,338.23	-566.87	-1,252.87	1,375.14	1.41	0.53	35.53	85.50
	NORMAL	10,581.0	2.60	270.10	10,432.15	-567.92	-1,256.67	1,379.04	1.50	0.21	34.47	98.34
	NORMAL	10,676.0	1.30	310.50	10,527.09	-567.22	-1,259.64	1,381.46	1.91	-1.37	42.53	152.37
	NORMAL	10,769.0	1.30	293.40	10,620.07	-566.11	-1,261.41	1,382.62	0.42	0.00	-18.39	261.45
	NORMAL	10,863.0	2.70	301.10	10,714.01	-564.54	-1,264.29	1,384.60	1.51	1.49	8.19	14.73
	NORMAL	10,957.0	2.30	313.00	10,807.92	-562.11	-1,267.56	1,386.59	0.69	-0.43	12.66	133.46
	NORMAL	11,051.0	2.00	350.00	10,901.86	-559.21	-1,269.23	1,386.92	1.48	-0.32	39.36	120.27
9/2/2011	NORMAL	11,145.0	1.40	20.00	10,995.82	-556.52	-1,269.12	1,385.72	1.12	-0.64	31.91	138.37
	NORMAL	11,239.0	1.10	18.20	11,089.80	-554.58	-1,268.45	1,384.31	0.32	-0.32	-1.91	186.56
	NORMAL	11,333.0	1.50	32.90	11,183.77	-552.69	-1,267.50	1,382.67	0.55	0.43	15.64	47.32
	NORMAL	11,427.0	2.80	56.20	11,277.71	-550.38	-1,264.92	1,379.37	1.64	1.38	24.79	45.93
	NORMAL	11,520.0	2.10	62.60	11,370.62	-548.33	-1,261.52	1,375.43	0.81	-0.75	6.88	161.83
	NORMAL	11,614.0	1.50	93.00	11,464.58	-547.61	-1,258.76	1,372.61	1.18	-0.64	32.34	136.72
	NORMAL	11,707.0	1.30	145.50	11,557.55	-548.54	-1,256.95	1,371.34	1.35	-0.22	56.45	124.49
	NORMAL	11,801.0	0.90	165.30	11,651.54	-550.13	-1,256.16	1,371.27	0.58	-0.43	21.06	146.07
	NORMAL	11,894.0	1.30	203.40	11,744.52	-551.81	-1,256.39	1,372.17	0.87	0.43	40.97	81.28
	NORMAL	11,988.0	1.40	202.20	11,838.49	-553.85	-1,257.25	1,373.79	0.11	0.11	-1.28	343.61
9/3/2011	NORMAL	12,082.0	2.00	222.40	11,932.45	-556.12	-1,258.79	1,376.13	0.89	0.64	21.49	55.36
	NORMAL	12,158.0	2.80	225.70	12,008.38	-558.40	-1,261.01	1,379.09	1.07	1.05	4.34	11.45
	NORMAL	12,208.0	2.80	225.70	12,058.33	-560.10	-1,262.76	1,381.39	0.00	0.00	0.00	0.00