

# Surface Hole Cement Plug Back + Kick Off Procedure

**Well: FRU 297-33A5**

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JUN 29 2009

**COGCC**

**Field: Piceance Creek**

**Rig: H&P 321**

## Submitted By:

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**Office:** (281) 654-1143 **Home:** N/A **Cell:** (713) 249-1737

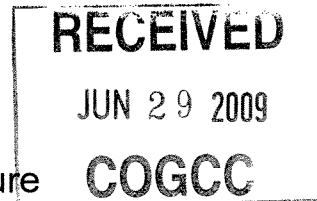
**Drilling Engineer:** D. C. Morales **Date:** \_\_\_\_\_  
**Office:** (281) 654-4679 **Home:** N/A **Cell:** (832) 443-0173

## Approved By:

**Supervising Engineer:** S. Morin **Date:** \_\_\_\_\_  
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FRU 297-33A5  
Cement Plug Back + Kick Off Procedure



**CURRENT WELL STATUS**

- While drilling ahead at 1470' MD, a washout in the standpipe was recognized and drilling was stopped to make the repair. When the pumps were turned back on to resume drilling, pressure spiked and the BHA was packed off. Attempts to jar and overpull have been unsuccessful.
- Free point was found at 1010' MD and backed off there leaving the entire BHA minus 3 joints of HWDP. Bit and BHA are 50' off bottom @ 1420' MD.
- Cleanout run to 1000' MD successful. Tight spot observed at 470' MD.
- The wellbore is currently filled with 8.9 ppg WBM and has an inclination of 15.32° at 1470' MD.

**FORWARD PLAN**

- R/U fishing assembly and attempt to fish BHA. If fish successful, proceed with drilling ahead.
- If fish not retrieved, R/U diverter tool and cementers and prepare to set cement plugs.
- A 500ft 17 ppg bottom cement plug will be pumped from 1000ft – 500ft MD.
- Pick up 3-4 stands and circulate bottoms up.
- As per BLM, WOC until first plug sample reaches 500 psi compressive strength as per FBT before attempting to tag and set 2<sup>nd</sup> plug. NOTE: if first plug fails due to lost returns, a 15.8 ppg bottom plug will be set as a contingency before proceeding with kickoff plug.
- A 400ft 17 ppg kick off cement plug will be pumped from 500ft – 100ft MD.
- WOC until 2<sup>nd</sup> plug samples have reached 2,500 psi based on UCA data or a minimum of 12 hours, whichever is longer prior to starting sidetracking operations.
- RIH with kickoff BHA and drill sidetrack #1 to TD at 5027ft MD.

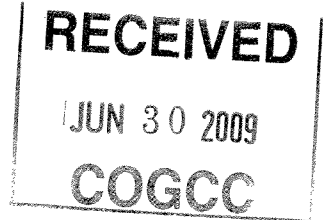
**Cleanout BHA**

- DP to surface
- (8) jts. HWDP
- Jars
- Transition Sub
- DC
- String Stab
- DC
- 14.75" Roller Cone Bit

**Set 17 ppg cement plug from 1000 ft to 500 ft MD**

1. P/U and RIH with 5" DP and diverter tool.
2. Position end of pipe at +/-1000ft MD. Circulate and condition mud.
3. RU Halliburton and test lines to 200 / 2000 psi.
4. Set a 500ft Balanced Plug from 1000 ft – 500 ft MD as follows:
  - a. Pump **71** bbls of tuned spacer.
  - b. Pump **25** bbls of tuned spacer with **2 lb/bbl** polyflake indicator.
  - c. Mix and pump **211** bbls (based on 100% excess) of 17 ppg cement slurry at 4-5 bpm.
    1. If polyflake indicator is seen at surface, stop cementing operations and displace with **3** bbls of tuned spacer.
  - d. Displace cement with **6** bbl of tuned spacer at 4-5 bpm (Rig Supervisor to verify displacement calculations).  
*Note: Displacement volume includes 3 bbls under displacement*
5. Slowly pull out of cement plug at about 4 min per stand. Continue pulling out to 150 ft MD. (approximately 4 stands above TOC)
6. Circulate a full circulation at 300 gpm to ensure work string is clear of any cement slurry. Slow rotation or reciprocation, ~60rpm, is acceptable to help clean the drill pipe. Reduce circulating rate if losses occur. Do not fill backside if fluid level drops to prevent complete loss of cement plug.

7. WOC to reach 500 psi based on test sample retrieved from cement at location. RIH and tag TOC with 5" DP.
8. If cement is not tagged or it is suspected that the plug failed, proceed with setting a contingency 15.8 ppg plug. The 2<sup>nd</sup> plug's height may need to be adjusted based on the tagged height of the bottom plug.



**Set 17 ppg cement plug from 500 ft to 100 ft MD**

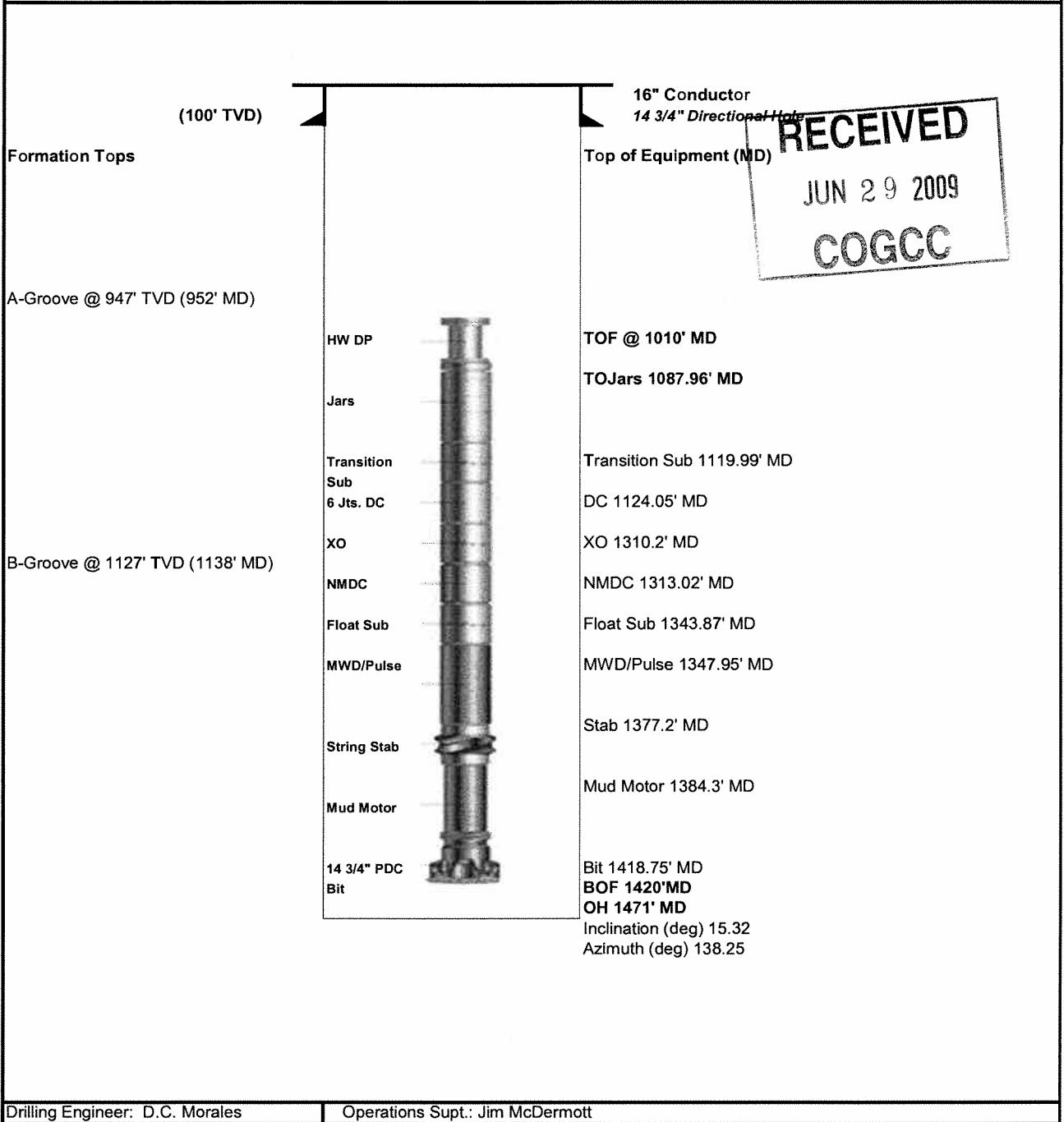
9. RU Halliburton and test lines to 200 / 2000 psi.
10. Set a 400ft Balanced Plug from 500ft – 100ft MD as follows:
  - a. Pump **50** bbls of tuned spacer.
  - b. Pump **25** bbls of tuned spacer with **2 lb/bbl** polyflake indicator.
  - c. Mix and pump **169** bbls (based on 100% excess) of 17 ppg cement slurry at 4-5 bpm.
    1. If polyflake indicator is seen at surface, stop cementing operations and displace with **3** bbls of tuned spacer.
  - d. Displace cement with **3** bbl of tuned spacer. Note that cement will be almost at surface and there is no need to displace spacer with mud. (Rig Supervisor to verify displacement calculations).
- Note: Displacement volume includes 3 bbls under displacement*
11. Slowly pull out of cement plug at about 4 min per stand. Continue pulling out to 130' MD (one joint below the conductor shoe).
12. Circulate at a rate that will allow to manage returns ensure work string is clear of any cement slurry. Slow rotation, ~60rpm, is acceptable to help clean the drill pipe. Reduce circulating rate if losses occur. Do not fill backside if fluid level drops to prevent complete loss of cement plug.
13. POOH with 5" DP.
14. WOC until 17 ppg cement samples have reached 2,500 psi based on UCA data or a minimum of 12 hours, whichever is longer.
15. P/U kick off BHA. RIH with same. – Layout DP jts and PU new jts to replace those used to pump cement.

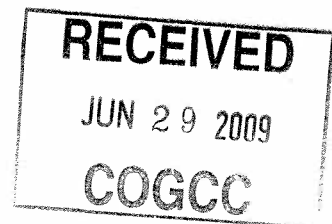
**Kick off and Sidetrack**

1. RIH with standard surface directional BHA (1.5 degree motor/MWD – attached on following pages) and begin washing down looking for firm cement between 250-350ft.
  - o If firm cement not found by 500ft, stop, POOH to 150ft and wait 2-4 hrs.
2. Proceed with washing down and dress off plug for kickoff between 350-400ft (kickoff designed @ 400ft)
  - o If firm bottom not found by 800ft, prepare to reset kickoff plug.
3. Kick off from 400ft following updated directional profile from Schlumberger attached below. NOTE: Contingency directional profile for kick off at 720' is available, if required.
4. To kick-off, work pipe at desired toolface to create a trough. Time drill at desired toolface at 1 ft / 5 min with WOB of 1-4 klbs.
5. Monitor shakers for signs of cuttings and cement contamination. Once constant cuttings come across the shakers, more WOB can be applied to finish kick-off operations.
6. Resume drilling program. Drill ahead to surface hole TD at ~ 5027ft MD.

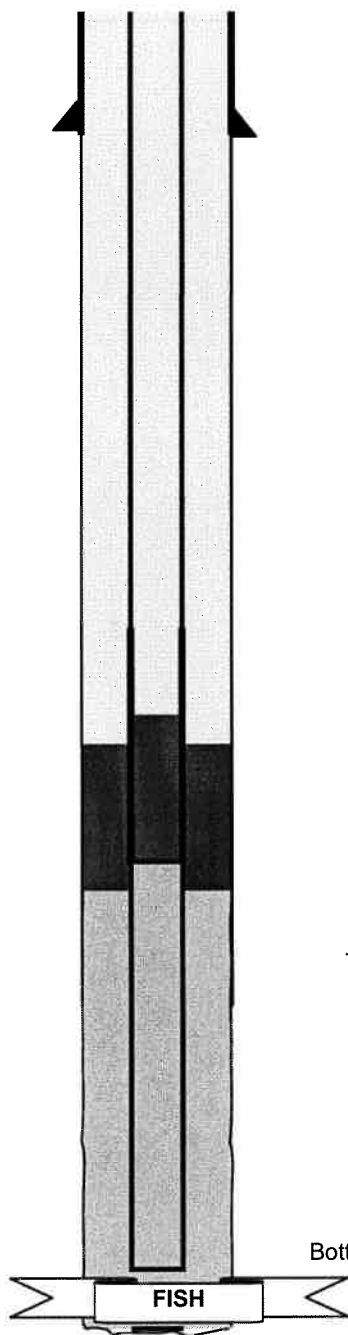
Rig: H&P 321 Field: Piceance Creek County: Rio Blanco AFE# DG.2008.37193	<b>ExxonMobil</b> <b>FRU 297-33A5</b> Proposed Wellbore Sketch	6/18/2009
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<b>14 3/4" Surface Hole</b>
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**FRU 297-33A5 17 ppg Cement Plug**



16" Shoe @ 100

TOC After Pull Out 500 ft

Bottom of 17 ppg Plug 1,000 ft

**Calculations**

**Assumed Diameters and Capacities**

Open Hole: 14.75" = 0.2113 bbl/ft

500 cmt plug length

From: 500 ft to: 1,000 ft

**Plug Volume w/ 100% excess (OH)**

Spacer Ahead =	96.0 bbls
(1000ft - 0500ft) x 0.2113 bbl/ft =	105.7 bbls
Excess (100%) =	105.7 bbls
Spacer Behind =	6.0 bbls

**Work String Tally**

5" DP	1,010. ft
Total	1,010. ft

**Volumes**

5" DP OD	5.000 in
5" DP ID	4.276 in
14-3/4" hole	14.750 in

**Capacities**

14-3/4" x 5" DP	0.1871 bbls/ft
5" DP Capacity	0.0178 bbls/ft

**Pump Schedule**

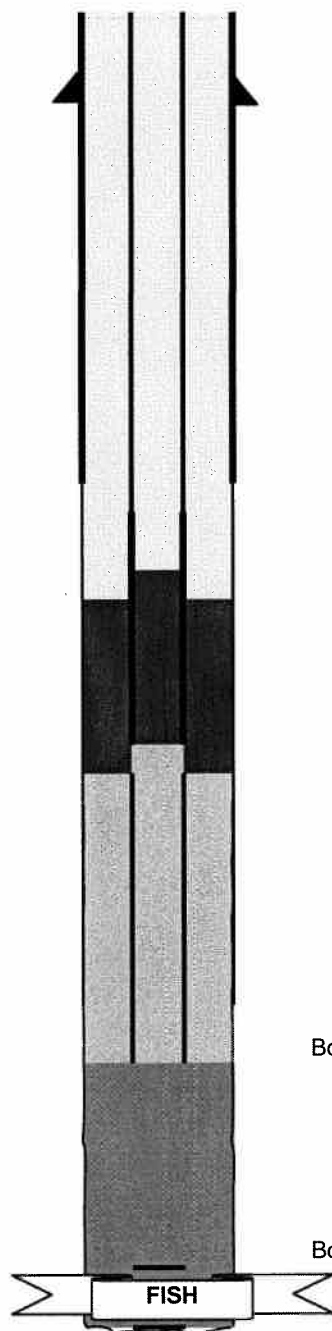
Fresh Water spacer	96.0 bbls
17ppg Cement	211.3 bbls
Tuned spacer	6.0 bbls

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# FRU 297-33A5 17 ppg Kickoff Cement Plug



16" Shoe @ 100 ft

TOC After Pull Out 100 ft

Bottom of 17 ppg Plug 500 ft

Bottom of 17 ppg Plug 1,000 ft

## **Calculations**

### **Assumed Diameters and Capacities**

Open Hole: 14.75" = 0.2113 bbl/ft

400 cmt plug length

From: 100 ft to: 500 ft

### **Plug Volume w/ 100% excess (OH)**

Spacer Ahead =	74.8 bbls
(0500ft - 100ft) x 0.2113 bbl/ft =	84.5 bbls
Excess (100%) =	84.5 bbls
Spacer Behind =	2.0 bbls

### **Work String Tally**

5" DP	500. ft
Total	500. ft

### **Volumes**

5" DP OD	5.000 in
5" DP ID	4.276 in
14-3/4" hole	14.750 in

### **Capacities**

14-3/4" x 5" DP	0.1871 bbls/ft
5" DP Capacity	0.0178 bbls/ft

### **Pump Schedule**

Fresh Water spacer	74.8 bbls
17ppg Cement	169.1 bbls
Tuned spacer	2.0 bbls

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LOGCC

Schlumberger

Kick off at 400'

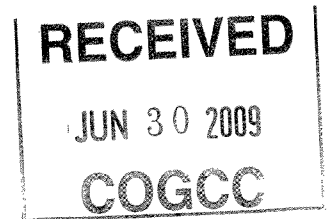
ExxonMobil

## FRU 297-33A5 ST01 R1 Geodetic Proposal

<b>Report Date:</b> June 18, 2009 <b>Client:</b> ExxonMobil <b>Field:</b> CO, Rio Blanco County (NAD 27 NZ) ExxonMobil 2008 <b>Structure / Slot:</b> ExxonMobil 33-2S-97W (FRU 297-33A Pad) / FRU 297-33A5 <b>Well:</b> FRU 297-33A5 <b>Borehole:</b> Sidetrack 01 <b>UWI/API#:</b> <b>Survey Name / Date:</b> FRU 297-33A5 ST01 R1 i/s 18-June-09 / June 18, 2009 <b>Tort / AHD / DDI / ERD ratio:</b> 34.282° / 1014.44 ft / 4.546 / 0.085 <b>Grid Coordinate System:</b> NAD27 Colorado State Planes, Northern Zone, US Feet <b>Location Lat/Long:</b> N 39 50 8.103, W 108 16 34.301 <b>Location Grid N/E Y/X:</b> N 195155.000 ftUS, E 1220471.000 ftUS <b>Grid Convergence Angle:</b> -1.79379222° <b>Grid Scale Factor:</b> 0.99998294	<b>Survey / DLS Computation Method:</b> Minimum Curvature / Lubinski <b>Vertical Section Azimuth:</b> 139.300° <b>Vertical Section Origin:</b> N 0.000 ft, E 0.000 ft <b>TVD Reference Datum:</b> RKB <b>TVD Reference Elevation:</b> 6342.0 ft relative to MSL <b>Sea Bed / Ground Level Elevation:</b> 6312.000 ft relative to MSL <b>Magnetic Declination:</b> 10.776° <b>Total Field Strength:</b> 52611.433 nT <b>Magnetic Dip:</b> 66.052° <b>Declination Date:</b> June 18, 2009 <b>Magnetic Declination Model:</b> BGGM 2008 <b>North Reference:</b> Grid North <b>Total Corr Mag North -&gt; Grid North:</b> +12.570° <b>Local Coordinates Referenced To:</b> Well Head
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Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Sub-Sea TVD (ft)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
Tie-In	0.00	0.00	0.00	-6342.00	0.00	0.00	0.00	0.00	0.00	195155.00	1220471.00	N 39 50 8.103	W 108 16 34.301
	138.00	0.81	336.04	-6204.00	138.00	-0.93	0.89	-0.40	0.59	195155.89	1220470.60	N 39 50 8.111	W 108 16 34.306
	168.00	0.73	349.20	-6174.01	167.99	-1.30	1.27	-0.52	0.65	195156.27	1220470.48	N 39 50 8.115	W 108 16 34.308
	200.00	0.59	21.46	-6142.01	199.99	-1.56	1.63	-0.50	1.22	195156.63	1220470.50	N 39 50 8.119	W 108 16 34.308
	228.00	0.59	64.09	-6114.01	227.99	-1.59	1.82	-0.31	1.53	195156.82	1220470.69	N 39 50 8.121	W 108 16 34.305
Tie-In to surveys	259.00	0.86	97.40	-6083.01	258.99	-1.37	1.86	0.06	1.58	195156.86	1220471.06	N 39 50 8.121	W 108 16 34.301
	288.00	1.34	110.52	-6054.02	287.98	-0.91	1.72	0.59	1.86	195156.72	1220471.59	N 39 50 8.120	W 108 16 34.294
	300.00	1.34	110.52	-6042.02	299.98	-0.67	1.62	0.86	0.00	195156.62	1220471.86	N 39 50 8.119	W 108 16 34.290
KOP, Build / Turn 2 deg/100ft	308.00	1.34	110.52	-6034.02	307.98	-0.50	1.55	1.03	0.00	195156.55	1220472.03	N 39 50 8.118	W 108 16 34.288
	400.00	2.87	143.19	-5942.09	399.91	2.74	-0.67	3.42	2.06	195154.33	1220474.42	N 39 50 8.097	W 108 16 34.256
	500.00	4.84	152.56	-5842.32	499.68	9.35	-6.42	6.87	2.06	195148.58	1220477.87	N 39 50 8.041	W 108 16 34.210
	600.00	6.85	156.48	-5742.84	599.16	19.16	-15.64	11.19	2.06	195139.36	1220482.19	N 39 50 7.952	W 108 16 34.151
	700.00	8.89	158.62	-5643.79	698.21	32.15	-28.31	16.39	2.06	195126.69	1220487.39	N 39 50 7.828	W 108 16 34.079
EOC, Hold 15.02	800.00	10.93	159.96	-5545.29	796.71	48.31	-44.41	22.46	2.06	195110.59	1220493.46	N 39 50 7.671	W 108 16 33.995
	803.35	11.00	160.00	-5542.00	800.00	48.91	-45.01	22.68	2.06	195109.99	1220493.68	N 39 50 7.665	W 108 16 33.992
	900.00	12.05	151.87	-5447.29	894.71	67.39	-62.58	30.59	2.00	195092.43	1220501.59	N 39 50 7.494	W 108 16 33.884
	1000.00	13.35	144.93	-5349.74	992.26	89.07	-81.24	42.14	2.00	195073.77	1220513.14	N 39 50 7.313	W 108 16 33.728
	1100.00	14.80	139.27	-5252.74	1089.26	113.33	-100.37	57.11	2.00	195054.64	1220528.11	N 39 50 7.129	W 108 16 33.529
	1114.68	15.02	138.53	-5238.55	1103.45	117.11	-103.21	59.60	2.00	195051.79	1220530.60	N 39 50 7.102	W 108 16 33.496
	1200.00	15.02	138.53	-5156.15	1185.85	139.23	-119.78	74.25	0.00	195035.22	1220545.24	N 39 50 6.943	W 108 16 33.301
	1300.00	15.02	138.53	-5059.56	1282.44	165.15	-139.21	91.41	0.00	195015.80	1220562.41	N 39 50 6.756	W 108 16 33.073
	1400.00	15.02	138.53	-4962.98	1379.02	191.07	-158.63	108.58	0.00	194996.37	1220579.58	N 39 50 6.569	W 108 16 32.846
	1500.00	15.02	138.53	-4866.40	1475.60	216.99	-178.05	125.75	0.00	194976.95	1220596.75	N 39 50 6.383	W 108 16 32.618
Wasatch A	1600.00	15.02	138.53	-4769.82	1572.18	242.91	-197.47	142.92	0.00	194957.53	1220613.92	N 39 50 6.196	W 108 16 32.390
	1700.00	15.02	138.53	-4673.24	1668.76	268.83	-216.90	160.09	0.00	194938.11	1220631.08	N 39 50 6.010	W 108 16 32.162
	1800.00	15.02	138.53	-4576.66	1765.34	294.75	-236.32	177.26	0.00	194918.69	1220648.25	N 39 50 5.823	W 108 16 31.935
	1900.00	15.02	138.53	-4480.07	1861.93	320.67	-255.74	194.42	0.00	194899.26	1220665.42	N 39 50 5.637	W 108 16 31.707
	2000.00	15.02	138.53	-4383.49	1958.51	346.59	-275.16	211.59	0.00	194879.84	1220682.59	N 39 50 5.450	W 108 16 31.479
	2100.00	15.02	138.53	-4286.91	2055.09	372.51	-294.59	228.76	0.00	194860.42	1220699.76	N 39 50 5.264	W 108 16 31.251
	2200.00	15.02	138.53	-4190.33	2151.67	398.43	-314.01	245.93	0.00	194841.00	1220716.93	N 39 50 5.077	W 108 16 31.024
	2300.00	15.02	138.53	-4093.75	2248.25	424.35	-333.43	263.10	0.00	194821.58	1220734.09	N 39 50 4.891	W 108 16 30.796
	2400.00	15.02	138.53	-3997.17	2344.83	450.27	-352.85	280.27	0.00	194802.15	1220751.26	N 39 50 4.704	W 108 16 30.568
	2500.00	15.02	138.53	-3900.59	2441.41	476.19	-372.28	297.44	0.00	194782.73	1220768.43	N 39 50 4.517	W 108 16 30.340
	2557.55	15.02	138.53	-3845.00	2497.00	491.11	-383.45	307.32	0.00	194771.55	1220778.31	N 39 50 4.410	W 108 16 30.209
	2600.00	15.02	138.53	-3804.00	2538.00	502.11	-391.70	314.60	0.00	194763.31	1220785.60	N 39 50 4.331	W 108 16 30.113
	2700.00	15.02	138.53	-3707.42	2634.58	528.03	-411.12	331.77	0.00	194743.89	1220802.77	N 39 50 4.144	W 108 16 29.885
	2800.00	15.02	138.53	-3610.84	2731.16	553.95	-430.54	348.94	0.00	194724.46	1220819.93	N 39 50 3.958	W 108 16 29.657
	2900.00	15.02	138.53	-3514.26	2827.74	579.87	-449.97	366.11	0.00	194705.04	1220837.10	N 39 50 3.771	W 108 16 29.429
	3000.00	15.02	138.53	-3417.68	2924.32	605.79	-469.39	383.28	0.00	194685.62	1220854.27	N 39 50 3.585	W 108 16 29.202
	3100.00	15.02	138.53	-3321.10	3020.90	631.72	-488.81	400.45	0.00	194666.20	1220871.44	N 39 50 3.398	W 108 16 28.974
	3200.00	15.02	138.53	-3224.51	3117.49	657.64	-508.23	417.61	0.00	194646.78	1220888.61	N 39 50 3.212	W 108 16 28.746

	2600.00	15.02	138.53	-3804.00	2538.00	502.11	-391.70	314.60	0.00	194763.31	1220785.60	N 39 50 4.331 W 108 16 30.113
	2700.00	15.02	138.53	-3707.42	2634.58	528.03	-411.12	331.77	0.00	194743.89	1220802.77	N 39 50 4.144 W 108 16 29.885
	2800.00	15.02	138.53	-3610.84	2731.16	553.95	-430.54	348.94	0.00	194724.46	1220819.93	N 39 50 3.958 W 108 16 29.657
	2900.00	15.02	138.53	-3514.26	2827.74	579.87	-449.97	366.11	0.00	194705.04	1220837.10	N 39 50 3.771 W 108 16 29.429
	3000.00	15.02	138.53	-3417.68	2924.32	605.79	-469.39	383.28	0.00	194685.62	1220854.27	N 39 50 3.585 W 108 16 29.202
	3100.00	15.02	138.53	-3321.10	3020.90	631.72	-488.81	400.45	0.00	194666.20	1220871.44	N 39 50 3.398 W 108 16 28.974
	3200.00	15.02	138.53	-3224.51	3117.49	657.64	-508.23	417.61	0.00	194646.78	1220888.61	N 39 50 3.212 W 108 16 28.746
	3300.00	15.02	138.53	-3127.93	3214.07	683.56	-527.66	434.78	0.00	194627.35	1220905.77	N 39 50 3.025 W 108 16 28.518
	3400.00	15.02	138.53	-3031.35	3310.65	709.48	-547.08	451.95	0.00	194607.93	1220922.94	N 39 50 2.839 W 108 16 28.291
Wasatch C	3489.41	15.02	138.53	-2945.00	3397.00	732.65	-564.44	467.30	0.00	194590.57	1220938.29	N 39 50 2.672 W 108 16 28.087
	3500.00	15.02	138.53	-2934.77	3407.23	735.40	-566.50	469.12	0.00	194588.51	1220940.11	N 39 50 2.652 W 108 16 28.063
	3600.00	15.02	138.53	-2838.19	3503.81	761.32	-585.92	486.29	0.00	194569.09	1220957.28	N 39 50 2.465 W 108 16 27.835
	3700.00	15.02	138.53	-2741.61	3600.39	787.24	-605.35	503.46	0.00	194549.66	1220974.45	N 39 50 2.279 W 108 16 27.607
	3800.00	15.02	138.53	-2645.02	3696.98	813.16	-624.77	520.62	0.00	194530.24	1220991.61	N 39 50 2.092 W 108 16 27.380
	3900.00	15.02	138.53	-2548.44	3793.56	839.08	-644.19	537.79	0.00	194510.82	1221008.78	N 39 50 1.906 W 108 16 27.152
	4000.00	15.02	138.53	-2451.86	3890.14	865.00	-663.62	554.96	0.00	194491.40	1221025.95	N 39 50 1.719 W 108 16 26.924
	4100.00	15.02	138.53	-2355.28	3986.72	890.92	-683.04	572.13	0.00	194471.98	1221043.12	N 39 50 1.533 W 108 16 26.696
KOP, Drop 2 deg/100ft	4170.04	15.02	138.53	-2287.63	4054.37	909.07	-696.64	584.15	0.00	194458.37	1221055.14	N 39 50 1.402 W 108 16 26.537
	4200.00	14.43	138.53	-2258.66	4083.34	916.69	-702.35	589.20	2.00	194452.67	1221060.19	N 39 50 1.347 W 108 16 26.470
	4300.00	12.43	138.53	-2161.40	4180.60	939.90	-719.74	604.57	2.00	194435.27	1221075.56	N 39 50 1.180 W 108 16 26.266
	4400.00	10.43	138.53	-2063.38	4278.62	959.71	-734.58	617.69	2.00	194420.43	1221088.68	N 39 50 1.038 W 108 16 26.092
	4500.00	8.43	138.53	-1964.74	4377.26	976.08	-746.85	628.54	2.00	194408.16	1221099.53	N 39 50 0.920 W 108 16 25.948
	4600.00	6.43	138.53	-1865.58	4476.42	989.00	-756.53	637.10	2.00	194398.48	1221108.08	N 39 50 0.827 W 108 16 25.835
	4700.00	4.43	138.53	-1766.03	4575.97	998.46	-763.62	643.36	2.00	194391.40	1221114.34	N 39 50 0.759 W 108 16 25.752
	4800.00	2.43	138.53	-1666.22	4675.78	1004.43	-768.09	647.31	2.00	194386.92	1221118.30	N 39 50 0.716 W 108 16 25.699
	4900.00	0.43	138.53	-1566.25	4775.75	1006.92	-769.96	648.96	2.00	194385.06	1221119.95	N 39 50 0.698 W 108 16 25.677
Vertical Point	4921.25	0.00	138.53	-1545.00	4797.00	1006.99	-770.01	649.01	2.00	194385.00	1221120.00	N 39 50 0.697 W 108 16 25.677
	5000.00	0.00	138.53	-1466.25	4875.75	1006.99	-770.01	649.01	0.00	194385.00	1221120.00	N 39 50 0.697 W 108 16 25.677
10-3/4" Casing Point	5021.25	0.00	138.53	-1445.00	4897.00	1006.99	-770.01	649.01	0.00	194385.00	1221120.00	N 39 50 0.697 W 108 16 25.677

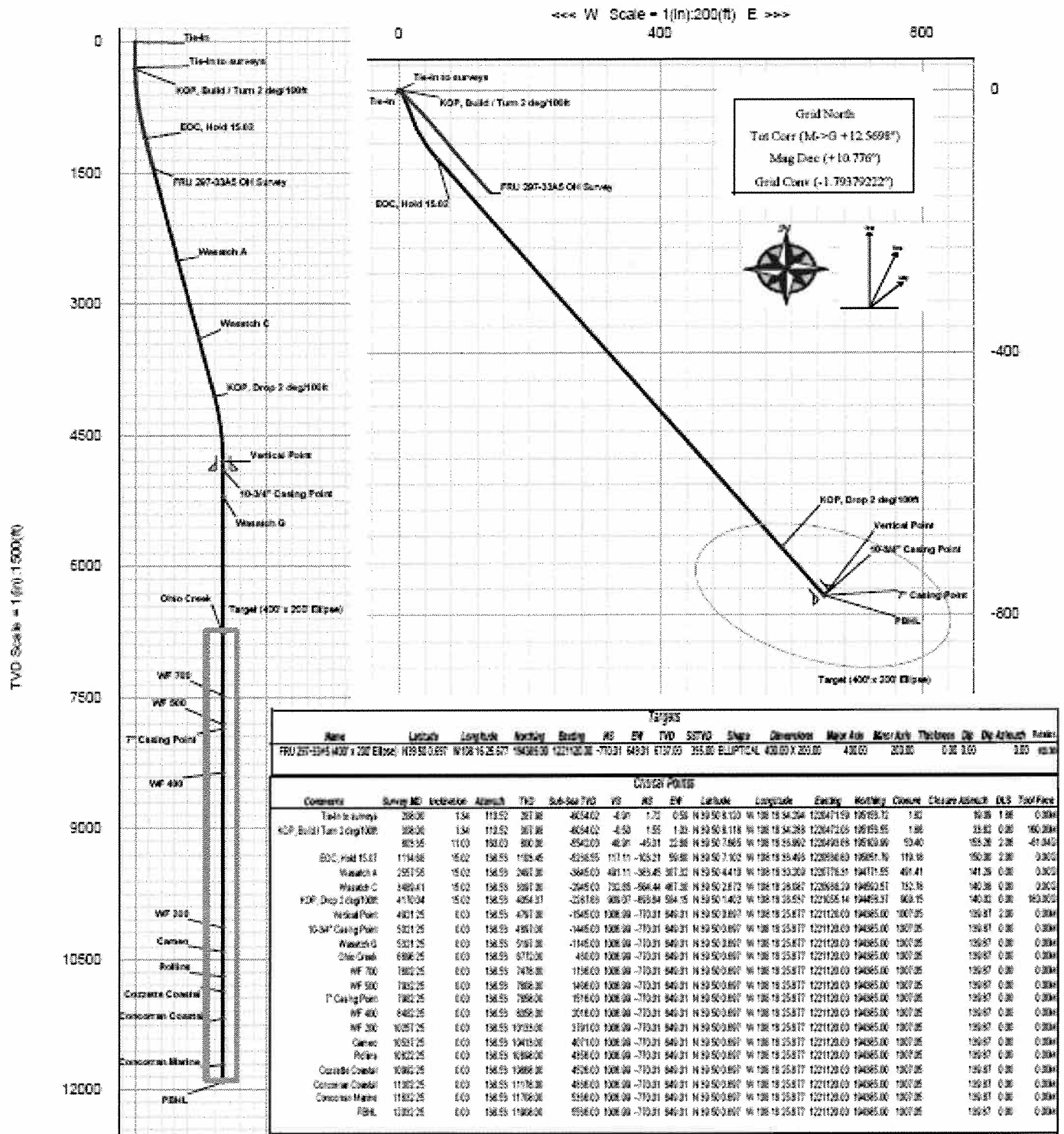


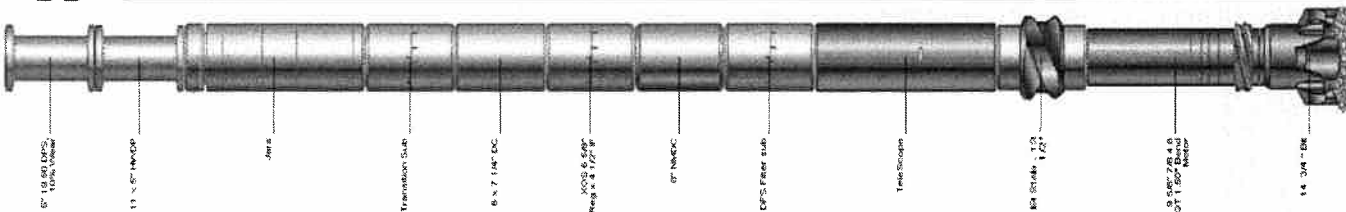


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## Schlumberger

**ExxonMobil COGCC ExxonMobil**

[illegible]



# Schlumberger

14 3/4in. BHA Motor Telescope  
Rev 18Mar09

# ExxonMobil

Description	OD/ID (in)	Max OD (in)	Connection (Bottom/Top) (in)	Gender (Bot/Top)	BSR (Bottom/T (in)	Joint Count	Length (ft)	Cum. Length (ft)	Cum. Weight (klbm)
1 14 3/4" Bit	9.000 3.750	14.750	0	Pin	2.47	1	1.74	1.74	0.3
2 9 5/8" 7/8 4.8 GT 1.50" Bend Motor	9.625 7.850	14.625	7 5/8 Regular	Box	3.20	1	32.02	33.76	6.7
3 1B Slab - 13 1/2"	8.000 2.750	13.500	6 5/8 Regular	Pin	3.52	1	5	38.76	7.6
4 Telescope	8.250 5.900	8.410	6 5/8 Regular	Pin	2.60	1	24.6	63.36	10.7
5 DFS Filter sub	7.000 3.250	7.000	6 5/8 Regular	Box	2.93	1	3	66.36	11.0
6 8" NMDC	8.000 2.813	8.000	6 5/8 Regular	Pin	2.60	1	31	97.36	15.6
7 XOS 6 5/8" Reg x 4 1/2" IF	8.000 2.813	8.000	6 5/8 Regular	Pin	2.60	1	3	100.36	16.1
8 6 x 7 1/4" DC	7.250 2.813	7.250	4 1/2 IF	Box	3.59	6	186	286.36	38.3
9 Transition Sub	7.250 2.813	7.250	4 1/2 IF	Pin	3.12	1	3.5	289.86	38.7
10 Jars	6.500 2.750	6.500	4 1/2 IF	Box	3.59	1	35.333	325.19	41.2
11 11 x 5" HWDP	5.000 3.000	6.500	4 1/2 IF	Pin	3.59	11	341	666.19	58.3
12 5" 19.50 DPS, 10% Wear	4.928 4.276	6.625	4 1/2 IF	Pin		1	31	697.19	59.0
			4 1/2 IF	Box					

## BHA Comments

- The MWD tool is the Telescope MWD, but may be replaced with PowerPulse if Telescope unavailable.
- The motor has a 1.50" Bend (7/8, 4.8 sig Power Section)
- If a 7/8, 4.8 sig motor is not available, then a 6/7, 5.0 sig motor is acceptable
- Ensure a non-ported float is ran in the BHA, Type F solid float.
- Spiral stabilizers only to be ran with 120" wrap.

Total Length	697.19
Total Weight in Air (klbm)	59.0
Weight in Air Below Jar (klbm)	38.7

Stabilizer Summary	
Blade Length (ft)	Mid-P1 to Bit (ft)
1.500	4.09
2.000	36.26
Motor Information	
Bent 1 Angle(deg)	1.500
Bent 1 To Bottom	7.780
Bent 2 Angle(deg)	
Bent 2 To Bottom	

Sensor	
Type	Distance to Bit (ft)
azimuth	50.590

BHA Nozzle Summary	
Bit Nozzle Count	1/32 in
7	12.000
TFA (in2)	0.773

Date	24Mar2009
Designed By	NAME\WJshusen
Approved By	

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**EXXONMOBIL CORPORATION**

**HOUSTON, Texas**

FRU 297-33A5

H&P/321

## **Post Job Summary Plug Service - Whipstock**

Date Prepared: 6/22/09  
Version: 1

Service Supervisor: Benjamin Anderson

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# HALLIBURTON

## Service Supervisor Reports

### Job Log

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Date/Time	Activity Code	Pump Rate	Volume	Pressure	Comments
06/18/2009 02:00	Call Out				CREW CALLED OUT, GOT TRUCKS PREPPED UP FOR CONVOY AND JOB
06/18/2009 04:15	Pre-Convoy Safety Meeting				DISCUSSED JOURNEY MANAGEMENT, DISCUSSED CONVOY PROCEDURES, ROUTE, STOPS, WILDLIFE, TRAFFIC, ROAD HAZARDS, EMERGENCY AND BREAKDOWN PROCEDURES
06/18/2009 07:00	Arrive at Location from Service Center				RIG IS CONDITIONING THE HOLE WITH SWEEPER TRIPS
06/18/2009 07:15	Pre-Rig Up Safety Meeting				DISCUSSED RIG UP PROCEDURES, RED ZONES, LIFTING TECHNIQUES, PINCH POINTS, AND SLIPS/TRIPS/FALLS
06/18/2009 13:00	Wait on Customer or Customer Sub-Contractor Equip				RIG IS RIGGING UP TO FISH THE WELL
06/18/2009 18:00	Other				RIG IS DONE RIGGING UP, AND IS FISHING NOW
06/18/2009 23:00	Other				RIG MONITORING THE WELL THRU OUT THE NIGHT
06/19/2009 06:15	Wait on Customer or Customer Sub-Contractor Equipm				RIG DONE MONITORING THE WELL AND TURNED IT OVER TO WIRLINE
06/19/2009 06:30	Wait on Customer or Customer Sub-Contractor Equip				WIRELINE RIGGING UP AND THEN WILL BEGIN GOING IN THE HOLE
06/19/2009 08:30	Wait on Customer or Customer Sub-Contractor Equipm				WIRELINE DONE RIGGING UP AND IS GOING INTO THE HOLE
06/19/2009 10:30	Wait on Customer or Customer Sub-Contractor Equipm				WIRELING DONE AND IS RIGGING DOWN
06/19/2009 14:00	Other				RIG IS RUNNING IN WITH DRILL PIPE
06/19/2009 16:30	Other				RIG DONE RUNNING IN DRILL PIPE AND TURNED JOB OVER TO HALLIBURTON
06/19/2009 16:50	Pre-Job Safety Meeting				DISCUSSED JOB PROCEDURES, HAZARDS WITH PRESSURE, RIG ISSUES, SAFETY ISSUES, EMERGENCY, AND BREAKDOWN PROCEDURES
06/19/2009 17:12	Test Lines			2000.0	TEST IS GOOD
06/19/2009 17:17	Pump Spacer	6		250.0	PUMPED TUNED SPACER III @ 9.5 PPG
06/19/2009 17:36	Pump Cement	4		410.0	MIXED @ 17 PPG WITH 0.2% CFR-3 W/O DEFOAMER ADDITIVES
06/19/2009 18:20	Pump Displacement	4		255.0	PUMPED TUNED SPACER III @ 9.5 PPG

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Date/Time	Activity Code	Pump Rate	Volume	Pressure	Comments
06/19/2009 18:25	Shutdown				BROKE IRON LOOSE FROM THE DRILL PIPE AND RIG STARTED PULLING DRILL PIPE
06/19/2009 18:30	Other				WAITING FOR CEMENT TO SET UP AND THEN WILL WAIT FOR THE RIG TO GO IN AND TAG CEMENT TO SEE WHERE IT IS
06/19/2009 18:35	Clean Lines				CLEANED PUMPS AND LINES TO THE PIT
06/19/2009 23:00	Other				RIG TAGGED CEMENT, HALLIBURTON CREW GETTING TRUCKS READY FOR 2ND PLUG
06/20/2009 00:28	Pre-Job Safety Meeting				DISCUSSED JOB PROCEDURES, HAZARDS WITH PRESSURE, RIG ISSUES, SAFETY ISSUES, EMERGENCY, AND BREAKDOWN PROCEDURES
06/20/2009 00:30	Test Lines			2000.0	TEST IS GOOD
06/20/2009 00:45	Pump Spacer	6		170.0	PUMPED TUNED SPACER III @ 9.5 PPG
06/20/2009 01:15	Pump Cement	4		430.0	MIXED @ 17 PPG WITH 0.2% CFR-3 W/O DEFOAMER ADDITIVES
06/20/2009 01:34	Pump Displacement	1.5		64.0	PUMPED FRESH WATER @ 8.33 PPG
06/20/2009 01:36	Shutdown				BROKE IRON LOOSE FROM THE DRILL PIPE AND RIG STARTED PULLING DRILL PIPE
06/20/2009 01:45	Clean Lines				CLEANED PUMPS AND LINES TO THE PIT
06/20/2009 11:55	Post-Job Safety Meeting (Pre Rig-Down)				DISCUSSED RIG DOWN PROCEDURES, RED ZONES, LIFTING TECHNIQUES, PINCH POINTS, AND SLIPS/TRIPS/FALLS
06/20/2009 11:55	Rig-Down Equipment				RIGGED DOWN SAFELY AND TO BOTH HALLIBURTON AND EXXON STANDARDS
06/20/2009 11:55	Pre-Convoy Safety Meeting				DISCUSSED JOURNEY MANAGEMENT, DISCUSSED CONVOY PROCEDURES, ROUTE, STOPS, WILDLIFE, TRAFFIC, ROAD HAZARDS, EMERGENCY AND BREAKDOWN PROCEDURES
06/20/2009 11:55	Depart Location for Service Center or Other Site				THANKS FOR USING HALLIBURTON!!!

HALLIBURTON

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*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 331699		<b>Ship To #:</b> 2729443		<b>Quote #:</b>		<b>Sales Order #:</b> 6733633	
<b>Customer:</b> EXXONMOBIL CORPORATION				<b>Customer Rep:</b> Morales, David			
<b>Well Name:</b> FRU			<b>Well #:</b> 297-33A5			<b>API/UWI #:</b> 05-103-11295	
<b>Field:</b> PICEANCE CREEK		<b>City (SAP):</b> MEEKER		<b>County/Parish:</b> Rio Blanco		<b>State:</b> Colorado	
<b>Legal Description:</b> Section 33 Township 2S Range 97W							
<b>Lat:</b> N 39.836 deg. OR N 39 deg. 50 min. 8.009 secs.				<b>Long:</b> W 108.277 deg. OR W -109 deg. 43 min. 23.387 secs.			
<b>Contractor:</b> H&P			<b>Rig/Platform Name/Num:</b> 321				
<b>Job Purpose:</b> Plug Service - Whipstock							
<b>Well Type:</b> Development Well			<b>Job Type:</b> Plug Service - Whipstock				
<b>Sales Person:</b> TURNER, JAMIE			<b>Srvc Supervisor:</b> ANDERSON, BENJAMIN			<b>MBU ID Emp #:</b> 342843	

**Job Personnel**

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ANDERSON, BENJAMIN L	45	342843	HUNSAKER, JASON O	10	425152	KASPRZAK, JONATHAN Todd	4	453115
MCRAE, DAVID G	5	460395	PAUU, SEMISI Tu'a	45	445202	REYES, ROY Yanyez	45	460556
SMITH, KC Hyrum	5	462378	STILL, MICHEAL Wayne	10	258213	TAYLOR, CRAIG B	5	462205
WALLACE, TYLER	45	408055						

**Equipment**

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10248059	60 mile	10724587	60 mile	10982742	60 mile	10991613	60 mile
10994447	60 mile	11061775	60 mile	11127525	60 mile	11159600	60 mile
11189139	60 mile	11263213	60 mile	11307422	60 mile		

**Job Hours**

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
20-JUN-2009	45	3						
<b>TOTAL</b>			<i>Total is the sum of each column separately</i>					

**Job****Job Times**

Formation Name	Formation Depth (MD)	Top	Bottom	Called Out	Date	Time	Time Zone
<b>Form Type</b>			BHST	<b>On Location</b>	20 - Jun - 2009	07:00	MST
<b>Job depth MD</b>	1400. ft		<b>Job Depth TVD</b>	<b>Job Started</b>	19 - Jun - 2009	16:50	MST
<b>Water Depth</b>			<b>Wk Ht Above Floor</b>	<b>Job Completed</b>	20 - Jun - 2009	01:36	MST
<b>Perforation Depth (MD)</b>	From		To	<b>Departed Loc</b>	20 - Jun - 2009	04:00	MST

**Well Data**

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Cement Plug								400.	900.		
Surface Open Hole				14.75				.	1400.		
Drill Pipe	Unknown		5.	4.276	19.5			.	1400.		

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Version:

Monday, June 22, 2009 14:34:00

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## Cementing Job Summary

Fluid Data									
Stage/Plug #: 1									
Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft3/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk
1	Tuned Spacer III Ahead	TUNED SPACER III - SBM (483826)	96.00	bbl	9.5	.0	.0	2.0	
	3 lbm/bbl	FE-2 (100001615)							
	30.9 lbm/bbl	BARITE, BULK (100003681)							
	0.1 gal/bbl	D-AIR 3000L, 5 GAL PAIL (101007444)							
	39.07 gal/bbl	FRESH WATER							
2	Plug - PlugCem #1	PLUGCEM (TM) SYSTEM (452969)	947.0	sacks	17.	.99	3.79	2.0	3.79
	0.2 %	CFR-3, W/O DEFOAMER, 50 LB SK (100003653)							
	3.785 Gal	FRESH WATER							
3	Tuned Spacer III Behind		6.00	bbl	9.5	.0	.0	2.0	
Stage/Plug #: 2									
Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density uom	Yield uom	Mix Fluid uom	Rate uom	Total Mix Fluid uom
1	Tuned Spacer III Ahead	TUNED SPACER III - SBM (483826)	50.00	bbl	9.5	.0	.0	2.0	
	39.07 gal/bbl	FRESH WATER							
	3 lbm/bbl	FE-2 (100001615)							
	30.9 lbm/bbl	BARITE, BULK (100003681)							
	0.1 gal/bbl	D-AIR 3000L, 5 GAL PAIL (101007444)							
2	Kickoff Plug - PlugCem #2	PLUGCEM (TM) SYSTEM (452969)	453.0	sacks	17.	.99	3.79	2.0	3.79
	0.2 %	CFR-3, W/O DEFOAMER, 50 LB SK (100003653)							
	3.785 Gal	FRESH WATER							
3	Tuned Spacer III Behind	TUNED SPACER III - SBM (483826)	3.00	bbl	9.5	.0	.0	2.0	
	39.07 gal/bbl	FRESH WATER							
	3 lbm/bbl	FE-2 (100001615)							
	30.9 lbm/bbl	BARITE, BULK (100003681)							
	0.1 gal/bbl	D-AIR 3000L, 5 GAL PAIL (101007444)							
Calculated Values		Pressures		Volumes					
Displacement		Shut In: Instant		Lost Returns		Cement Slurry		Pad	
Top Of Cement		5 Min		Cement Returns		Actual Displacement		Treatment	
Frac Gradient		15 Min		Spacers		Load and Breakdown		Total Job	
Rates									
Circulating		Mixing		Displacement		Avg. Job			
Cement Left In Pipe	Amount	0 ft	Reason	Shoe Joint					
Frac Ring # 1 @	ID	Frac ring # 2 @	ID	Frac Ring # 3 @	ID	Frac Ring # 4 @	ID		
The Information Stated Herein Is Correct				Customer Representative Signature					

Summit  
Version:

Monday, June 22, 2009 14:34:00

# HALLIBURTON

## Data Acquisition

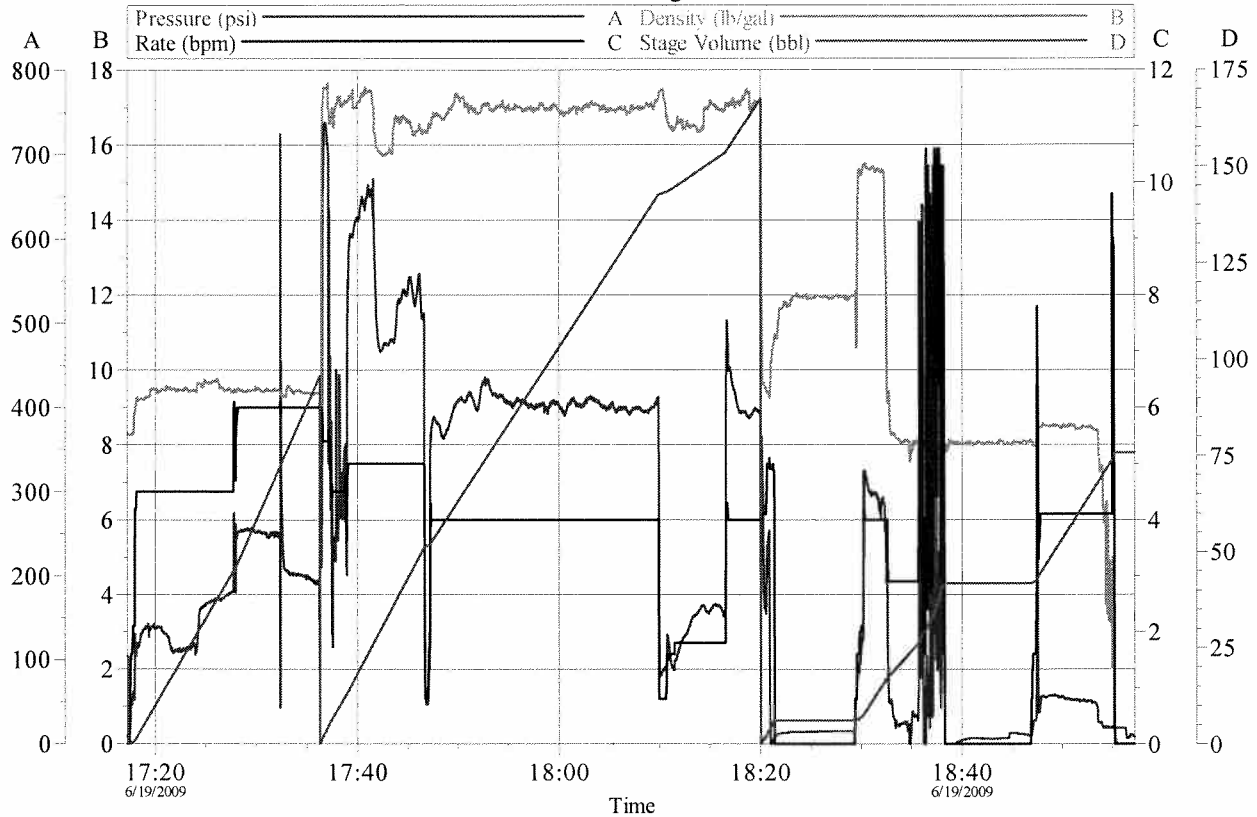
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### FRU 297-33A5 Kickoff Plug

First Plug



Customer: ExxonMobil  
Well Description: FRU 297-33A5

Job Date: 19-Jun-2009  
UWI: 05-103-11295

Sales Order #: 6733634  
Rig: H&P 321

HALLIBURTON  
OptiCem v6.4.2  
22-Jun-09 13:32



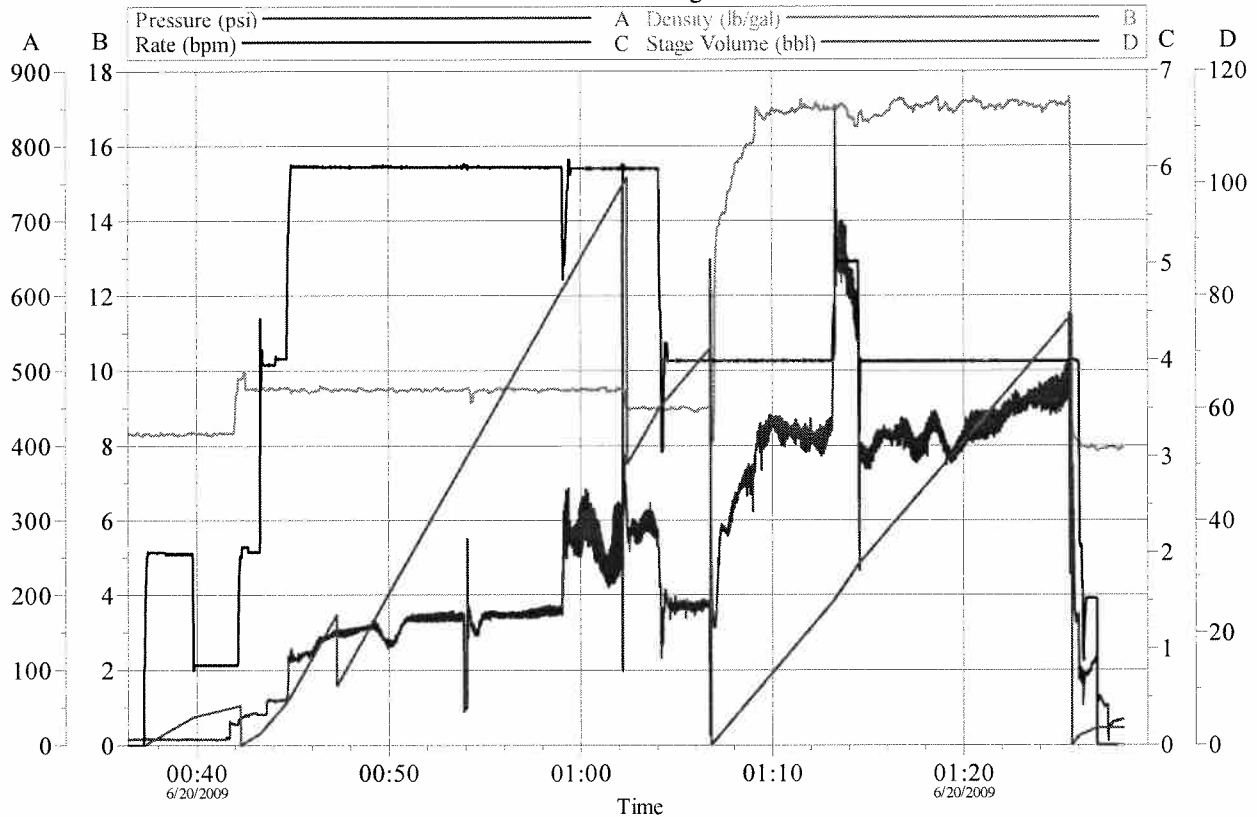
# HALLIBURTON

## FRU 297-33A5 Kickoff Plug Second Plug

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Customer: ExxonMobil  
Well Description: FRU 297-33A5

Job Date: 19-Jun-2009  
UWI: 05-103-11295

Sales Order #: 6733634  
Rig: H&P 321

HALLIBURTON  
OptiCem v6.4.2  
22-Jun-09 14:23