

# encana™



**Operator:** Encana Oil & Gas (USA) Inc.  
**Well Name:** PARK MOUNTAIN FEDERAL  
**Lease Number:** 9031  
**Unit Number:** COC096A  
**Location:** NENW Sec.31 -T2S -R103W  
**Field:** Park Mountain  
**County, State:** Rio Blanco, CO  
**API Number:** 05-103-10018-0000  
**Diagram Date:** As of May 2, 2011

## Plug and Abandonment Procedure

May 4, 2011

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Attachments:

Attachment 1 – Proposed Wellbore Diagram  
Attachment 2 – Current Wellbore Diagram

API Number: 05-103-10018-0000

KB Elevation: 6,314 ft

GL Elevation: 6,300 ft

CIBP #3 7,145 ft MD with 50 ft CMT on top; (TOC = PBTD = 7,095 ft MD)

CIBP #2 7,255 ft MD

CIBP #1 7,350 ft MD

**PBTD: 7,095 ft MD**

TD: 8,400 ft MD

Surface Casing: 8 - 5/8" OD, 24 lb/ft, set at 801 ft, assumed K-55

Surface Casing OD	8 5/8	in.
Surface Casing ID	8.097	in.
<b>Surface Casing Drift</b>	<b>7.972</b>	<b>in.</b>
Surface Hole size	12 1/4	in.
<b>Surface Casing COLLAPSE (100%)</b>	<b>1,370</b>	<b>psi</b>
<b>Surface Casing BURST (100%)</b>	<b>2,950</b>	<b>psi</b>
<b>Surface Casing JOINT YIELD</b>	<b>263,000</b>	<b>lbs</b>

Production Casing: 4 - 1/2" OD, 13.5 lb/ft, set at 7,510 ft, **N-80 & P-110 (Mechanical properties below are for the weakest string: N-80; NOTE: Weights & Dimensions are the same for both strings)**

Production Casing OD	4 1/2	in.
Production Casing ID	3.920	in.
<b>Production Casing Drift</b>	<b>3.795</b>	<b>in.</b>
Production Hole size	7 7/8	in.
<b>Production Casing COLLAPSE (100%)</b>	<b>8,540</b>	<b>psi</b>
<b>Production Casing BURST (100%)</b>	<b>9,020</b>	<b>psi</b>
<b>Production Casing JOINT YIELD</b>	<b>270,000</b>	<b>lbs</b>

Tubing: 2 - 3/8" OD, 4.7 lb/ft, set 6,925 ft., **assumed J-55**

Tubing Casing OD	2 3/8	in.
Tubing Casing ID	1.995	in.
<b>Tubing Casing Drift</b>	<b>1.901</b>	<b>in.</b>
<b>Tubing COLLAPSE (100%)</b>	<b>8,100</b>	<b>psi</b>
<b>Tubing BURST (100%)</b>	<b>7,700</b>	<b>psi</b>
<b>Tubing JOINT YIELD</b>	<b>71,730</b>	<b>lbs</b>

## Safety

Safety meetings are to be held with all service company personnel prior to each job. Wellsite supervisor must notify contractors as to known hazards of which the contractors may be unaware. Well site supervisor must ensure that all workers are aware of their responsibilities and duties under the EH&S guidelines. All safety meetings will be recorded on the EnCana daily completion reports in Wellcore.

## Regulations

All verbal notifications and approval from government regulatory agencies will be recorded on the EnCana daily report. The name of the individual contacted and the subject matter of approval or notification will be recorded.

***\*\*Please note Chemical Inventory on Wellcore Report. Note amount of chemicals pumped downhole and amount stored on location each evening.***

## JOB OBJECTIVE

The BLM has required that we either return this well to production or plug and abandon it. It has either been decided that production does exist in this well, but at a high expenditure, or there is no production in this well. **Therefore, the PARK MOUNTAIN 9031 will be plugged and abandoned.**

## PROCEDURE

### Rig Up and Pull Tubing

1. Notify State of Colorado and BLM (White River Field Office) at least 48 hours prior to start of operations.
2. MIRU pulling unit. Hold rig inspections and pre-job safety meeting.
3. Blow well down.
4. Kill well.
5. ND WH and NU BOP.
6. POOH with 2-3/8" tubing.

### Verify Proper Isolation of Perforations (05/25/2010: CIBP set at 7,145 ft MD with 50 ft of CMT on top)

7. RIH tag TOC with wireline. If tag is deeper than 7,095 ft MD, then dump bail 4 sks Class G cement on top of existing CMT with wireline.

$$\text{Cement Volume} = [4 \text{ sx} * 1.15 \text{ ft}^3/\text{sks} / 0.08381 \text{ ft}^3/\text{ft}] = 54.9 \text{ ft}$$

### Cement Annulus across Casing Shoe

8. RIH and set CIBP in 4-1/2" casing at 870 ft. Verify that CIBP will not be placed within 5 ft of a collar.
9. Cement Bond Log was run from 700 ft to 7,466 ft. The log shows good cement from 700 ft to 1000 ft.

Therefore the surface shoe annulus is properly cemented and NO ANNULUS SQUEEZE IS NEEDED.

### Cement Plug in Casing on top of CIBP

10. Pump 150 ft of Class G cement (12 sks) in casing on top of CIBP (set at 870 ft). Casing plug must extend a minimum of 50 ft above and below surface casing shoe at 801 ft.

$$\text{Casing Cement Vol} = [150 \text{ ft} * 0.08381 \text{ ft}^3/\text{ft} / 1.15 \text{ ft}^3/\text{sks}] = 10.9 \text{ sks}$$

$$\text{With 8.70\% Excess} = 10.9 \text{ sks} * 1.087 = 11.9 \text{ sks} = \mathbf{12 \text{ sks}}$$

### Cement Plug in Annulus and Casing from Surface

11. Since our CBL starts at 700 ft we must assume the annulus at the surface needs cement. POOH with tubing. RIH on wireline and perforate four squeeze holes at 100'. POOH with perforating gun. Verify all shots fired. RDMO wireline unit.

12. RIH with OE tubing. Ensure tbg/csg annulus is shut-in. Establish injection into squeeze holes. NOTE: CIRCULATION MAY NOT BE POSSIBLE IF CEMENT IS IN ANNULUS, IF NO CIRCULATION CAN BE ESTABLISHED MOVE TO STEP 14.

13. Pump 100 ft (22 sks) of Class G cement up annulus until returns are seen at surface. Fill casing up to surface with 100 ft (8 sks) of Class G cement.

$$\text{Annular Cement Vol} = [0.2471 \text{ ft}^3/\text{ft} * 100 \text{ ft} / 1.15 \text{ ft}^3/\text{sk}] = 21.5 \text{ sks} = \mathbf{22 \text{ sks}}$$

$$\text{Casing Cement Vol} = [0.08381 \text{ ft}^3/\text{ft} * 100 \text{ ft} / 1.15 \text{ ft}^3/\text{sk}] = 7.3 \text{ sks} = \mathbf{8 \text{ sks}}$$

14. WOC for four hours.

15. Top off annulus and casing as necessary. WOC and continue to top off as necessary.

16. ND BOP. RDMO pulling unit.

17. Cut off anchors.

18. Cut off all casing at the base of the cellar or 4 ft below final restored ground level; whichever is deeper.

19. Weld on metal plate at least ¼" thick and dry hole marker.

20. Restore surface location.

21. Ensure that CMT tickets are mailed (or scanned and emailed) to the Denver office for subsequent reporting.