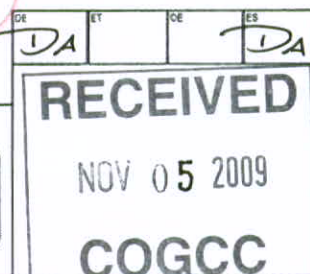




02054053

## Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



## SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

1. OGCC Operator Number: 100185	4. Contact Name: DeAnne Spector	Complete the Attachment Checklist OP OGCC
2. Name of Operator: ENCANA OIL & GAS (USA) INC	Phone: 720-876-5826	
3. Address: 370 17TH ST, STE 1700	Fax: 720-876-6060	
City: DENVER State: CO Zip: 80202		
5. API Number 05-077-09420	OGCC Facility ID Number	Survey Plat
6. Well/Facility Name: Orchard Unit	7. Well/Facility Number 20-12H (K20OU)	Directional Survey
8. Location (Qtr/Qtr, Sec, Twp, Rng, Meridian): NESW Sec. 20-T8S-R96W 6th PM		Surface Eqpm Diagram
9. County: Mesa	10. Field Name: Orchard	Technical Info Page X
11. Federal, Indian or State Lease Number: COC-64191		Other

## General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines:	<input type="checkbox"/> FNL/FSL <input type="checkbox"/> FEL/FWL
Change of Surface Footage to Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage from Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage to Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/> attach directional survey
Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer	
Latitude	Distance to nearest property line
Longitude	Distance to nearest bldg, public rd, utility or RR
Ground Elevation	Distance to nearest lease line
	Is location in a High Density Area (rule 603b)? Yes/No
	Distance to nearest well same formation
	Surface owner consultation date:

## GPS DATA:

Date of Measurement PDOP Reading Instrument Operator's Name

<input type="checkbox"/> CHANGE SPACING UNIT	<input type="checkbox"/> Remove from surface bond
Formation Formation Code Spacing order number Unit Acreage Unit configuration	Signed surface use agreement attached

<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	<input type="checkbox"/> CHANGE WELL NAME	NUMBER
Effective Date:	From:	
Plugging Bond: <input type="checkbox"/> Blanket <input type="checkbox"/> Individual	To:	20-12H (K20OU)
	Effective Date:	

<input type="checkbox"/> ABANDONED LOCATION:	<input type="checkbox"/> NOTICE OF CONTINUED SHUT IN STATUS
Was location ever built? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date well shut in or temporarily abandoned:
Is site ready for inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No	Has Production Equipment been removed from site? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date Ready for Inspection:	MIT required if shut in longer than two years. Date of last MIT

<input type="checkbox"/> SPUD DATE:	<input type="checkbox"/> REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)
-------------------------------------	---------------------------------------------------------------------------------------

<input type="checkbox"/> SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK	*submit cbl and cement job summaries
Method used Cementing tool setting/perf depth Cement volume Cement top Cement bottom Date	

<input type="checkbox"/> RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.
Final reclamation will commence on approximately <input type="checkbox"/> Final reclamation is completed and site is ready for inspection.

## Technical Engineering/Environmental Notice

<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Report of Work Done
Approximate Start Date: 11/5/09	Date Work Completed:

Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)

<input type="checkbox"/> Intent to Recomplete (submit form 2)	<input type="checkbox"/> Request to Vent or Flare	<input type="checkbox"/> E&P Waste Disposal
<input type="checkbox"/> Change Drilling Plans	<input checked="" type="checkbox"/> Repair Well	<input type="checkbox"/> Beneficial Reuse of E&P Waste
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested	<input type="checkbox"/> Status Update/Change of Remediation Plans
<input type="checkbox"/> Casing/Cementing Program Change	<input checked="" type="checkbox"/> Other: CEMENT Remediation	for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: DeAnne Spector Date: 11/05/2009 Email: deanne.spector@encana.com  
Print Name: DeAnne Spector Title: Regulatory Analyst

COGCC Approved: David And Title: PE II Date: 11/5/2009

CONDITIONS OF APPROVAL, IF ANY:



RECEIVED  
NOV 05 2009  
COGCC

1. Operator Number: 100185 API Number: 05-077-09420  
2. Name of Operator: ENCANA OIL & GAS (USA) INC.  
3. Well Name: Orchard Unit Well Number: 20-12H (K20OU)  
4. Location (QtrQtr, Sec, Twp, Rng, Meridian): NESW SEC 20-T8S-R96W

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5

DESCRIBE PROPOSED OR COMPLETED OPERATIONS

Verbal approval was received from Will Howell at the Silt BLM office for the attached remediation procedure. Work is scheduled to begin today.



**RECEIVED**

NOV 05 2009

**COGCC****Well: Orchard Unit 20-12H (K200U)**

AFE#: 09125161

Location: NESW Sec 20 T8S - R96W 6th PM

API#: 05077094200000 (Mesa County)

**CASING DETAILS:****Conductor:** 16" 42# set @ 40' (TOC = Surface)**Surface Casing:** 13 3/8" 54.5# J-55 to 1532' (TOC = Surface)**Intermediate Casing:** 9 5/8" 40# LT&C J-55 Grade from 0' to 9075'; DV Tool @ 4418' (I.D. = 8.835")  
(Stage 1 TOC = 4765', stringers to 4600'; (Stage 2 TOC = Surface)  
Internal Yield = 3950 psi, 80% = 3160 psi**Production Casing:** 5 1/2" 17# P110 LT&C to 13,641' MD (TOC = 6790', cement stringers to 6560'); (I.D. = 4.892")  
Internal Yield = 10,640 psi, 80% = 8512 psi**Existing Niobrara Perfs as follows:** STAGE 1: 13,388' - 13,579' (90 Holes)  
STAGE 2: 13,228' - 13,242' (60 Holes)  
STAGE 3: 12,888' - 13,077' (72 Holes)  
STAGE 4: 12,638' - 12,827' (72 Holes)  
STAGE 5: 12,388' - 12,575' (72 Holes)**Note:** Weatherford 10K psi Solid Composite Plug set @ 8020' topped w/ 3 sx cement on 10/31/2009**Issue:**

During the beginning of the Stage 5 completion, surface treating pressure decreased sharply which was matched by an increase in Intermediate CSG pressure. Surface CSG pressure increased as well. The job was shut down, a CBP was set at 8020', and all pressures were bled down to zero psi where they have remained since the plug was set. A 2nd CBP + cement will be set at 7400' MD for additional well control and safety.

It was determined that a hole/split is in the 5.5" casing just above the collar at 2069' MD. This remediation procedure includes steps to cut and pull 5.5" CSG, evaluate the 9-5/8" Intermediate CSG w/ 40-arm caliper log, and patch/cement new 5.5" CSG in place. Following the successful patch & cement job, the cement and plugs will be drilled out, pushed to the frac plug between Stages 4 & 5, and the completions will resume for Stages 5-18.

**5.5" Casing & Cementing Remediation**

- 1 MIRU workover rig, ND WH, NU BOPE, blow well down
  - 2 MIRU wireline crew. RIH w/ chemical cutters to make first cut in 5.5" CSG at 6360' (~200' above uppermost cement stringer).
  - 3 POOH w/ cutter, confirm cutter fired. RIH w/ 2nd chemical cutter to cut just below the hole in 5.5" CSG. Make the 2nd cut at 2140' (10' below collar of JT below hole). POOH w/ cutter, confirm cutter fired. RDMO wireline crew.
  - 4 RU LD Machine to LD 5 1/2" Casing.
  - 5 MIRU Casing Crew. Spear 5.5" CSG (Fish #1 from Surface to 2080') and POOH laying down 48 JTS + cut CSG stub (~2080' total)  
**Note: String Weight (in air) of 2080' of 5.5" 17.0# CSG is ~35,400 lbm.**  
**Please confirm JT count of pipe pulled out of the hole.**  
  
**\*Casing will be sent in for inspection to determine reason for failure.**
  - 6 RIH w/ overshot on 3 1/2" 9.3# EUE N-80 TBG and latch on to 5.5" CSG stub.  
**Note: Confirm joint yield strength of 3.5" workstring prior to fishing 5.5" CSG; confirm total string weight before latching on to 5.5" CSG stub.**
  - 7 Once it is confirmed that the overshot is latched on to the 5.5" CSG, POOH laying down 3.5" TBG, overshot, and 102 JTS + two cut CSG stubs (upper and lower), ~4360' total.  
**Note: String Weight (in air) of 4360' of 5.5" 17.0# CSG is ~74,200 lbm + 3.5" Workstring @ ~27,000 lbm = 101,200 lbm (confirm before fishing)**  
**Please confirm JT count of pipe pulled out of the hole.**
  - 8 Load 9 5/8" CSG and Pressure test to 1500 psi. Record for 15 minutes. If pressure test fails, a 40-arm caliper log will be run (See step 10).
  - 9 RIH w/ 3.5" workstring & skirted mill. Dress off 5.5" CSG stub to prepare for CSG patch.
  - 10 MIRU wireline crew and RIH w/ 40-arm caliper log to confirm integrity of 9-5/8" 40# Intermediate CSG. Report findings to Denver immediately. RDMO wireline crew.
  - 11 RIH with Logan 10K psi Overshot Patch on 5.5" 20# P110 CSG. Also, include a cement stage tool (ie., DV Tool) above casing patch to cement 5.5" CSG inside 9-5/8" Intermediate CSG from overshot patch to surface.
  - 12 Circulate patch onto fish/casing stub @ 6360' and pressure test to 500 psi???
  - 13 Once good casing patch is confirmed, open stage tool. Establish circulation with water for a minimum of 50 bbls.  
Once circulation is established, pump cement to cover from patch to surface in 9-5/8" Intermediate CSG.  
**NOTE: Approximate BHST @ 6360' = 190°F**
- Annular Volume =  $0.005454 (8.835^2 - 5.5^2)(6360') = 1658 \text{ cu ft} \rightarrow \sim 1000 \text{ sx (actual cement volume and blend TBD)}$ .**
- 14 Displace cement, confirm DV tool is shut, plug holding.
  - 15 WOC for a minimum of 24 hours.
  - 16 RIH w/ 2 3/8" 4.7# N-80 TBG and appropriate bit to drill out cement through the DV Tool.
  - 17 POOH w/ workstring, Run CBL, confirm TOC w/ Denver immediately.
  - 18 Pressure test 5.5" CSG to 8500 psi.
  - 19 Drill out plugs, continue w/ fracturing operations.



## Andrews, David

---

**From:** Miley, Craig [Craig.Miley@encana.com]  
**Sent:** Tuesday, November 03, 2009 3:58 PM  
**To:** Andrews, David  
**Cc:** Johnson, Tina; Morss, Ruth Ann; Spector, DeAnne M.  
**Subject:** Orchard Unit 20-12H (K20OU) - Casing Remediation Plan  
**Attachments:** Orchard Unit 20-12H (K20OU) - CSG & CMT remediation procedures -11.01.2009.xls

David,

As we discussed yesterday, we had a shallow casing failure (2069') right above a collar during the very beginning of one of our horizontal Niobrara fracs on the Orchard Unit 20-12H (K20OU). During the beginning of the Stage 5 completion, surface treating pressure decreased sharply which was matched by an increase in Intermediate CSG pressure. Surface CSG pressure increased as well. The job was shut down, a CBP was set at 8020', and all pressures were bled down to zero psi where they have remained since the plug was set. A 2nd CBP + cement was set at 7400' MD for additional well control and safety.

It was determined that a hole/split is in the 5.5" casing just above the collar at 2069' MD. This remediation procedure includes steps to cut and pull 5.5" CSG, evaluate the 9-5/8" Intermediate CSG w/ 40-arm caliper log, and patch/cement new 5.5" CSG in place. Following the successful patch & cement job, the cement and plugs will be drilled out, pushed to the frac plug between Stages 4 & 5, and the completions will resume for Stages 5-18.

Following this email, I'll send the the following info in a few emails due to the large size of the attachments (I believe there's a size limit of 4 MB?). Let me know if you don't receive any of the following: 1.) 5.5" CBL, 2.) 5.5" CSG inspection log, zoomed-in version, 3.) 5.5" CSG Inspection log--full version, 4.) Frac graphs at CSG failure, 5.) CSG Patch specs.

Our Regulatory Team is working on the sundry which includes the procedure I've attached here. Please let me know if there are any questions, concerns, or if any other info is needed.

Thanks,

**Craig Miley**  
Production Engineer, S. Piceance  
EnCana Oil & Gas (USA), Inc.  
370 17th St. Suite 1700  
Denver, CO 80202

Office: (720) 876-5396  
Mobile: (303) 495-8665  
Fax: (720) 876-6396  
Email: [Craig.Miley@EnCana.com](mailto:Craig.Miley@EnCana.com)

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<http://www.encana.com>





# Downhole Schematic for Orchard Unit 20-12H (K200U)

ENCANA

Project: South Piceance

API # 05077094200000

Surface Location: NESW Sec 20 T8S - R66W 6th PM

Area: Orchard

County:

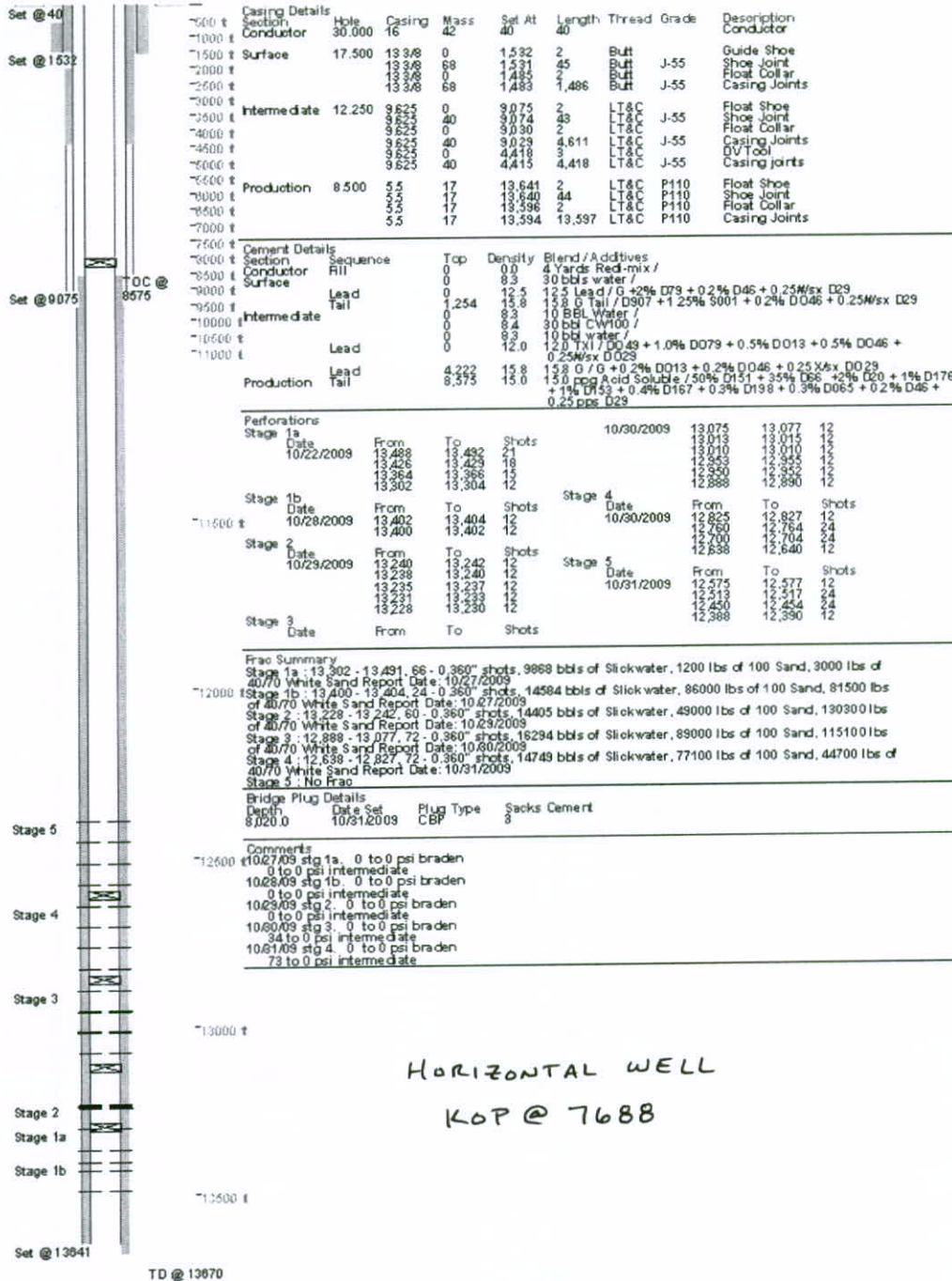
BHL: NESE-18-8S-06-W 6th PM

As Of:

GL: 5929.0 ft

KB to GL: 22.0 ft

KB: 5951.0 ft





**Andrews, David**

---

**From:** Miley, Craig [Craig.Miley@encana.com]  
**Sent:** Tuesday, November 03, 2009 4:03 PM  
**To:** Andrews, David  
**Cc:** Johnson, Tina; Morss, Ruth Ann; Spector, DeAnne M.  
**Subject:** Orchard Unit 20-12H (K20OU) - 5.5" CSG Inspection Log  
**Attachments:** K20OU - 5.5 in CSG part - 40-arm caliper log - ZOOM IN AT HOLE.pdf

I've attached the 5.5" CSG inspection log which is zoomed in at the point of failure.

**Craig Miley**  
Production Engineer, S. Piceance  
EnCana Oil & Gas (USA), Inc.  
370 17th St. Suite 1700  
Denver, CO 80202

Office: (720) 876-5396  
Mobile: (303) 495-8665  
Fax: (720) 876-6396  
Email: [Craig.Miley@EnCana.com](mailto:Craig.Miley@EnCana.com)

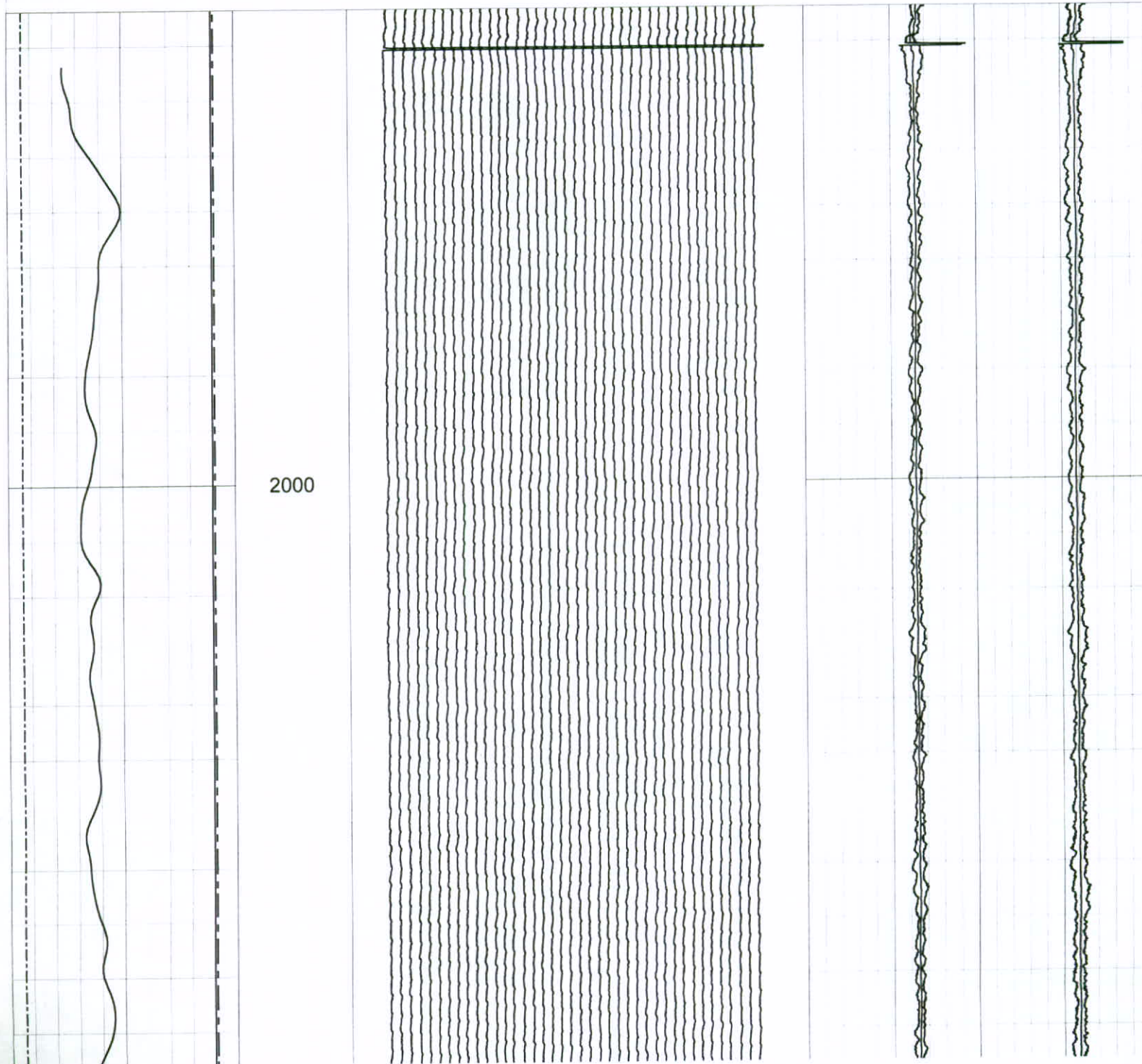
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<http://www.encana.com>

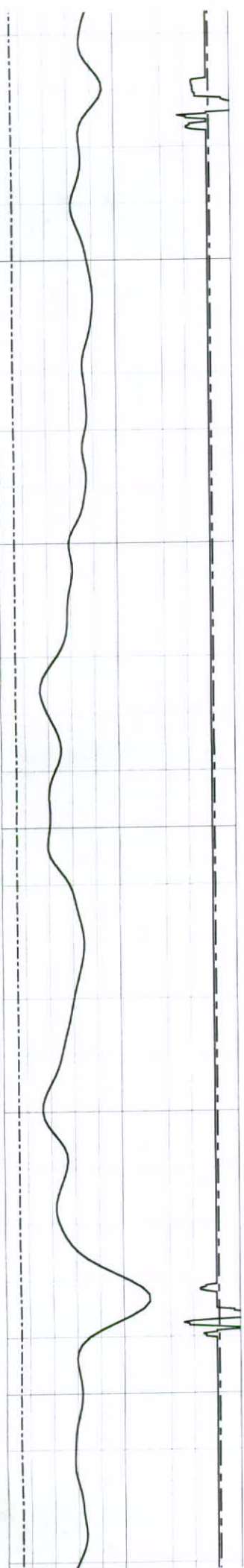
Database File: oct\_31\_09.db  
 Dataset Pathname: pass2  
 Presentation Format: testmit2  
 Dataset Creation: Sat Oct 31 20:32:30 2009 by Log Std Casedhole 09061  
 Charted by: Depth in Feet scaled 1:60



0	MIT Deviation (°)	90	2	FING01 (in)	7.31	Average Diameter		Average Radius	
0	Gamma Ray	120	1.89	FING02 (in)	7.2				
-18000	CCL	2000	-2.18	FING39 (in)	3.13	4.25	(in)	5.25	2.125 (in) 2.675
0	MITROT (°)	360	-2.29	FING40 (in)	3.02	Minimum Diameter		Minimum Radius	
						4.25	(in)	5.25	2.125 (in) 2.675
						Maximum Diameter		Maximum Radius	
						4.25	(in)	5.25	2.125 (in) 2.675





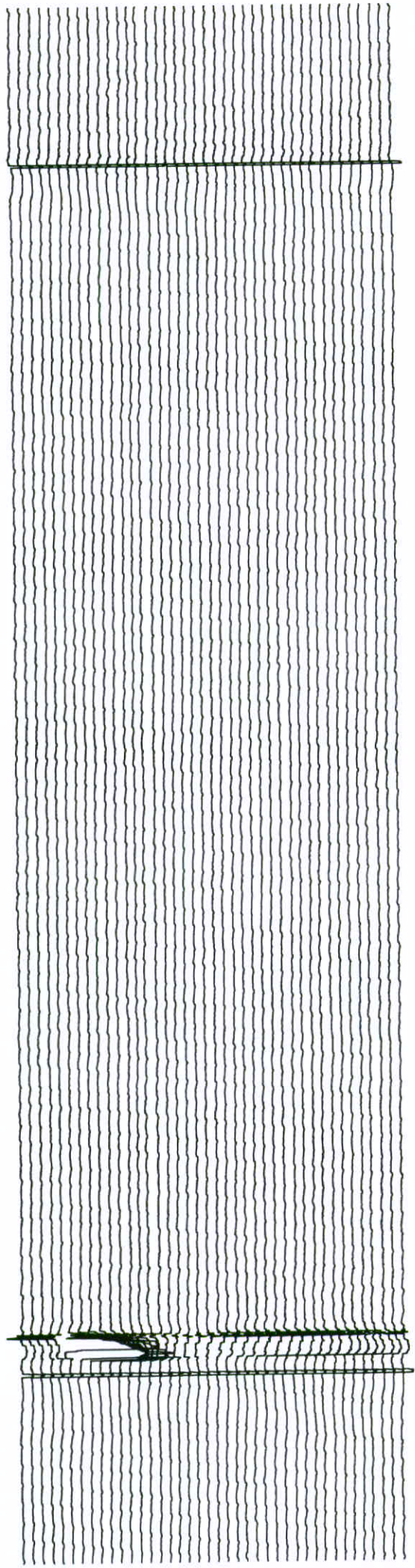


2025

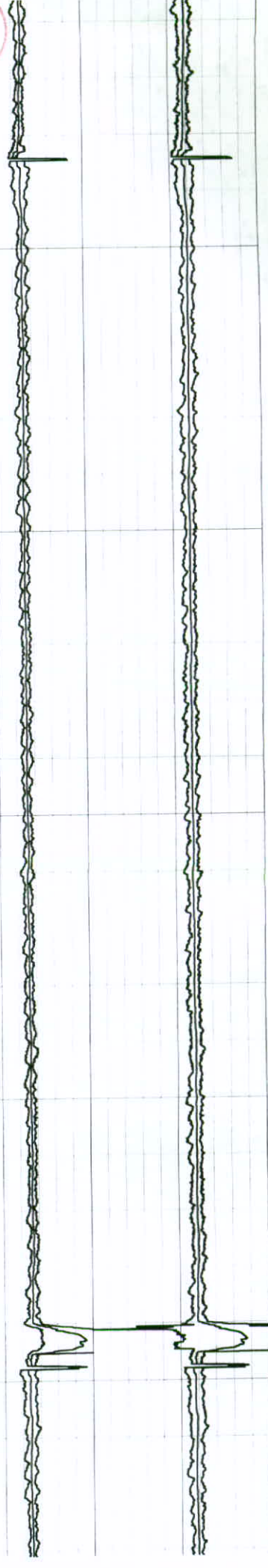
2050

5 1/2" CSG  
FAILURE →

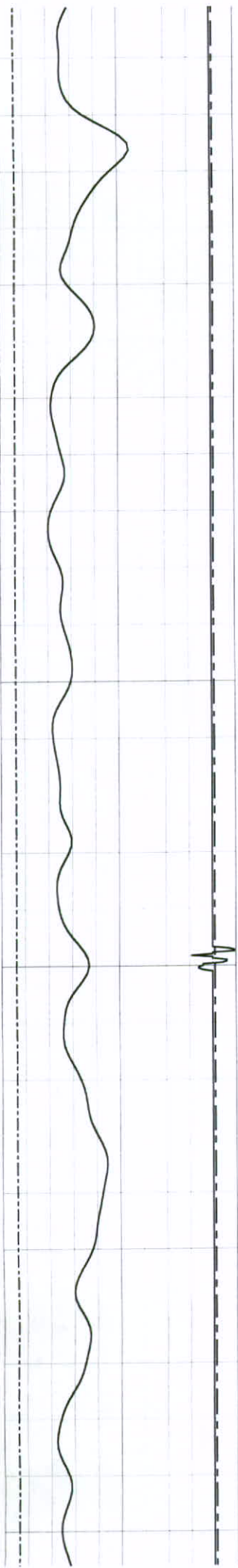
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S

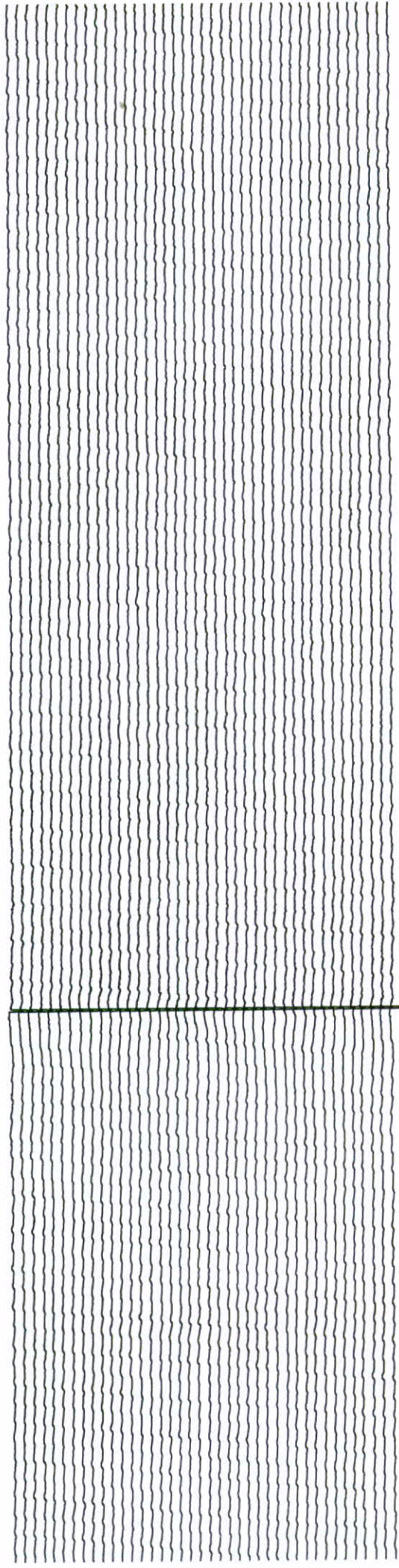




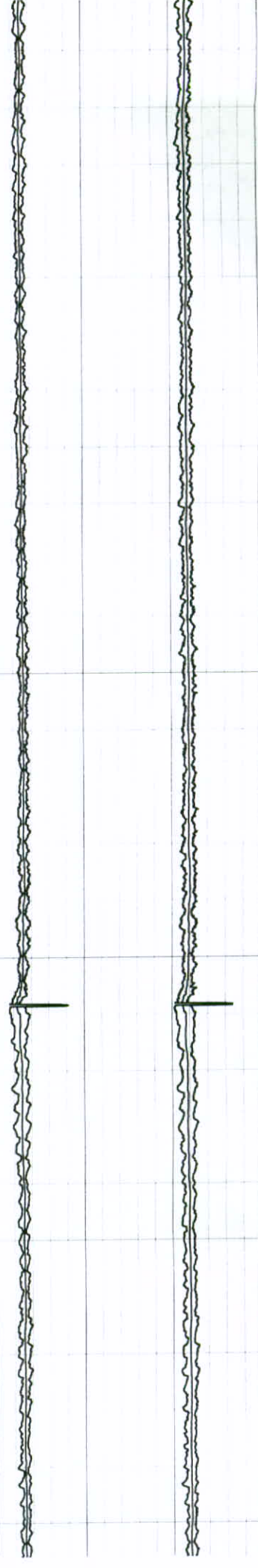


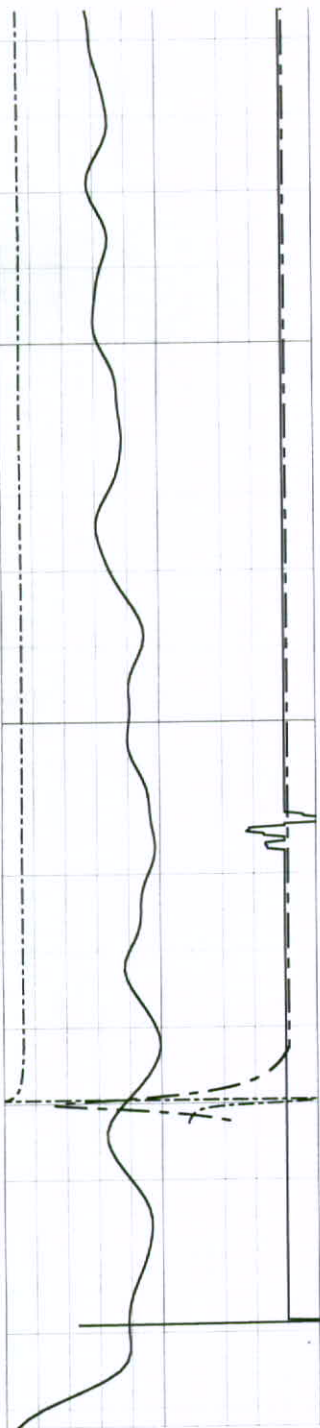
2100

2125

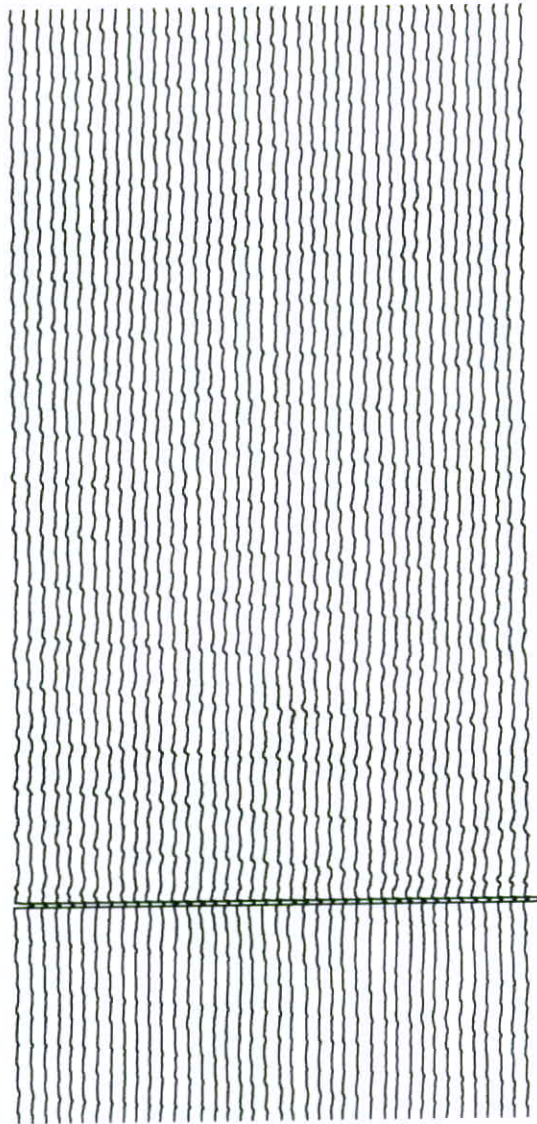


S

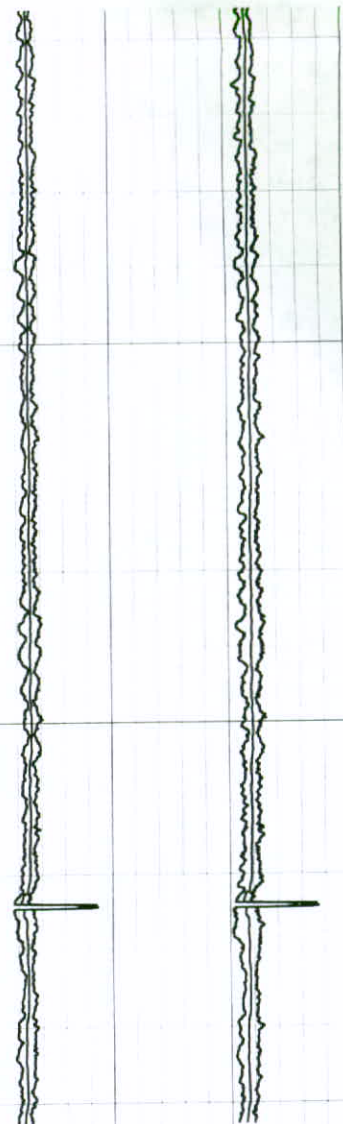




2150



S



0	MIT Deviation (°)	90
0	Gamma Ray	120
-18000	CCL	2000
0	MITROT (°)	360

2	FING01 (in)	7.31
1.89	FING02 (in)	7.2
-2.18	FING39 (in)	3.13
-2.29	FING40 (in)	3.02

Average Diameter		Average Radius	
4.25	(in)	5.25	2.125 (in)
Minimum Diameter		Minimum Radius	
4.25	(in)	5.25	2.125 (in)
Maximum Diameter		Maximum Radius	
4.25	(in)	5.25	2.125 (in)





**Andrews, David**

---

**From:** Miley, Craig [Craig.Miley@encana.com]  
**Sent:** Tuesday, November 03, 2009 4:06 PM  
**To:** Andrews, David  
**Cc:** Johnson, Tina; Morss, Ruth Ann; Spector, DeAnne M.  
**Subject:** Orchard Unit 20-12H (K20OU) - Frac Graphs at Failure, CSG patch specs  
**Attachments:** 5 12 CASING PATCH 10K 002.jpg; K20OU - Stage 5 - CSG Failure - zoom #1 in at point of failure.pdf; K20OU - Stage 5 - CSG Failure - zoom in at point of failure.pdf; 5 12 CASING PATCH 10K 001.jpg

I've attached the frac graphs from the point at which casing failed. I've also attached the specs/diagram of the Logan 10K psi overshot CSG patch we're planning on running with new 5.5" CSG.

**Craig Miley**

Production Engineer, S. Piceance  
EnCana Oil & Gas (USA), Inc.  
370 17th St. Suite 1700  
Denver, CO 80202

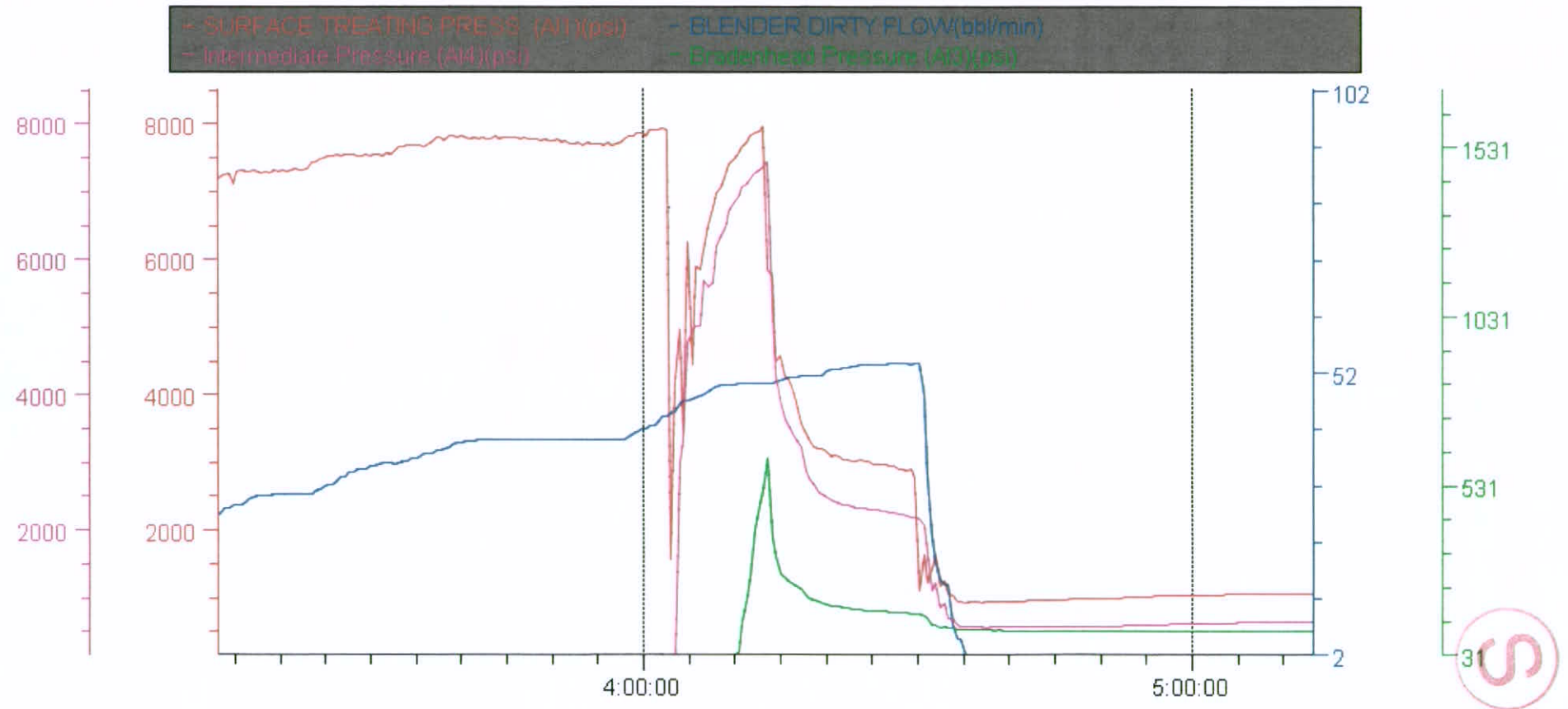
Office: (720) 876-5396  
Mobile: (303) 495-8665  
Fax: (720) 876-6396  
Email: [Craig.Miley@EnCana.com](mailto:Craig.Miley@EnCana.com)

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<http://www.encana.com>

K200UStage5Frac

Horizontal



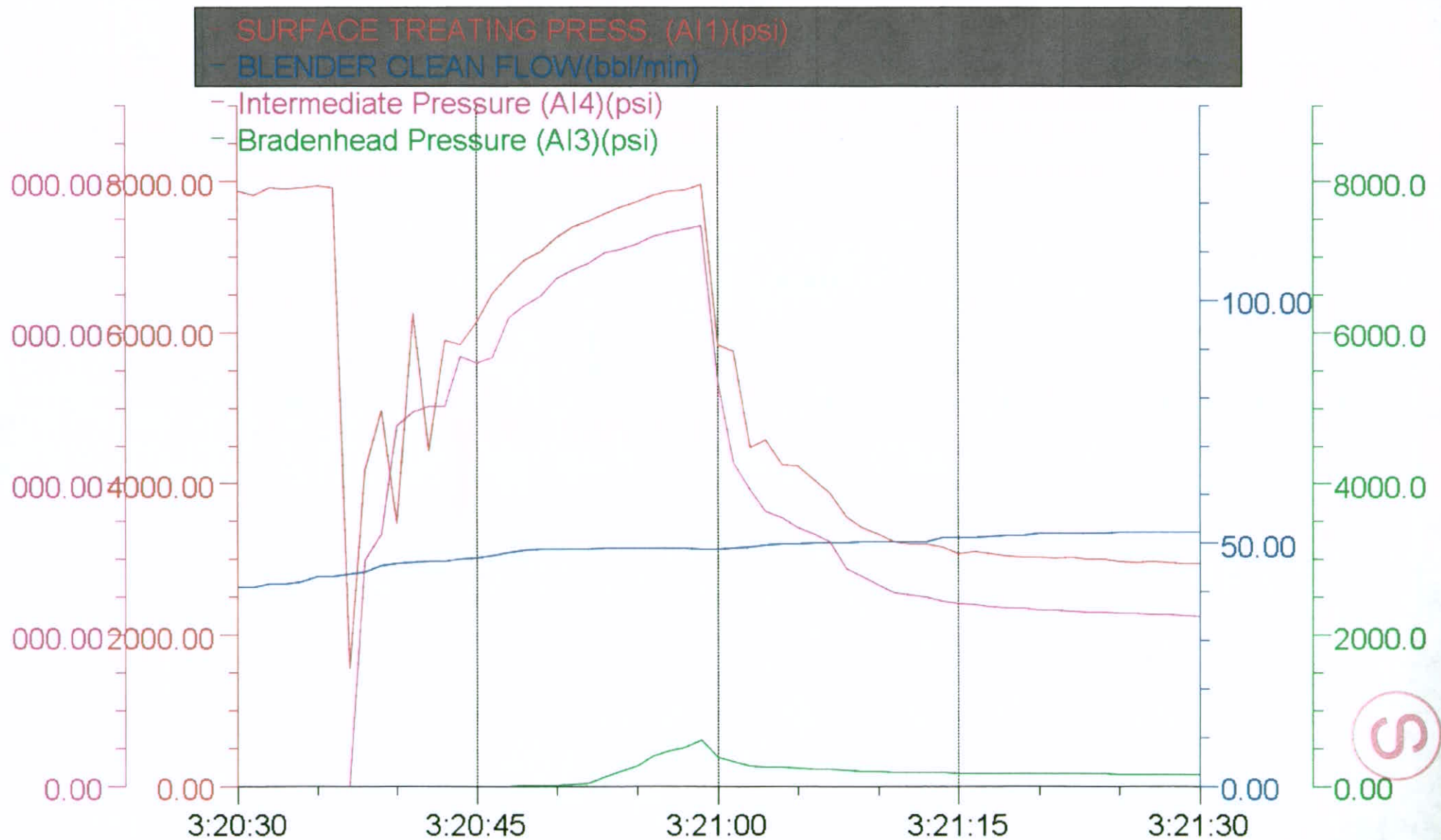
Encana

10/31/2009

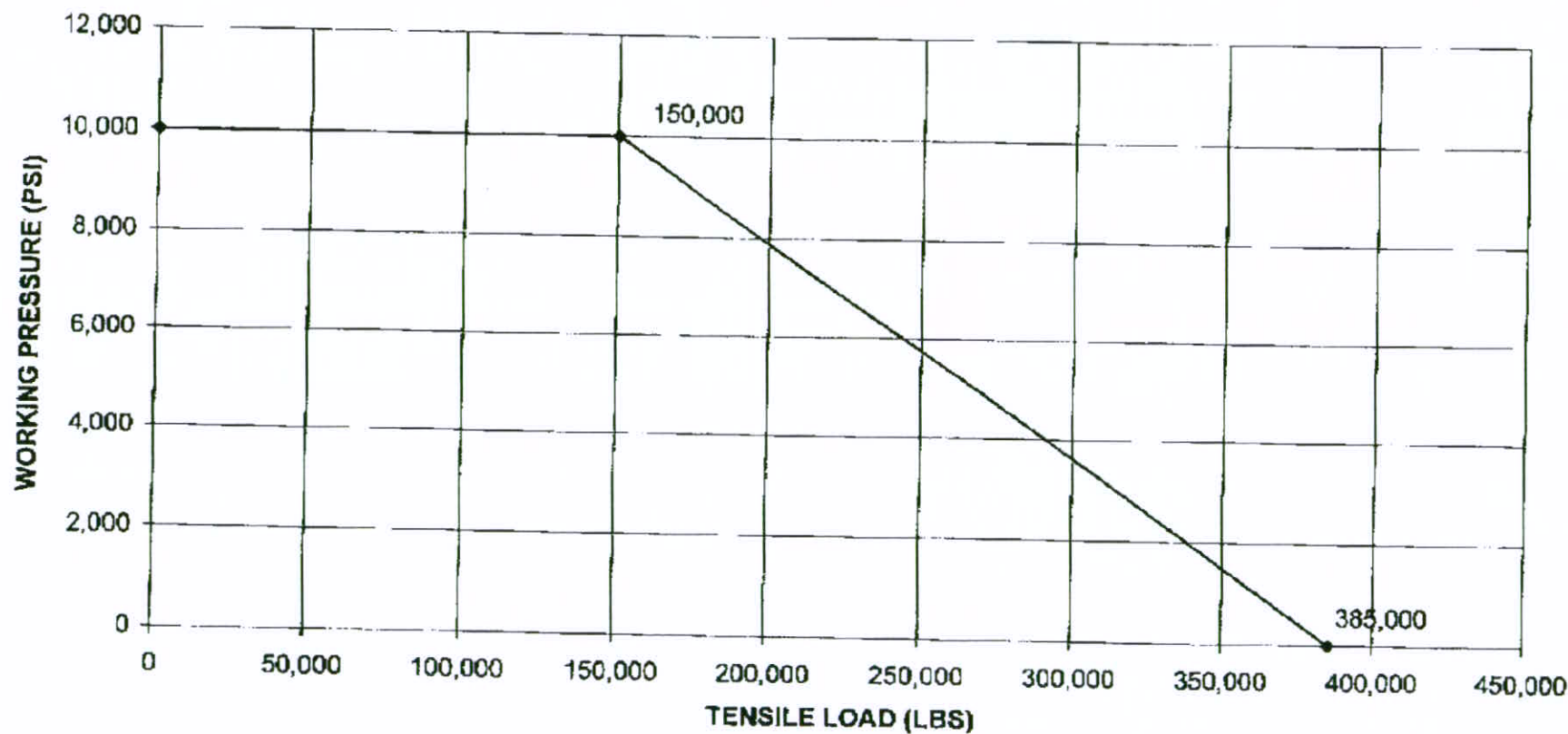


# K20OUStage5Frac

Horizontal



**STRENGTH DATA FOR LOGAN 7.0" OD HIGH PRESS PKOFF FOR  
5-1/2 CASING, 10,000 PSI MAX WP 125K YIELD MAT'L  
510L-007-001**



COLLAPSE PRESSURE:  
11,310 PSI @ 0 TENSILE  
7947 PSI @ 385K TENSILE

TORQUE:  
T.S. TO BWL = 6680 FT/LBS  
BWL TO GDE = 1500 FT/LBS

DATA BY SLS 8/23/2005





**Andrews, David**



**From:** Miley, Craig [Craig.Miley@encana.com]  
**Sent:** Thursday, November 05, 2009 8:19 AM  
**To:** Andrews, David  
**Subject:** RE: Orchard Unit 20-12H (K20OU) - Casing Remediation Plan  
**Attachments:** K20OU - Casing Testing - Pump down 5.5 in into 9.625 in.pdf

David,

I'm just checking to see if there were any concerns with our 5.5" production casing remediation for the Orchard Unit 20-12H (K20OU)? Also, the BLM has given us the OK to proceed with the procedure.

I've attached a graph from a pump/pressure test we performed against the Bradenhead. We pumped down 5.5", established circulation thru the hole @ ~2100' to the 9-5/8" Intermediate CSG, shut in the 9-5/8" CSG, and pressured up the 9-5/8" CSG to ~250 psi (5.5" was at ~450 psi). During the pumping and pressure testing, the Bradenhead remained at zero and did not show any signs of flow. In the attached graph, the red "Treating Pressure" line is from 5.5" CSG, the teal line is Intermediate CSG. I'm hoping this means we have no leaks in our Surface CSG--more testing will be done to confirm.

Did you need any other info? Did the attachments make it through?

Finally. . . I'm finishing up the P&A procedure for the Shear 30-4. We have a small window to do the work in the last 2 weeks of November, and we're going to try and schedule it then. I'll keep you posted, and send my procedure later today.

Thanks,

Craig.

---

**From:** Miley, Craig  
**Sent:** Tuesday, November 03, 2009 3:58 PM  
**To:** 'Andrews, David'  
**Cc:** Johnson, Tina; Morss, Ruth Ann; Spector, DeAnne M.  
**Subject:** Orchard Unit 20-12H (K20OU) - Casing Remediation Plan

David,

As we discussed yesterday, we had a shallow casing failure (2069') right above a collar during the very beginning of one of our horizontal Niobrara fracs on the Orchard Unit 20-12H (K20OU). During the beginning of the Stage 5 completion, surface treating pressure decreased sharply which was matched by an increase in Intermediate CSG pressure. Surface CSG pressure increased as well. The job was shut down, a CBP was set at 8020', and all pressures were bled down to zero psi where they have remained since the plug was set. A 2nd CBP + cement was set at 7400' MD for additional well control and safety.

It was determined that a hole/split is in the 5.5" casing just above the collar at 2069' MD. This remediation procedure includes steps to cut and pull 5.5" CSG, evaluate the 9-5/8" Intermediate CSG w/ 40-arm caliper log, and patch/cement new 5.5" CSG in place. Following the successful patch & cement job, the cement and plugs will be drilled out, pushed to the frac plug between Stages 4 & 5, and the completions will resume for Stages 5-18.

Following this email, I'll send the the following info in a few emails due to the large size of the attachments (I believe there's a size limit of 4 MB?). Let me know if you don't receive any of the following: 1.) 5.5" CBL, 2.) 5.5" CSG inspection log, zoomed-in version, 3.) 5.5" CSG Inspection log--full version, 4.) Frac graphs at CSG failure, 5.) CSG Patch specs.

Our Regulatory Team is working on the sundry which includes the procedure I've attached here. Please let me know if there are any questions, concerns, or if any other info is needed.

Thanks,

**Craig Miley**

Production Engineer, S. Piceance  
EnCana Oil & Gas (USA), Inc.  
370 17th St. Suite 1700  
Denver, CO 80202

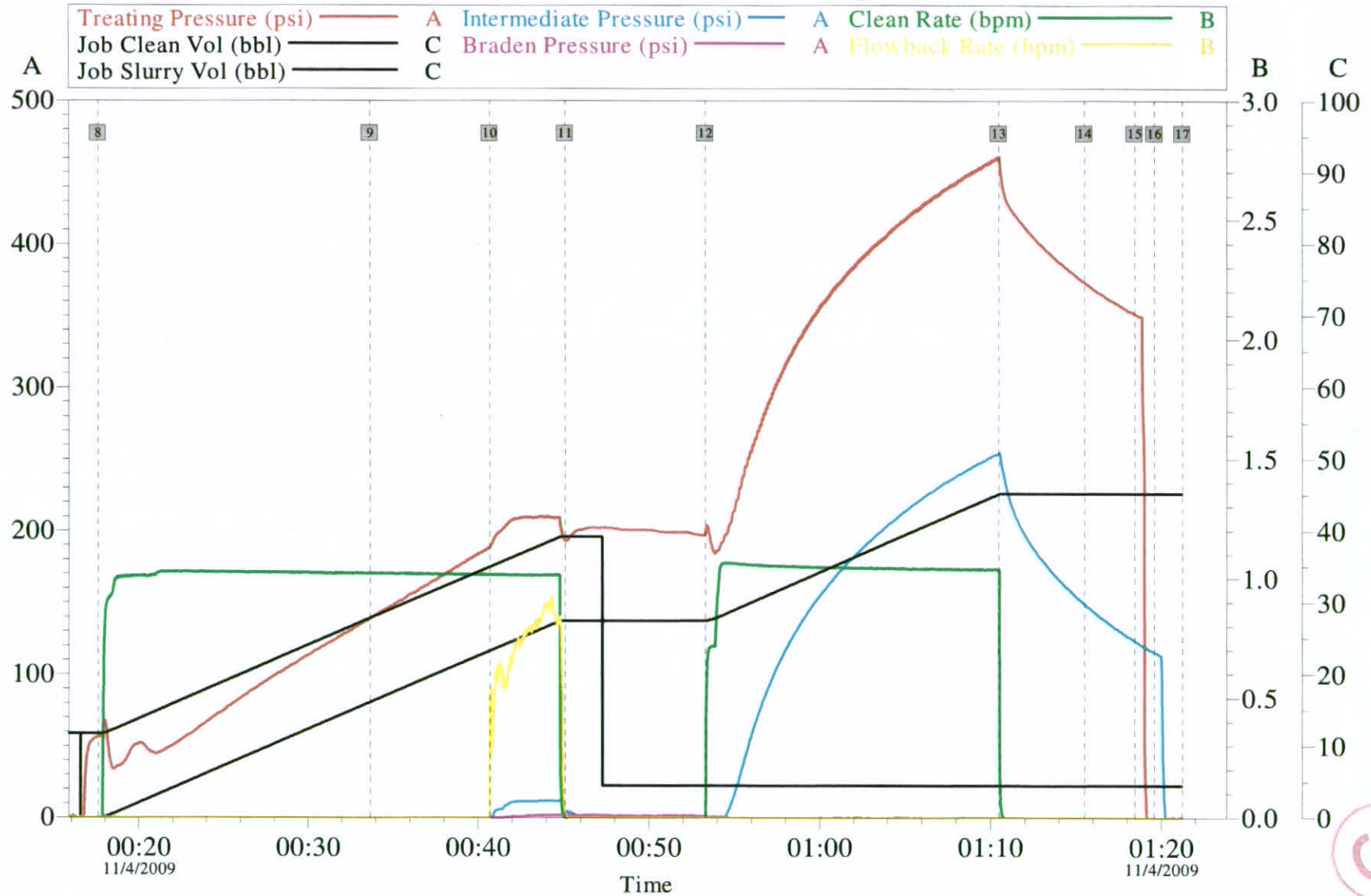
Office: (720) 876-5396  
Mobile: (303) 495-8665  
Fax: (720) 876-6396  
Email: [Craig.Miley@EnCana.com](mailto:Craig.Miley@EnCana.com)

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# ENCANA 20-12H Test Casing



Customer: ENCANA OIL & GAS (USA) INC. - EBUS  
Well Description: ORCHARD UNIT 20-12H

Job Date: 03-Nov-2009  
UWI: 05-077-09420

Sales Order #: 6987965

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