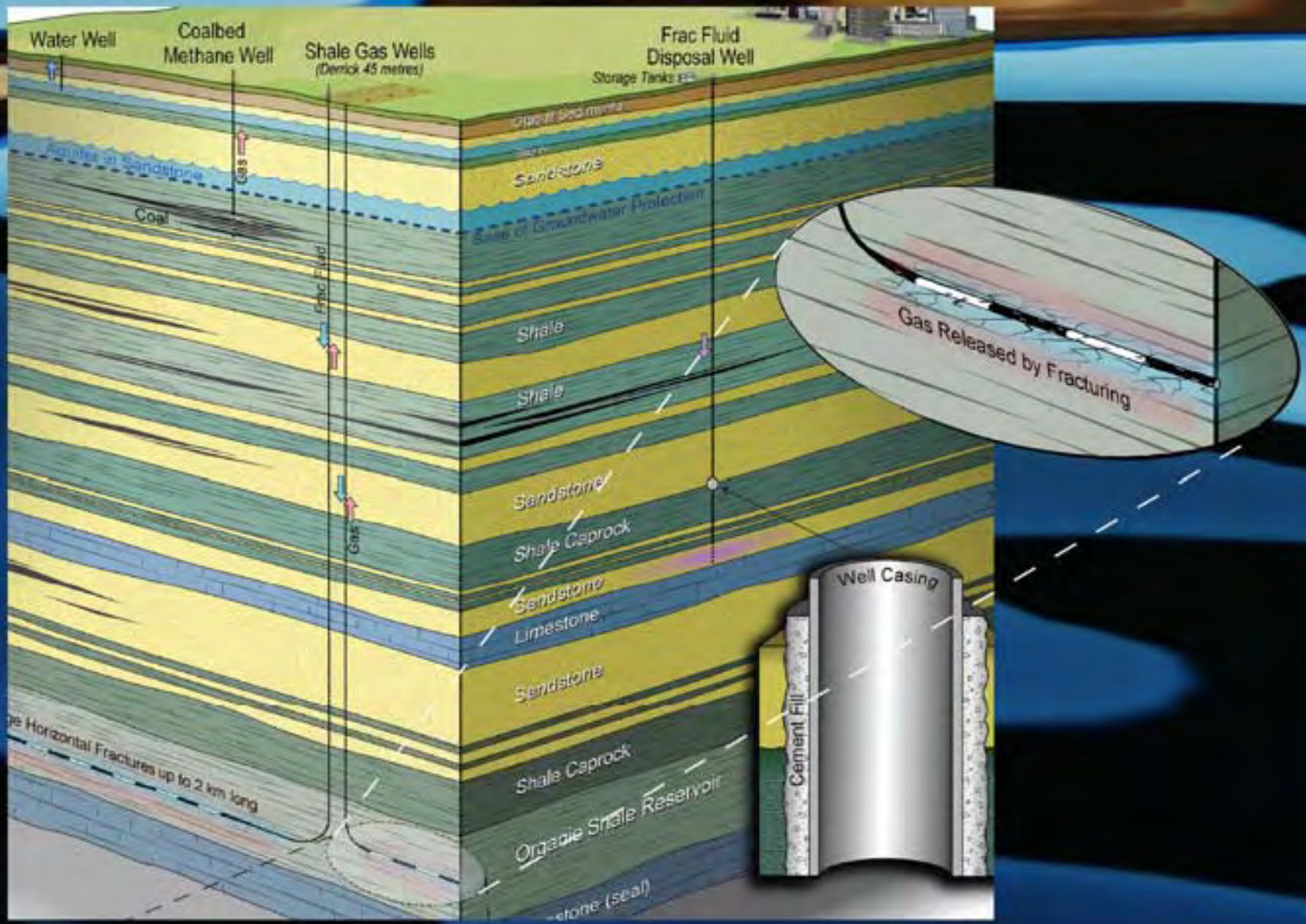
There's a Hole in their Story

by Jessica Ernst
Lethbridge
November 24, 2011
www.ernstversusencana.ca
Allegations yet to be proven in court


Water Well
Coalbed Methane Well
Shale Gas Wells
(Derrick 45 metres)
Frac Fluid Disposal Well
Storage Tanks
Aquifer in Sandstone
Gas
Coal
Frac Fluid
Gas
Sandstone
Base of Groundwater Protection
Shale
Shale
Sandstone
Shale Caprock
Sandstone
Limestone
Sandstone
Shale Caprock
Ordovician Shale Reservoir
Horizontal Fractures up to 2 km long
Gas Released by Fracturing
Well Casing
Cement Fill

Historic Data on some Rosebud water wells

Gas Present: Yes or No?

1977 Paterson well: *No*

1986 Ernst (Feckly) well: *No*

1987 County well, near Ernst: *No*

Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.:	0123548
Map Verified:	Map
Date Report Received:	1986/05/14
Measurements:	Imperial

1. Contractor & Well Owner Information

Company Name: UNKNOWN DRILLER		Drilling Company Approval No.: 99999
Mailing Address: UNKNOWN	City or Town: UNKNOWN AB CA	Postal Code:
WellOwner's Name: FECKLEY, F.L.	Well Location Identifier:	
P.O. Box Number: 723	Mailing Address: ROSEBUD	Postal Code: T0J 2T0
City:	Province:	Country:

2. Well Location

1/4 or LSD	Sec	Twp	Rge	Westof M
SE	13	027	22	4

Location in Quarter
0 FT from Boundary
0 FT from Boundary

Lot Block Plan

Well Elev: FT
How Obtain: Not Obtain

3. Drilling Information

Type of Work: Chemistry
Reclaimed Well
Date Reclaimed: Materials Used:
Method of Drilling: Drilled
Flowing Well: Rate: Gallons
Gas Present: No Oil Present: No

Proposed well use: Domestic
Anticipated Water Requirements/day 0 Gallons

4. Formation Log

Depth from ground level (feet)	Lithology Description

5. Well Completion

Date Started(yyyy/mm/dd): Date Completed(yyyy/mm/dd):

Well Depth: 190 FT Borehole Diameter: 0 Inches

Casing Type:	Liner Type:
Size OD: 0 Inches	Size OD: 0 Inches
Wall Thickness: 0 Inches	Wall Thickness: 0 Inches
Bottom at: 0 FT	Top: 0 FT Bottom: 0 FT

Perforations: Perforations Size:
from: 0 FT to: 0 FT 0 Inches x 0 Inches
from: 0 FT to: 0 FT 0 Inches x 0 Inches
from: 0 FT to: 0 FT 0 Inches x 0 Inches

Perforated by:

Seal: from: 0 FT to: 0 FT
Seal: from: 0 FT to: 0 FT
Seal: from: 0 FT to: 0 FT

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Installation Method:

Fittings
Top: Bottom:

Pack:
Grain Size: Amount:

Geophysical Log Taken:
Retained on Files:

Additional Test and/or Pump Data
Chemistries taken By Driller: No
Held: 1 Documents Held: 1

Pitless Adapter Type:
Drop Pipe Type:
Length: Diameter:

Comments:

6. Well Yield

Test Date (yyyy/mm/dd): Start Time:
Test Method:

Non pumping static level: FT

Rate of water removal: Gallons/Min

Depth of pump intake: FT

Water level at end of pumping: FT

Distance from top of casing to ground level: Inches

Depth To water level (feet)
Elapsed Time
Drawdown Minutes:Sec Recovery

Total Drawdown: FT

If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: Gallons/Min

Recommended pump intake: FT

Type pump installed
Pump type:
Pump model:
H.P.:
Any further pumptest information?

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER
Certification No.:
This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true.
Signature Yr Mo Day

Report 1

~ 2300 historic water well records 50 km2 around my home completed prior to the arrival of shallow frac'd Coalbed Methane (~2001)

4 (0.17%) noted the presence of a gas that could be methane

Dyck & Dunn, 1986

In 1976 surveyed 939 water wells & springs

Saskatchewan, Canada

Methane concentrations highest where petroleum industry drill hole density increased

95% of samples had < 0.3 mg/l methane

EPA, 1987

Documented case
of
hydraulic fracturing
contaminating well water

With reportedly 100's of others sealed by confidentiality agreements

Krooyman *et al*, 1989

S. Manitoba, Canada

Hydraulic fractures in several energy wells propagated into
underlying water zone

Husky, 1993

Industry Gas Migration Research

Study in Alberta & Saskatchewan

Big problem

Expensive to fix

Difficult to completely stop

Husky's 1993:
46% energy wells tested had gas migration

When did the idea form to blame nature for industry's gas migration?

"Could some part of the problem be attributable to "natural sources" (e.g. swamp gas) which are using the wellbores as a conduit?"

Quote in Husky's 1993 Report

Chafin, 1994:
US Geological Survey

Did not find substantial vertical migration of methane by natural processes

“gas-well annuli are more important than natural fractures for the upward migration of gas”

Chafin, 1994: “man made migration pathways probably introduced most near surface gas to the study area”

Canadian Association of Petroleum Producers (CAPP)

1995 & 1996

Migration of Methane into Groundwater from Leaking Production Wells Near Lloydminster

CAPP Gas Migration Study

~24,000 historic water well records in Alberta were reviewed

17 (<0.1%) reported “gas” present before oil & gas development

CAPP study of methane in water wells on Alberta side

"provides useful data on dissolved methane in groundwater as used in the region"

Methane detected in 20/23 water wells

most < 0.05 mg/l

2 highest were slightly > 1 mg/l

1996 CAPP Gas Migration Report:

Plumes of dissolved methane may spread by advection and dispersion into aquifers

Methane may also migrate laterally as a gas phase within these aquifers

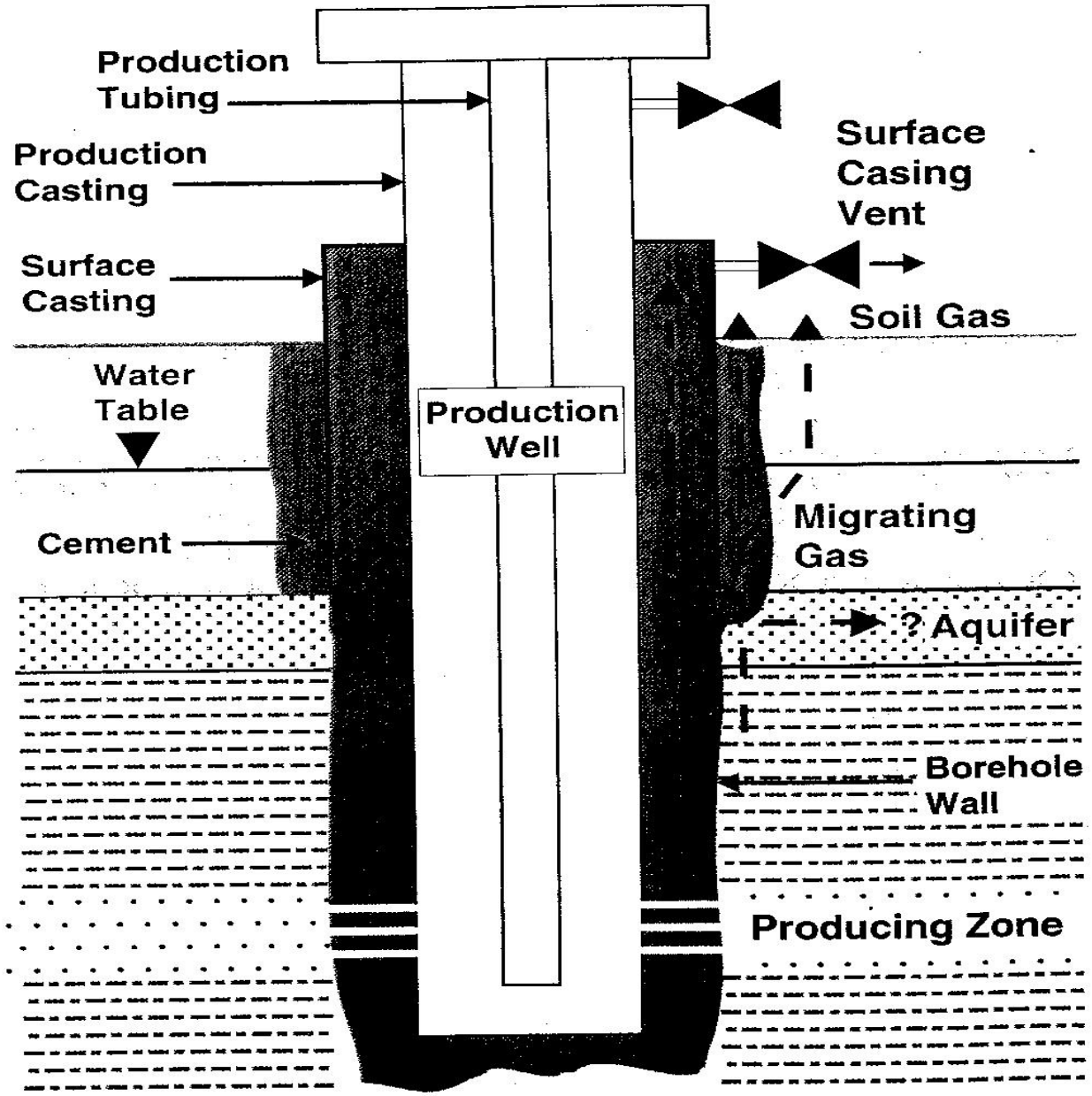


Figure 3 Schematic of gas migration, modified after Schmitz et al (1994).

CAPP 1996: elevated methane levels in groundwater near hydrocarbon wells

"The highest concentration (1995; mg/l) at the research sites was...

19.1 at Lindbergh."

1998
I bought my home at Rosebud

January 2001
Hutchinson, Kansas

Trican Well Service & Husky Energy, 2002

The percentage of leaking energy wells ranged from 12% to 80%

2002

Canadian Council of Ministers of the Environment

Linking Water Science to Policy Workshop

Regulators also attended.

The Canadian Council of Environmental Ministers 2002 Report:

Little is known about the integrity of concrete seals & steel casings in 600,000 abandoned hydrocarbon wells in Canada

Industry's future impact on groundwater could be immense.

The Canadian Council of Ministers of the Environment 2002 report:

Unconventional natural gas drilling poses a real threat to groundwater quality & quantity

Canada needs “baseline hydrogeological investigations....to be able to recognize and track groundwater contaminants.”

EnCana's Early Experimental and Risky
Shallow Hydraulic Fracturing
at Rosebud (~6 mi around my well)

Gas wells completed above BGWP*
(in secret)

2001: 3
2002: 6
2003: 17
2004: 40
2005: 94
2006 – present: many more

* BGWP = Base of Groundwater Protection

EnCana, led by CEO Gwyn Morgan, uses my community - with children and pregnant women - as a Secret Frac Test Tube

EnCana gas wells completed above 200 m at Rosebud

2001:	1 (most shallow 100.5 m)
2002:	3
2003:	8
2004:	28 (most shallow 121.5 m, repeat fracs into Rosebud aquifers)
2005:	21
Dec 13, 2005	Rosebud water hits front page news
Jan 6, 2006:	1 EnCana Frac Test Tube Terminated
May 16, 2006:	Parliamentarians vote Morgan nomination “unsuitable”
Oct, 2006:	Rosebud water, Alberta Views Magazine Cover Story
Oct 25, 2006:	Mr. Morgan steps down from EnCana Board
2010:	1 EnCana perfs again above 200 m
	Mr. Morgan receives Order of Canada

2003 – Frac'd Life begins

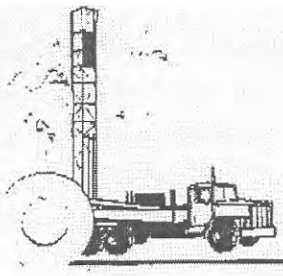
With Noise

EnCana continues to violate my legal right to quiet enjoyment of my home & land

2003: Test by EnCana on my well

Water appearance: *Clear*

Tester did not report visible gas in my water



M & M Drilling Co. Ltd.

Box 1, Site 22, RR 2, Strathmore, AB T1P 1K5

(403) 934-4271 • Fax (403) 934-4865

Name:	ERNST, JESSICA	*Test #:*	1061 - 2211
Address:	BOX 753	*Date:*	6/20/2003
Location:	ROSEBUD, ALBERTA	*Start Time:*	8:45 AM
Post. Code:	T0J 2T0 *Phone:* 677-2074	*Static Level:*	28' 5"
Tested For:	ENCANA CORP., G. PEKRUL	*Well Name:*	ECA/ECOG REDLANDS
Well Location/Description:	SE-13-27-22-W4 HOUSE WELL	*Land Location:*	14-12-27-22-W4
Pumping Rate:	STATIC & SAMPLES ONLY	*AFE Number:*	CD05391
GPS	N-51-18-02.2 W-112-57-41.1	*Readings By:*	DAVID SAWYER

☑ PRE-TEST ☐ POST TEST ☐ REALESTATE

Well Location On Site: IN OLD BARN NORTH OF HOUSE
Pit Type: WELL HEAD
Pit Condition: N/A
Pump Size and Type: 2 WIRE SUBMERSIBLE
Tank Size and Type: MARK IV CONSTANT PRESSURE
Casing Size and Type:
Liner Size and Type: N/A
Well Depth: N/A

Water:
- *Appearance* ☑ Clear ☐ Colour
- *Odor* ☐ None ☑ Yes SLIGHT H2S
- *Suspended Solids:* ☐ None ☑ Yes FEW BLACK PARTICLES

Pumping Procedure:
- *Open Discharge:* ☑ No ☐ Yes
- *Pressure Tank* ☐ No ☑ Yes
- *Pressure Reading* N/A
- *Special Fitting* ☐ None ☑ Yes 3/4" PUMP OUT HOSE

Samples Taken: ☐ *Other Sample*
- ☐ Chemical23:
- ☑ Chemical51:
- ☑ Coliform Bacteri
- ☐ Heavy Metals:
- ☑ TOC
- ☑ H2S:
- ☐ OilAndGrease:

Lab where samples were tested: ☑ WSH ☐ Other

Measurement Taken From: CASING TOP

Miscellaneous test information: SAMPLES TAKEN FROM PUMP OUT HOSE
WELL OFF FOR ONE HOUR BEFORE STATIC TAKEN

2003
Alberta Research Council

Natural methane release from coal formations in Alberta is rare because reservoirs are "tight"

Maurice Dusseault, 2003

Leaking methane gas from 1000's of resource wells posed

"massive environmental problems"

Escaping methane

"changes the water, and generates aquifer problems."

Coleman, 2004

An investigation on Hutchinson Kansas explosions demonstrated that gas had migrated from a leaking gas well more than six miles away

WELL ID: 00 / 05-14-027-22 W4 / 0

EUB COMPANY INFORMATION
CURRENT TO June 29, 2007

COMPANY NAME:	ENCANA CORPORATION		
ADDRESS:	Box 2850, 150 - 9 Avenue SW Calgary, AB T2P 2S5		
PHONE #:	403-645-2000	BUSINESS ASSOCIATE CODE:	0026

EUB WELL PRODUCTION DATA
CURRENT TO MAY 25, 2007

AVERAGE DAILY PRODUCTION RATE

WATER

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
2004	0	0	0	0	0	0	0	96	0	0	0	0

EUB WELL LICENSING DATA

UNIQUE WELL ID:	0274221405000	WELL LICENCE NUMBER:	0293679
REGULATION SECTION:	Section 2.020	WELL LICENCE DATE:	SEPTEMBER 24, 2003
SURFACE LOCATION:	05-14-027-22 W4	SURFACE OFFSETS:	N 570 E 40
ACTUAL SURFACE LATITUDE:	51.304912	LONGITUDE:	113.004771
THEORETICAL SURFACE LATITUDE:	0	LONGITUDE:	0
LICENCEE:	ENCANA CORPORATION		
EUB AREA OFFICE:	MIDNAPORE	TERMINATING FORMATION:	BELLY RIVER GRP
LAHEE CLASSIFICATION:	DEVELOPMENT	CONFIDENTIAL STATUS:	NON CONFIDENTIAL
SURFACE OWNER:	FREEHOLD	MINERAL RIGHTS OWNER:	FREEHOLD
AGREEMENT NUMBER:		AGREEMENT TYPE:	
AGREEMENT EXPIRY DATE:		DRILL COST AREA:	
SCHEME APPROVAL NUMBER:		SCHEME EXPIRY DATE:	
INCENTIVE CERTIFICATE NUMBER:	00000	INCENTIVE CERTIFICATE DATE:	
SURFACE ABANDONED TYPE:		SURFACE ABANDONED DATE:	

EUB WELL TOUR - CEMENTING DATA				
STAGE NO	UNIT	AMOUNT	TYPE	RECEMENT
0	TONNEST	4	CLASS G NEAT	0
0	TONNEST	6	CLASS G NEAT	0

There is no Tour - Cores Cut data for this well.

EUB WELL TOUR - PERFORATION / TREATMENT DATA				
DATE	TYPE	INTERVAL TOP	INTERVAL BASE	SHOTS
Feb 15 2004	JET PERFORATION	418.9	419.9	13
Feb 15 2004	JET PERFORATION	415.5	416.5	13
Feb 15 2004	JET PERFORATION	374.3	375.3	13
Feb 15 2004	JET PERFORATION	371.7	372.7	13
Feb 15 2004	JET PERFORATION	358.4	359.4	13
Feb 15 2004	JET PERFORATION	354.5	355.5	13
Feb 15 2004	JET PERFORATION	347.8	348.8	13
Feb 15 2004	JET PERFORATION	342.6	343.6	13
Feb 15 2004	JET PERFORATION	284.9	286.9	13
Feb 15 2004	JET PERFORATION	283.5	284.5	13
Feb 15 2004	JET PERFORATION	259.3	260.3	13
Feb 15 2004	JET PERFORATION	248	250	13
Feb 15 2004	JET PERFORATION	244.9	245.9	13
Feb 15 2004	JET PERFORATION	238.6	239.6	13
Feb 15 2004	JET PERFORATION	234.6	235.6	13
Feb 15 2004	JET PERFORATION	228.7	230.7	13
Feb 15 2004	JET PERFORATION	222	223	13
Feb 15 2004	JET PERFORATION	220.1	221.1	13
Feb 15 2004	JET PERFORATION	186.1	187.1	13
Feb 15 2004	JET PERFORATION	177.1	178.1	13
Feb 15 2004	JET PERFORATION	141.4	142.4	13
Feb 15 2004	JET PERFORATION	133	134	13
Feb 15 2004	JET PERFORATION	131.7	132.7	13
Feb 15 2004	JET PERFORATION	125.5	126.5	13
Mar 2 2004	FRACTURED	131.7	419.9	0
Jul 12 2004	CEMENT SQUEEZE	141.4	142.4	0

Owner: ***EnCana Corporation***
[unknown], AB

Contractor: ***[unknown saskatchewan contractor]***
Well Name: ***ECA ECOG HUSSAR 5-14-27-22***

METRIC REPORT

Easting (m): ***139,003*** ** 84/83
Northing (m): ***5,683,326*** **
Elevation (m): ***868.5*** ***
Google Earth

05-14-027-22 W4M

M38268.500313

Work Type: ***Gas Well***
Drilling Method: ***Drilled***
Proposed Use: ***Industrial***
Completion Type: ***Casing/Perforated Liner***

Date Started: ***Oct 13, 2003***
Date Completed: ***Oct 13, 2003***

Elog Taken: ***No***
Gamma Taken: ***No***

Flowing: ***No***

General Details

Depth Completed (m): ***219.0***
Depth Drilled (m): ***463.0***
Completion Interval (m): ***121.5 — 219.0 ****

Completion Details

Surface Casing: ***[unknown] — 177.8 mm (O.D.) x 2.00 mm (thick) x 81.00 m (bottom)***
Liner: ***[unknown] — 114.3 mm (O.D.) x 2.00 mm (thick)***

Intervals

(Liner Bottom at: 463.0 m

-- Completion Interval(s) --

Slotted: ***121.5*** to ***122.5 m*** - ***2*** - Method: ***Other***
Slotted: ***127.7*** to ***130.0 m*** - ***2*** - Method: ***Other***
Slotted: ***137.4*** to ***138.4 m*** - ***2*** - Method: ***Other***
Slotted: ***173.1*** to ***174.1 m*** - ***2*** - Method: ***Other***
Slotted: ***182.1*** to ***183.1 m*** - ***2*** - Method: ***Other***
Slotted: ***216.1*** to ***219.0 m*** - ***2*** - Method: ***Other***

Chemistry Summary Details (mg/L)

(most recent first)

Lithology Details

Elevation (AMSL)	Depth (BGL)	Lithology Descriptions (1)
405.5	463.0	[unknown]

General Comments / Observations

HC well added to be included in a x-sec for 04-510. Perforations are representative of coal layers. Perforations performed with nitrogen gas. Objective of perforations was to obtain coal bed methane gas production.

Oil Present: ***No***
Gas Present: ***No***
Observations (water): Colour: ; Odor: ; Quality:

Aquifer Tests

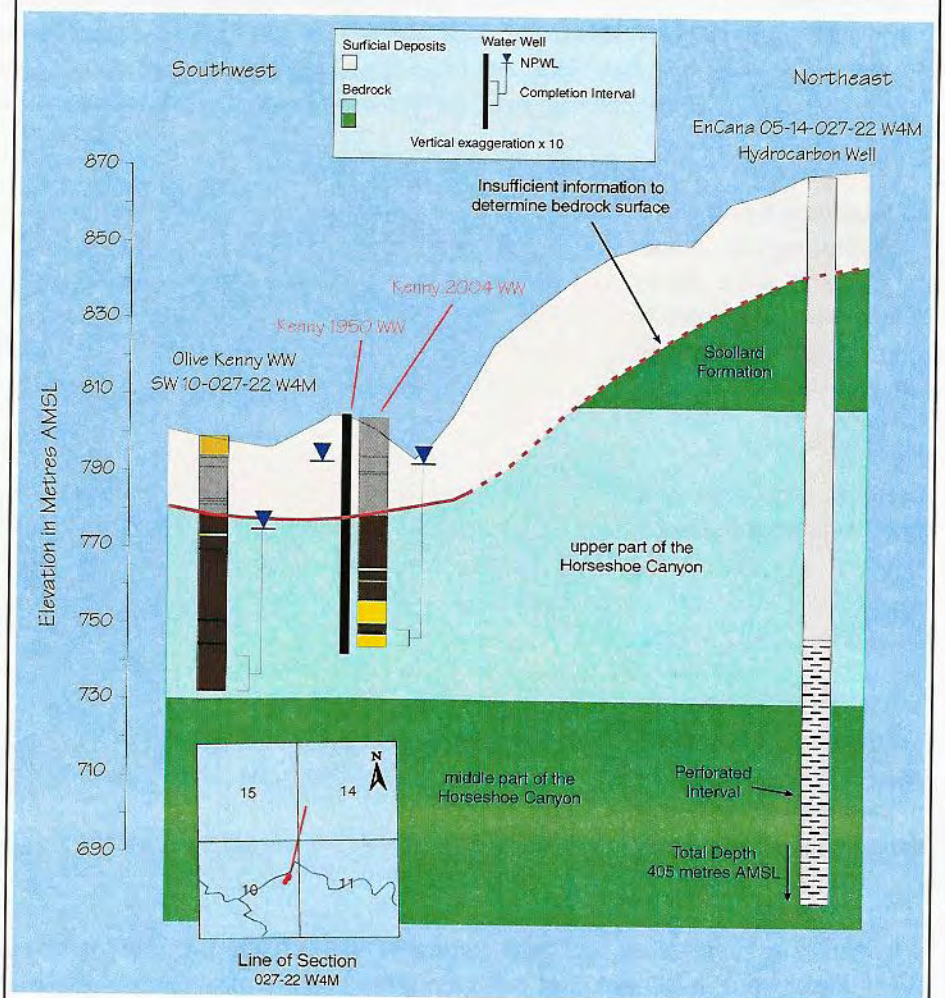
Alias IDs

** **TGWC** calculated or determined value.*
*** 84 - Surveyed (other) — 10TM NAD83*
**** 83 - Surveyed (other) — {Ground ; AMSL}*

6. INTERPRETATION

6.1. Aquifers

The SK 1950 WW and the SK 2004 WW are completed in the same hydraulic unit within the upper part of the Horseshoe Canyon Formation. The elevations of the water levels in both water wells are similar; there is no significant difference in the chemical quality of the groundwater from the two water wells and pumping from the SK 1950 WW causes measured drawdown in the water level in the SK 2004 WW. The vertical relationship between the elevation of the completion depths and the non-pumping water levels in the SK 1950 WW and the SK 2004 WW is shown in the adjacent cross-section.



South-North Cross-Section

Also shown on the cross-section is the EnCana 05-14 Gas Well and the perforation interval of the gas well when stimulated on 02 Mar 04. The cross-section shows the top of the perforated interval at an elevation of 747.45 metres AMSL, which coincides closely with the top of the completion interval of the SK 2004 WW.

The stimulation of the EnCana 05-14 Gas Well used nitrogen gas and the estimated pressure outside the perforations is nine megaPascals. Based on an aquifer model, the pressure change measured at the SK 1950 and SK 2004 water wells as a result of the stimulation would be in the order of 0.2 kiloPascals. As a result of flowing the 05-14 Gas Well for 76 days after stimulation, very little if any nitrogen gas would be expected to remain in the coal zone in the 125.5- to 126.5-metres below KB interval.

6.2. Sean Kenny 2004 Water Well

The interpretation of the turbidity data indicates that there are two sources of sediment in the groundwater from the SK 2004 WW. The first source is the groundwater running down the outside of the liner; the second source is the sandstone layers below the coal zone. When the water well is not being pumped, there is a gradual flow of groundwater down the annulus.

Alberta Environment, the Alberta Energy Resources Conservation Board* (ERCB) and EnCana will not disclose what chemicals were injected

* Used to be EUB, changed name after the regulator was caught spying on Albertans.

April 23, 2004
Alleged Violations of the rules and regulations of the Colorado Oil and Gas Conservation Commission (COGCC) by EnCana

"The COGCC staff hand-delivered a Notice of Alleged Violation ("NOAV") to EnCana on April 23, 2004....The NOAV cited Rule 209., **failure to prevent the contamination of fresh water by gas**, Rule 301., failure to notify the Director when public health or safety is in jeopardy, Rule 317.i., failure to pump cement 200' above the top of the shallowest producing horizon, Rule 324A., impacts to water quality and Rule 906.b.(3), failure to report a release to the Director."

EnCana wracked up record fines for this one.

EnCana tops the violations in Colorado

In the seven years to 2004, out of

34 violations issued by the

Colorado Oil & Gas Conservation Commission

24 (71%) belong to EnCana

EnCana had only been operating there

for 3 years.

2004 EnCana's fresh water production problems at Rosebud

From 2008 FOIP* results:

"Pressure test to 21 Mpa (supervisor error). Pressure cracked the remedial cement. Cement will no longer pressure test to 7 Mpa"

(July 16, 2004)

* Freedom of Information Legislation

Summer 2004
Water wells start to go bad

EnCana investigated itself, declares itself innocent.

EnCana & Alberta Environment blamed

our local water well driller!

August 2004: EnCana Landman

EnCana's inappropriate
blanket approval type document

EnCana's land manager:

"If we can get them to sign this, we don't need to consult"

He refuses to consult. We chat a long time. He finally agrees to hold an open house

A few days later ...

EnCana's land man was back at it ...

with the same document

September 9, 2004:

I resigned from EnCana

How could I ethically consult for a company that was lying to my community?

Noise Monitoring Survey,

EnCana Corporation
LSD 7-13-27-22 W4M
Compressor Station

Prepared for:
Kevin Wetteskind
Of
EnCana Corporation

Prepared by:
Justin Caskey, EIT
Richard Patching, M. Eng., P. Eng.
of
Patching Associates Acoustical Engineering Ltd.
Consultants in Acoustics, Noise Control and Vibrations

September 23, 2004
File: 2004 – 1724

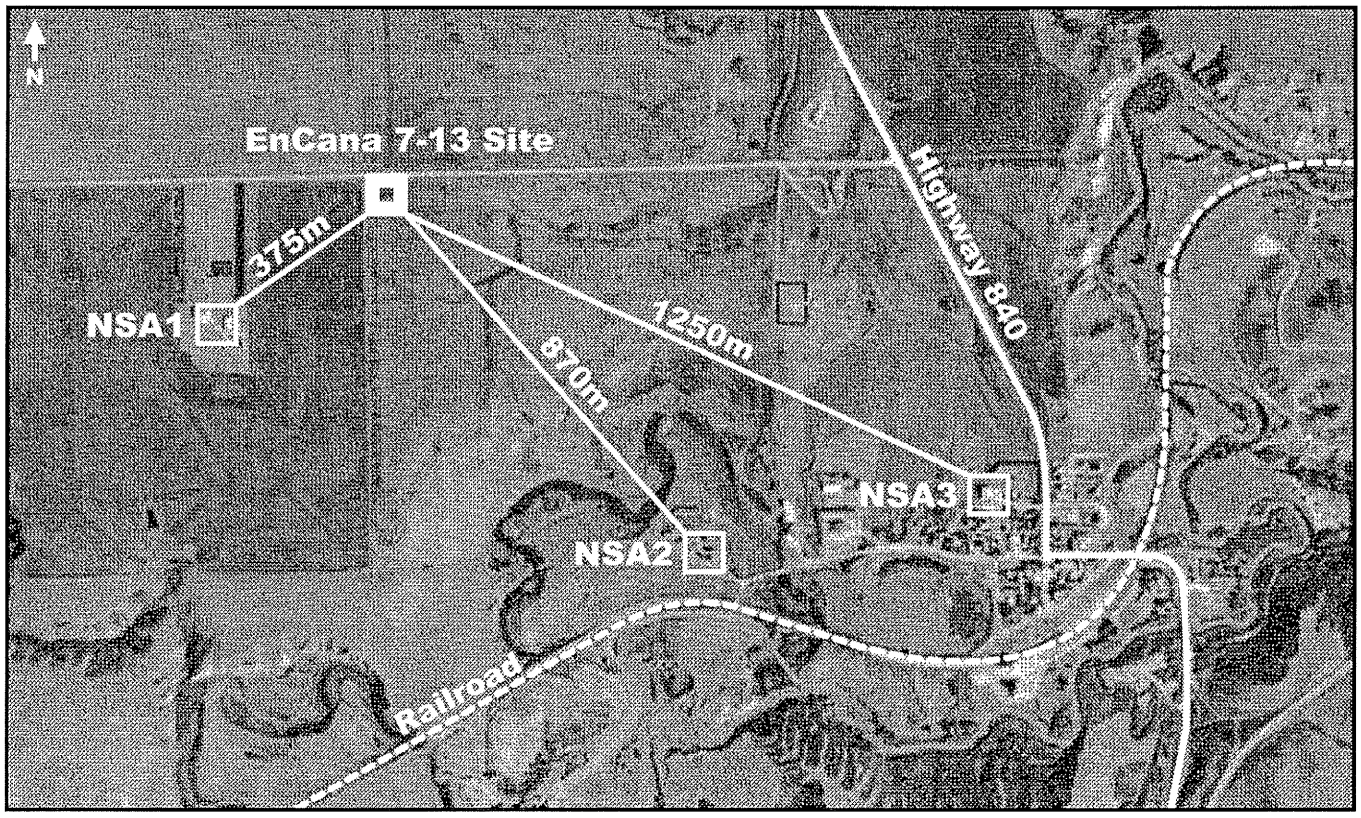
Introduction

Patching Associates Acoustical Engineering Ltd. (PAAE) was requested by EnCana Corporation to perform a noise survey northwest of Rosebud, Alberta. The results of this survey will be used to determine the noise levels in the vicinity of the 7-13-27-22 W4M EnCana Compressor Station (facility). Measurements were taken over a one-day period at the Rosebud Community Center. Measurements were also taken at the compressor site close to each compressor. The results of these measurements will be used to predict the noise levels at three potentially noise sensitive areas in the vicinity of the compressor facility.

Site Description

There are three areas in the vicinity of the facility that are potentially noise sensitive. These noise sensitive areas (NSA's) are shown in Figure 1. NSA 1 will be the most impacted area; it is the closest residence to the facility at 375 metres southwest. There is a direct line-of-sight from the facility to NSA 1 as both the facility and NSA 1 are on flat ground. NSA 2 is the furthest residence west in the town of Rosebud (approximately 650 m west of the center of Rosebud). This residence is located on the Rosebud River valley bottom and the shoulder of the valley breaks the line-of-sight from the facility to NSA 2. NSA 3 is the main town of Rosebud itself, as represented by the closest possible receiver to the facility, the Rosebud Community Center. NSA 3 is also in the Rosebud River valley bottom and there is no direct line-of-sight between the facility and NSA 3. Appendix A contains a figure of the contour cross-sections showing major land forms between the NSA's and the facility.

Figure 1: Map of Study Area



October 4, 2004
Coalbed Methane Meeting Minutes

Alberta Environment Deputy Minister
Peter Watson:

“It appears some of the companies were not familiar with the requirements….”

EnCana Open House
Oct 21, 2004

EnCana promised that they would only frac far below our fresh water aquifers

and below the impermeable layer to prevent gas migration into our water.

$150,000 promise to Rosebud Theatre


DANGER


K101

Comprehensive Sound Surveys

EnCana Corporation
LSD 7-13-27-22 W4M
Rosebud Noise Monitoring

Prepared for:
EnCana Corporation

Prepared by:
Justin Caskey, EIT
Richard Patching, M. Eng., P. Eng.
of
Patching Associates Acoustical Engineering Ltd.
Consultants in Acoustics, Noise Control and Vibrations

January 17, 2005
File: 2004 – 1724

Executive Summary

Patching Associates Acoustical Engineering Ltd. was requested by EnCana Corporation to perform noise surveys around the town of Rosebud, Alberta. These surveys determined the existing noise levels in the vicinity of the 7-13-27-22 W4M EnCana Compressor Station. Measurements were taken over approximately one month at nine sites in the vicinity of the compressor station. The goal of this noise study was to determine the sound levels in the vicinity of the town of Rosebud and the compressor station, to determine all major noise sources in the area, and assess the compliance of the compressor station with the requirements of the Alberta Energy and Utilities Board (AEUB).

The measured nighttime sound levels with the Permissible Sound Levels of the AEUB Directive are presented below for the residential sites where noise criteria exist. These sites are: the Ruckman residence (Site 2) 375 metres southwest, the Jessica Ernst residence (Site 5) 870 metres southeast, and the town of Rosebud represented by the Rob Webster residence (Site 6) 1250 metres east-southeast of the compressor station. The survey results contained large amounts of noise related to human activity and weather. Where these non-facility noise events could be confidently identified, they were isolated from the data set and the remaining sound level is called the residual sound level.

microphone moved to 30 m from House.

Results of Measurements, Nov/Dec 2004

Date (Nov/Dec 2004)	Nighttime Sound Levels L_{eq} (dBA) Regs say must be 15m								
	Ruckman Residence			Ernst Residence			Webster Residence		
	Measured	Residual	Permissible	Measured	Residual	Permissible	Measured	Residual	Permissible
23-24	35.3	31.4	40	42.6	32.3	45	42.9	32.6	48
24-25	40.5	32.9	40	45.2	34.3	45	42.8	33.9	48
25-26	33.9	32.9	40	43.4	32.6	45	41.6	33.2	48
26-27	33.8	31.9	40	49.7	33.1	45	45.5	32.8	48
27-28	31.2	30.8	40	48.6	32.1	45	44.3	33.0	48
28-29	31.8	29.6	40	49.3	29.6	45	43.6	30.2	48
29-30	31.6	30.7	40	49.4	32.9	45	47.9	33.1	48
30-1	33.0	30.6	40	46.5	31.5	45	42.9	33.0	48
1-2	33.5	30.9	40	47.9	32.4	45	43.2	33.0	48
2-3	N/A	N/A	40	47.0	32.8	45	44.1	33.8	48
3-4	34.1	33.4	40	43.1	33.0	45	39.9	33.9	48
4-5	36.2	33.7	40	48.8	32.0	45	42.2	32.8	48
5-6	31.5	29.8	40	43.2	31.6	45	39.2	30.7	48
6-7	31.8	31.0	40	39.1	27.1	45	34.3	27.8	48
7-8	34.0	32.6	40	49.3	29.8	45	36.3	30.9	48
8-9	33.8	32.5	40	49.7	31.6	45	41.1	30.9	48
9-10	34.9	30.2	40	47.8	31.5	45	43.4	32.7	48
10-11	42.1	31.3	40	50.5	33.3	45	N/A	N/A	48
11-12	31.4	31.2	40	42.3	32.6	45	N/A	N/A	48
12-13	31.2	29.8	40	50.1	30.6	45	N/A	N/A	48
13-14	32.8	29.2	40	42.9	34.3	45	42.7	33.6	48
14-15	31.1	30.3	40	42.6	31.9	45	42.9	32.1	48
15-16	35.3	29.1	40	48.4	31.2	45	43.8	32.6	48
16-17	N/A	N/A	40	49.5	33.9	45	45.1	34.0	48
17-18	39.1	33.6	40	47.9	31.4	45	43.9	33.2	48
18-19	36.3	31.0	40	44.8	32.9	45	44.3	33.6	48
19-20	48.8	34.3	40	49.3	34.6*	45	49.9	33.7	48

*Indicates Loudest Night

Yellow = measured comprehensive noise levels HIGHER than acceptable (permissible)

January 11, 2005, Rosebud water tower blows up in an explosion

"Investigators say an accumulation of gases appears to have caused the Jan. 11 explosion that destroyed the Rosebud water reservoir building and sent a Wheatland County employee to hospital with injuries."

Strathmore Standard, Jan 27, 2005


ENCANA
100/09-30-026-21W4M

My water dramatically changed

Whistling taps/blowing gas

Caustic burns to skin/irritated eyes.

Painful cracks on hands after doing dishes

Soaps/shampoos no longer make suds

Gas spurting water out of tub & toilets

Dogs repulsed by the water

October 2005: My water post-frac'd

Colleagues advised me to get my water tested for methane

EnCana Noise continues

ERCB deregulates to match non compliance

Tries to sneak in 5 decibel noise increase

I warn concerned citizens ... and dash off to First Nations CBM Tour in Yukon

Nov 24 2005: Banished!

"I have instructed my staff to have no further contact with you."

Jim Reid, EUB* Manager

* Name changed to ERCB after the Board's Spying Scandal

EUB Alberta Energy and Utilities Board

Calgary Office 640 – 5 Avenue SW Calgary, Alberta Canada T2P 3G4 Tel 403 297-8311 Fax 403 297-7336

November 24, 2005

Jessica Ernst
Box 753
Rosebud AB T0J 2T0

NOISE CONTROL DIRECTIVE

Dear Ms. Ernst:

It is clear that over the past several months you have undertaken an intensive letter writing campaign as a means to pressure the Alberta Energy and Utilities Board (EUB) to rule that EnCana has not met the regulatory requirements for noise control in the Rosebud region. As you know, compliance with the EUB *Noise Control Directive* (*Directive*) can only be determined using the results of a "representative" comprehensive noise survey. Consequently, even though two previous surveys conducted by a reputable acoustical engineering firm were technically defensible and did demonstrate that EnCana was compliant, the EUB agreed to not accept those results for your residence to demonstrate the fairness of the EUB regulatory process. In fact, the EUB offered to conduct a separate noise survey at your residence, at the time of your choosing, placing the microphone where you want, and without the knowledge of EnCana to determine compliance at your residence.

Rather than accept this offer, you have chosen to perpetuate accusations that the EUB has not been responsive to your concerns. In fact, the EUB has tried to be very accommodating to you and even provided you with a copy of the current draft of the *Directive* so that you may provide comments for the multi-stakeholder review committee to consider. I believe that you know quite well that as a draft, the *Directive* is still subject to change. Rather than raise any concerns about the draft *Directive* with our staff as requested, you chose to circulate widely through the internet untruths that the EUB has unilaterally made significant changes to the *Directive* that would result in higher noise levels for rural residents. Your statement about the EUB raising the acceptable noise levels for winter operations is not true. In fact, this option has been in the *Directive* since 1988. While I again may find this approach disappointing, it is your right to free speech.

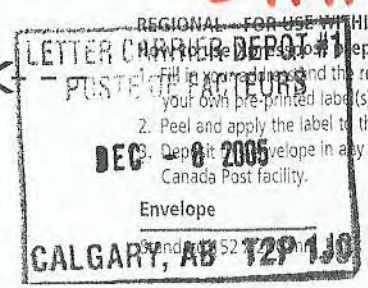
What I cannot and will not accept is your threat, veiled as something someone said to you, as a means to incite people to resort to the "Wiebo Way". Criminal threats will not be tolerated, and we are deciding on how best to work with the office of the Attorney General of Alberta and the RCMP to register our concern and to ensure the protection of the public including our staff. Until the safety and security issues have been satisfactorily addressed and resolved, I have instructed my staff to avoid any further contact with you. The EUB Field Surveillance Branch have been made aware of this situation as well.

Sincerely yours,

Jim Reid
Manager
Operations Group
Compliance and Operations Branch

pc: RCMP Drumheller Detachment
Ron Paulson, Manager, EUB Field Surveillance Branch
Al Palmer, Manager, EUB Security

STAMPED: "REFUSED BY ADDRESSEE"



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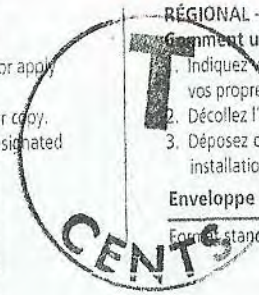
3. Deposit envelope in any street letter box, at any postal outlet or designated Canada Post facility.

Envelope
Standard size 152 x 260 mm

RETURN TO SENDER
RENVOI À L'EXPÉDITEUR
Address incomplete
Adresse incomplète
Moved / Unknown
Déménagé / Inconnu
Refused by addressee
Refusé par le destinataire
Deceased
Décédé



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2. Décollez l'étiquette et apposez-la dans l'espace indiqué. Conservez votre copie.
3. Déposez cette enveloppe dans une boîte aux lettres publique, à un comptoir postal ou à une installation désignée de Postes Canada.

Enveloppe
Format standard 152 x 260 mm

CANADA POST / POSTES CANADA

Xpresspost

1

SHIPPING COPY
Detach and apply to item

ÉTIQUETTE D'EXPÉDITION
Détachez et apposez sur l'article

Date: Year Année 2005 MM 12 DJ 07

From / Expéditeur
Customer No. / N° du client
Name / Nom: FERNOT
Address / Adresse: Box 753
City / Prov. / Postal Code / Ville / Prov. / Code postal: ROSEBUD AB T0J-2T0
Telephone No. / N° de téléphone

DETACH HERE ▼ DÉTACHEZ ICI

PP 209 463 66

Signature on delivery?

Sender warrants that this item does not contain dangerous goods and agrees with the terms and conditions on the reverse.

Signature à la livraison?

L'expéditeur garantit que cet envo ne contient pas de matières dangereuses et accepte les condit à l'endos.

Xpresspost

1

Return to Sender Renvoi à l'expéditeur

Manifest or Collect Postage Due
Manifeste ou percevoir le port dû

Bruins shark-bitten by Thornton trade
DAN BARNES / D1

For diapers with attitude, papa's got a brand new bag
LOOK / E1

Alberta's film industry has its 'best year yet'
CULTURE / C1

Inside the surprise deal for Spielberg's studio
BUSINESS / F1

edmontonjournal.com

EDMONTON'S NEWSPAPER SINCE 1903

TUESDAY, DECEMBER 13, 2005

Tainted water lights fire under gas fears

NEAR DISASTER FOR CITY TROOPS

NEW VEHICLE CREDITED WITH SAVING 3 IN AFGHAN BLAST / A3

Voter goodies

January 2006: EUB Shallow Frac Directive 027

Industry advised the regulator that shallow fracturing had harmed oilfield wells

and

“there may not always be a complete understanding of fracture propagation at shallow depths”

EUB = Energy Utilities Board, now ERCB, Energy Resources Conservation Board

Feb 28, 2006
Alberta Legislature

Environment Minister promised affected families safe alternate water “now and into the future”

regardless of whether the methane is from

“natural flow” or not.

Premier promised:

“Whatever is necessary to be done will be done”

March 3, 2006
Alberta Environment tests my water

Alarmed by the level of gas in my water

And drop in static water level and other tests

I am to blame for the methane contamination because I do not run cattle, thus do not use enough water.

March 6, 2006

Environment Minister & staff
emergency meeting with
contaminated water well owners

We are to blame because
we use too much water

March 7, 8, 9, 2006

The People's CBM Tour!

by the people, for the people

Standard for Baseline Water-Well Testing for Coalbed Methane/Natural Gas in Coal Operations

April 2006

Alberta

April 12 2006, The Alberta Government knew!!

I had to fight via FOIP legislation for over 2 years to get these results!

[only one page of the 11 attached]

Maxxam Analytics Inc

Maxxam's Remarks:

- Based on a comparison of the carbon isotope data to the data from the reference well (3-14-27-22-w4m and 102/8-12-27-22-w4m) it is a likely source of this water well gas is from near or from the Belly River Formation.
- When comparing this gas the with the database is likely coming from a shallow, mixed source of biogenic and thermogenic gas

Dr. Karlis Muehlenbachs' Remarks (University of Alberta):

- Methane isotope value indicates a biogenic source whereas ethane, propane and butanes indicates a source from or near the shallower wells, 27-22-W4
- Water well gas may be a mixture of in situ biogenic gas with some deeper gas.

- Maxxam's interpretation and remarks were done by Margaret Woodruff
- Email: margaret.woodruff@maxxamanalytics.com
- The University of Alberta interpretation and remarks were done by Dr. Karlis Muehlenbachs
- Email: karlis.muehlenbachs@ualberta.ca

2006: Toxic chemicals found by the regulator in Rosebud Hamlet water:

Petroleum distillates,
bromodichloromethane,
phenanthrene,
toluene,
methyl ethyl ketone,
xylene,
benzene,
butylbenzyl phthalate,
di-ethyl phthalate,
di-n-butyl phthalate,
bis(2-ethyhexyl) phthalate and
benzothiazole.

Hexavalent chromium (of Erin Brokovich fame) was found by the regulator in a monitoring well in the Hamlet [via FOIP results]

Toxic Chemicals found by the regulator in my water

- March 3, 2006: 0.21 mg/L of F-2 petroleum hydrocarbons (primary components of various fuels including gasoline, kerosene, diesel fuel and jet fuel);
- March 3, 2006: Chromium increased in my water by factor of 45 after EnCana fractured the aquifer that supplies my well.
- June 6, 2007: 2.0 µg/L of 2-Propanol 2-Methyl. 2-Propanol 2-Methyl is a product of degrading methyl *tert*-butyl (MTBE), and may indicate MTBE contamination. Both 2-Propanol 2-Methyl and MTBE are hazardous;
- June 6, 2007: 3.6 µg/L of Bis (2-ethylhexyl) phthalate (BEHP). BEHP can cause cancer as well as damage to the liver after prolonged exposure.

May 2006, Alberta
Bruce Jack Water Well Explosion

2006 Briefing Note by Alberta Research Council on the Contamination Cases (to blame bacteria), before the Council is retained to review the cases!

[Obtained in 2008 via FOIP]

"landowners may not willingly accept the findings determined by Alberta Environment and Alberta Research Council"

June 8, 2006:

McCarthy-like Red-Baiting
Interrogation by ERCB lawyer

Tried to get evidence after the fact

Alberta Environment

Assistant Deputy Minister

Environmental Assurance
10th Floor, 9915 - 108 Street
Edmonton Alberta, Canada T5K 2G8
Tel: 780/427-6247 Fax: 780/427-1014
Web: www3.gov.ab.ca
File No: AR 22526

August 4, 2006

Dr. David Swann
MLA, Calgary-Mountain View Constituency
201 Legislature Annex
9718 - 107 Street
Edmonton, Alberta
T5K 1E4

Dear Dr. Swann:

As you know, Alberta Environment (AENV) is committed to inspecting high quality groundwater systems, such as the Hamlet of Rosebud's waterworks system.

Alberta Environment conducted an inspection of the Hamlet's waterworks system on March 8, 2006, as a proactive step to verify that the Hamlet's system is in compliance, and to determine if the Hamlet's system is being impacted by nearby coalbed methane (CBM) activities due to requests AENV received from the public. Enclosed is a copy of the Hamlet of Rosebud's Waterworks System March 2006 Report Analysis as per your recent request. I have also enclosed a summary report that was prepared by AENV and the Calgary Health Region.

Copies of the Hamlet of Rosebud's March 2006 report will be available to the public through the County of Wheatland. Inquiries and questions can be directed to Ms. Jennifer Deak, County Manager, County of Wheatland, at (403) 934-3321.

If you have any further questions regarding AENV's inspection of the Hamlet of Rosebud's waterworks system, please contact Mr. Kevin Pilger, Investigator, Alberta Environment, at (403) 297-5913 (dial 310-0000 for toll-free connection).

Sincerely,

Bev Yee
Assistant Deputy Minister

Enclosure

cc: Jennifer Deak, County of Wheatland
Kevin Pilger, Environment

ALBERTA RESEARCH COUNCIL | ORGANICS ANALYSIS DATA SHEET | ARC SAMPLE NUMBER: T06-1

Contact: West
SmpNo : 06MJ080936 ProjNo : WHECOU GrpSmpNo :
StaNo : AB05CE1470 StaType: Ground Water
Comment: Rosebud Temporary Reservoirs
Matrix : 10
SmpDate: 25-Apr-06 @ 1530 Samplers..ID1 : 131260
EndDate: @ ..ID2 :

EXTRACTABLE PRIORITY POLLUTANTS
METHOD: EC/3 | TimeLines
SCAN: EPP | from sampl
| Max A
Date Received : 27-Apr-06 by: SRM -
Date Extracted: 27-Apr-06 by: drc 7
Date Analyzed : 27-Apr-06 by: drc 21
Raw DataFile : E1231

TENTATIVELY IDENTIFIED COMPOUNDS // COMMENTS	ESTIMATED CONCENTRATION ug/L
Diols	25
Solvents (C8-C14) (Halogenated and Aliphatic compounds)	73

ALBERTA RESEARCH COUNCIL | ORGANICS ANALYSIS DATA SHEET | ARC SAMPLE NUMBER: T06-1065

Contact: West
SmpNo : 06MJ080935 ProjNo : ABSWC GrpSmpNo :
StaNo : AB05CE1470 StaType: Ground Water
Comment: Rosebud - WTP Reservoir
Matrix : 10
SmpDate: 11-Apr-06 @ 0900 Samplers..ID1 : 131260
EndDate: @ ..ID2 :

EXTRACTABLE PRIORITY POLLUTANTS
METHOD: EC/3 | TimeLines (days)
SCAN: EPP | from sample date
| Max Actual
Date Received : 12-Apr-06 by: SRM - 1 --
Date Extracted: 12-Apr-06 by: drc 7 1 ok
Date Analyzed : 12-Apr-06 by: drc 21 1 ok
Raw DataFile : E1065

TENTATIVELY IDENTIFIED COMPOUNDS // COMMENTS	ESTIMATED CONCENTRATION ug/L
Diols	30
Solvents (C8-C14) (consisting of halogenated, and aliphatic compounds)	25

Alberta Environment Second Floor

Fax cover sheet

2938 - 11 Street NE
Calgary, Alberta Canada T2E 7L7
Tel Fax 403-297-8232

To: John Garvin
From: Larry West
Re:
cc:

Fax:
Date:
Pages:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Notes:

John: Here is the results of the isotope testing done on the Hamlet's Water (Blended).
Because of the limited amount of water collected they only analysed for methane.

Larry

Maxxam Analytics Inc

CARBON ISOTOPE ANALYSIS

A610309:A78175 (Laboratory Number)

ALBERTA ENVIRONMENT (Operator Name)

ENCANA TOWN OF ROSEBUD (Well Name)

DB/AS (Name of Sampler)

MAXXAM (Company)

WATER WELL HEADSPACE (Sample Point)

Glass (Container Identity)

2006/03/14 15:00 (Date Sampled Start)

2006/03/15 (Date Received)

2006/05/19 (Date Reported)

2006/05/19 (Date Revision Requested)

MS2 (Analyst)

COMPOSITION

COMPONENT	MOLE FRACTION AS REC'D	MOLE FRACTION AIR FREE	CARBON ISOTOPE ABUNDANCE
H2	0.0000	0.0000	
He	0.0000	0.0000	
O2	0.0000		
N2	0.9824	0.9824	
CO2	0.0000	0.0000	-21.73
H2S			
C1	0.0176	0.0176	-42.74
C2	0.0000	0.0000	
C3	0.0000	0.0000	
IC4	0.0000	0.0000	
NC4	0.0000	0.0000	
IC5	0.0000	0.0000	
NC5	0.0000	0.0000	
C6	0.0000	0.0000	
C7+	0.0000	0.0000	
TOTAL	1.0000	1.0000	

SAMPLE CLASSIFICATION

Mud Depth (m):

NOTES

Carbon isotope abundance is measured in units of:

$$\text{*delta 13C (PDB) ppt} = \frac{(13C/12C)-(13C/12C)PDB}{(13C/12C)PDB} \times 1000$$

Where PDB is an international sample of Belemnite taken from the Pee Dee formation in South Carolina.

** Information not supplied by client – data derived from LSD information

Results relate only to items tested

Remarks:

Gas analysis was run on the headspace for methane only, all other components not analyzed.

August 31, 2006
This is not natural

September 2006

The international *2nd Well Bore Integrity Network Meeting*'s first key conclusion:

"There is clearly a problem with well bore integrity in existing oil and gas production wells, worldwide...."

EUB* CBM Water Chemistry study (released 2006)

Studied water wells in coal

Methane (and ethane) not detected in ~90% of water wells tested!

EUB = Energy Utilities Board, now ERCB, Energy Resources Conservation Board


ARROWHEAD

Levels of methane dissolved in Rosebud well water, as sampled by the regulator:

30 - 66 mg/l

Risk of explosion at 1 mg/l

if gas contaminated water passes through a confined space

(in CAPP Gas Migration Report, 1996)

(study on the Rosebud water indicates there may be 3x more methane in our water)


ENCANA


SAWDUST 75 BAGS
SAWDUST 75 BAGS

May 2007

Alberta Environment finally agrees to comprehensive investigation

Changed labs half way through the investigation to one that detected but did not fingerprint the ethane in our water.

The regulator already knew the ethane in Rosebud water indicated match to EnCana's

Breaks promise a few months later

April 2007, Alberta Environment:

3 monitoring wells drilled at Rosebud
to get “baseline” data

6 years too late.


W62

Known carcinogen hexavalent chromium

Regulator detects hexavalent chromium in one of their monitoring wells in Rosebud

[comment 2008 FOIP results to Ernst from Alberta Research Council]

Does not tell us, or the public, not even families with children!

2007 The Rosenburg International Forum on Water Policy:

Declared Alberta's groundwater policies "inadequate" with a "lack of comprehensive monitoring systems."

A monitoring network "is the last line of defense against contamination by industries that are essential to the economic future of the province."

CAPP Testimony to Parliamentary Committee, Environment & Sustainable Development, Evidence, May 8, 2007

On testing for methane in water wells:

Mr. David Pryce, CAPP:

"If it is present, the presumption is that it's naturally occurring...."

EUB breaks the law (again)! May & June 2007

- Hires 4 PI's to spy on ordinary, cookie making, Albertans
- Judicial review finds the regulator tactics "repulsive"
- Government changes the EUB to the ERCB (so that Albertans forget) and passes very bad bills: 46, 19, 36, 24 & 50

The Alberta Oil & Gas Industry's Bad Bills

- Bill 46, Passed 2008: Takes away our right to legal representation

- Bills 19, 36 & 50 – passed in 2009
- Bills 24 – passed in 2010

- All bills passed with almost zero resistance from Albertans.

Evil Bill 19

Government took away:

- our rights to the courts
- all environmental protections, including protection from industry dumping substances (e.g. drill & frac & nuke waste), i.e. our government authorized the environmental destruction of our lands
- the public interest test; can take our property & give it to private interests.

Tiny (bribe for votes) change Nov 21, 2011, government gave us back our right to the courts, but see Morton's Land Abuse Bill 36

Ted Morton's Land Abuse Bill 36

- Can extinguish marriages, any licence
- UNBELIEVABLE – All Water Based!
- Throw us in jail without access to the courts
- Under the guise of protecting the environment, government can give Industry access to all our land and water without due process & without payment

Bills 24 & 50: The Incidental Bills

- Bill 24 – Government stole our pore space; put industry's responsibility for migrating gas, whether methane or injected CO2 for enhanced oil and gas recovery, on us

- Bill 50 – Government can decide what they want behind closed doors

EUB Alberta Energy and Utilities Board

Factors Affecting or Indicating Potential Wellbore Leakage

Dr. Stefan Bachu

Alberta Energy and Utilities Board
Stefan.Bachu@gov.ab.ca

Theresa Watson

T.L. Watson and Associates Inc.
Theresa.Watson@TLWatson.com

EUB Alberta Energy and Utilities Board
Alberta Geological Survey
AGS

T.L. WATSON & ASSOCIATES INC.

AGS

EUB Alberta Energy and Utilities Board

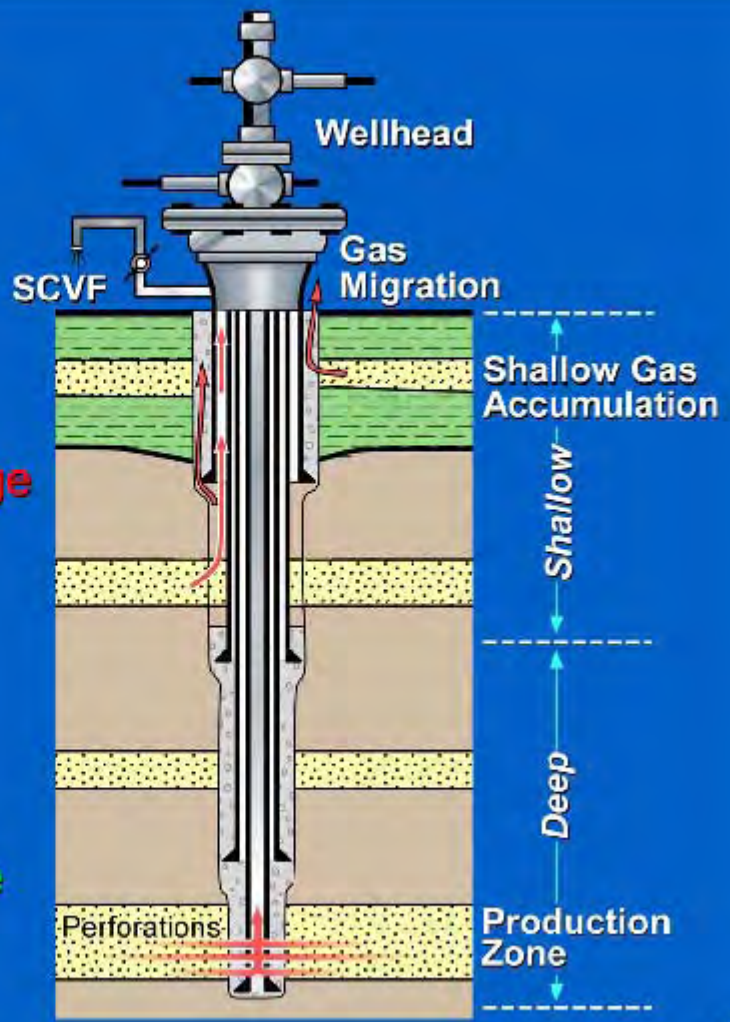
Leakage Potential along a Well

Shallower, upper part

Higher potential for leakage

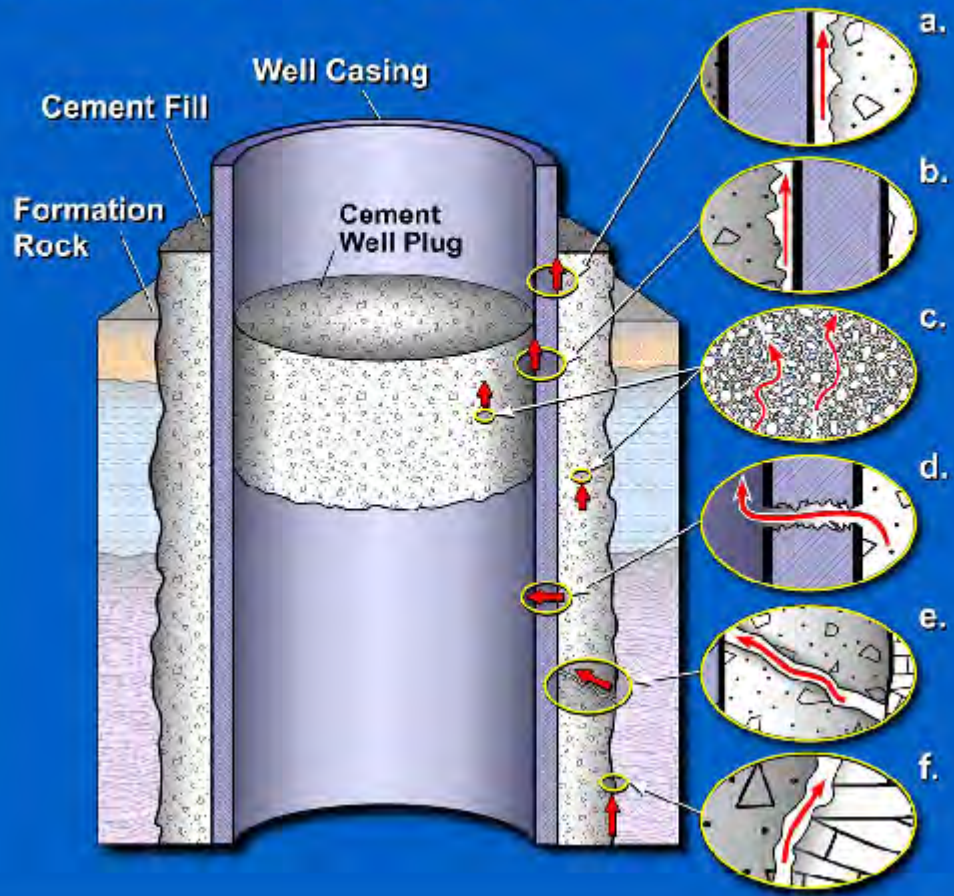
Deep, lower part completed in producing zones

Less potential for leakage



AGS

Potential Gas Migration Paths along a Well



Factors of Major Impact

- Geographic area (Test Area)
- Well deviation
- Well type:
  - drilled and abandoned (SCVF/GM incidence rate of 0.5%)
  - cased and abandoned (SCVF/GM incidence rate of 14%), for 98% of the total
- Abandonment method (bridge plugs, welded caps)
- Economic activity, regulatory changes and SCVF/GM testing
- Uncemented casing/hole annulus!

September 2007
EnCana's noise abuse continues
EnCana's rotting straw bale wall

Alberta Research Council*
January, 2008

Dismissed contamination as natural

Suggests bacteria to blame, can't explain where the methane came from

Bacteria do not make ethane, propane, butane, petroleum distillates and hexavalent chromium

Used anecdotal, unsubstantiated stories
of methane in other water wells

Avoided the most damning data
Formal reports filled with "errors"

*Name changed to Alberta Innovates

Is Rosebud water contamination really natural?

Alberta Environment & the ERCB summarized an expert report they retained (1st review winter 2008) *Potential for Gas Migration Due to Coalbed Methane Development:*

"Gas migration due to natural pathways is unlikely to occur for the areas of active or anticipated CBM development"

April 2008: Alberta Environment Breaks Legislature Made Promise

Takes away the water deliveries

Declares our dangerously explosive & toxic water safe


WARNING

EnCana denies their frac's above 200 m!

April 22, 2008

"We can't do completion of shallow gas above 200 metres"

EnCana quoted in the *Drumheller Valley Times*

Oct 2, 2008, EnCana lawyer Jayana Flower letter to me:

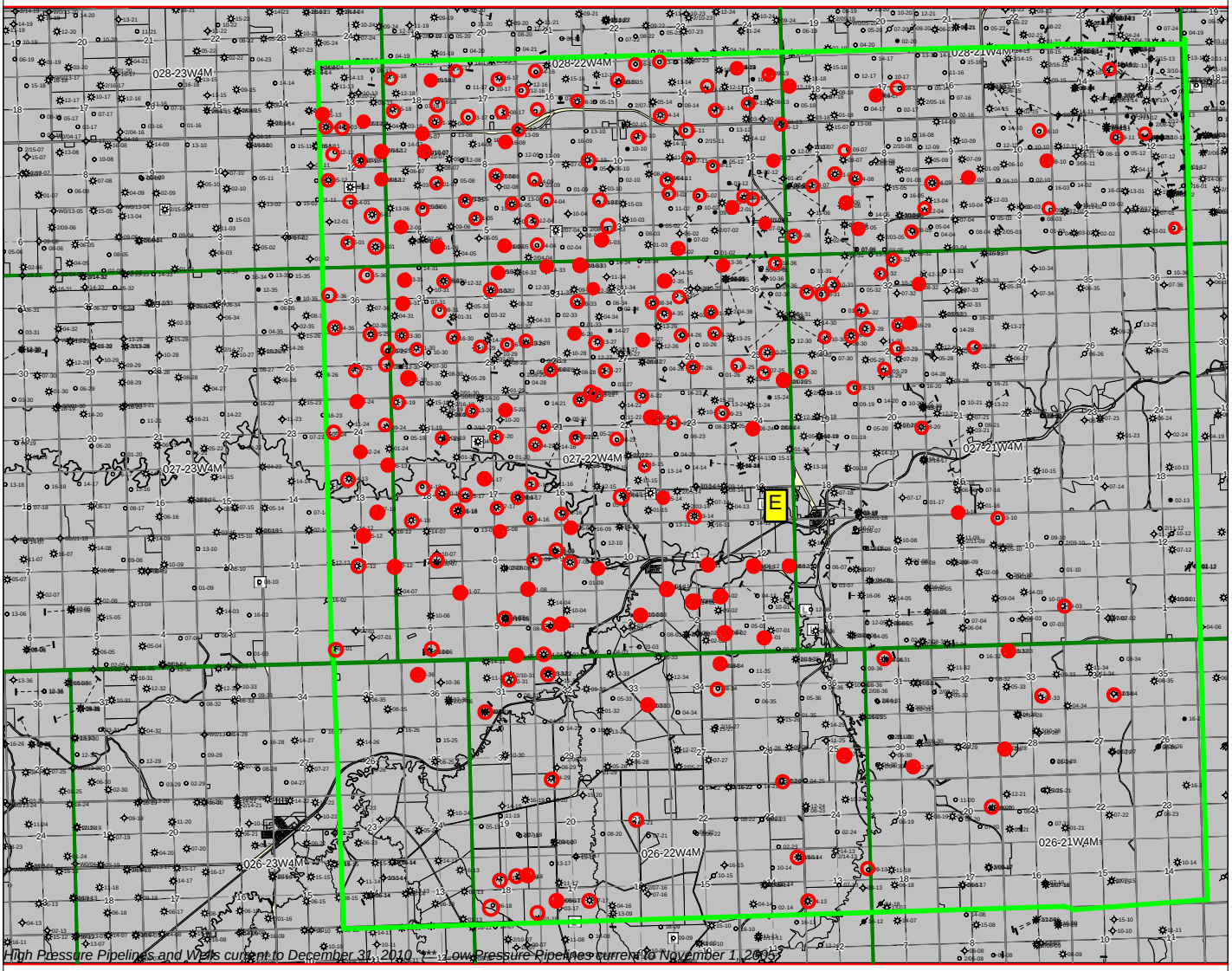
'Your comment on "numerous gas wells that have been completed above 200 m" is inaccurate.'

EnCana completed > 60 gas wells above 200 m around Rosebud alone including > 11 above 175 m.

NONE were tested by the regulators or Alberta Research Council!

Shallow Gas Wells Drilled and Frac'd Near Rosebud, Alberta

Circles: EnCana Wells Perforated and or Hydraulically Fractured Above the Base of Groundwater Protection before April 2006
Solid dots: EnCana Wells Perforated and or Hydraulically Fractured Above 200m before April 2006



High Pressure Pipelines and Wells current to December 31, 2010 ~ Low Pressure Pipelines current to November 1, 2005

E = approximate location of Ernst property

~ 1 mile

N

Wellheads
- Abandoned Wellhead
- Suspended Gas Wellhead
- Suspended Oil Wellhead
- Flowing Gas Wellhead
- Location Wellhead
- Flowing Oil Wellhead
- Miscellaneous Wellhead
- Water Wellhead
- Well Downhole Location
- L Newly Licenced Well
- S Newly Spudded Well

High Pressure Pipelines
- Gas Pipeline
- Oil Pipeline
- Water Pipeline
- LVP/HVP Pipeline
- Foreign Pipeline (Only when a company is specified.)

Low Pressure Pipelines
- Gas Co-op Pipeline

Hydrogeologic Study, Colorado

by Geoffery Thyne December 2008

Increasing methane in groundwater
coincident with
increased number of gas wells

Feb 7, 2009 CTV W5 National News

Aired segment on my explosive water and the ERCB's treatment of me

The following week ...

If the contamination in my water is natural, would they send the RCMP?

RCMP = Royal Canadian Mounted Police

November 2009

Canada's National Energy Board:

Fracturing only recovers 20% of the gas

The shattered rock is now 1000's times more permeable, leaving 80% to become fugitive and migrate over time

Talisman Terry, the fracasaurus is created for our children 2009

Safety Advisory 2010-03
Communication during fracturing

BC Oil & Gas Commission, May 20, 2010

"Fracture propagation via large scale hydraulic fracturing operations has proven difficult to predict."

June 2010

I noticed that Alberta Environment removed all historic water well records I had previously found on their data base

that said:

Gas Present: No

And replaced them with altered records without consulting Albertans

or the water well owners!

Water Well Drilling Report

The data contained in this report is supplied by the Driller. The province disclaims responsibility for its accuracy.

Well I.D.:	0123548
Map Verified:	Map
Date Report Received:	1986/05/14
Measurements:	Imperial

1. Contractor & Well Owner Information

Company Name: UNKNOWN DRILLER		Drilling Company Approval No.: 99999
Mailing Address: UNKNOWN	City or Town: UNKNOWN AB CA	Postal Code:
WellOwner's Name: FECKLEY, F.L.	Well Location Identifier:	
P.O. Box Number: 723	Mailing Address: ROSEBUD	Postal Code: T0J 2T0
City:	Province:	Country:

2. Well Location

1/4 or LSD	Sec	Twp	Rge	Westof M
SE	13	027	22	4

Location in Quarter
0 FT from Boundary
0 FT from Boundary

Lot Block Plan

Well Elev: FT
How Obtain: Not Obtain

3. Drilling Information

Type of Work: Chemistry
Reclaimed Well
Date Reclaimed: Materials Used:
Method of Drilling: Drilled
Flowing Well: Rate: Gallons
Gas Present: No Oil Present: No

Proposed well use: Domestic
Anticipated Water Requirements/day 0 Gallons

4. Formation Log

Depth from ground level (feet)	Lithology Description

5. Well Completion

Date Started(yyyy/mm/dd): Date Completed(yyyy/mm/dd):

Well Depth: 190 FT Borehole Diameter: 0 Inches

Casing Type:	Liner Type:
Size OD: 0 Inches	Size OD: 0 Inches
Wall Thickness: 0 Inches	Wall Thickness: 0 Inches
Bottom at: 0 FT	Top: 0 FT Bottom: 0 FT

Perforations: Perforations Size:
from: 0 FT to: 0 FT 0 Inches x 0 Inches
from: 0 FT to: 0 FT 0 Inches x 0 Inches
from: 0 FT to: 0 FT 0 Inches x 0 Inches

Perforated by:

Seal: from: 0 FT to: 0 FT
Seal: from: 0 FT to: 0 FT
Seal: from: 0 FT to: 0 FT

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Type: Screen ID: 0 Inches
from: 0 FT to: 0 FT Slot Size: 0 Inches

Screen Installation Method:

Fittings
Top: Bottom:

Pack:
Grain Size: Amount:

Geophysical Log Taken:
Retained on Files:

Additional Test and/or Pump Data
Chemistries taken By Driller: No
Held: 1 Documents Held: 1

Pitless Adapter Type:
Drop Pipe Type:
Length: Diameter:

Comments:

6. Well Yield

Test Date (yyyy/mm/dd): Start Time:
Test Method:

Non pumping static level: FT

Rate of water removal: Gallons/Min

Depth of pump intake: FT

Water level at end of pumping: FT

Distance from top of casing to ground level: Inches

Depth To water level (feet)
Elapsed Time
Drawdown Minutes:Sec Recovery

Total Drawdown: FT

If water removal was less than 2 hr duration, reason why:

Recommended pumping rate: Gallons/Min

Recommended pump intake: FT

Type pump installed
Pump type:
Pump model:
H.P.:
Any further pumptest information?

7. Contractor Certification

Driller's Name: UNKNOWN DRILLER
Certification No.:
This well was constructed in accordance with the Water Well regulation of the Alberta Environmental Protection & Enhancement Act. All information in this report is true.
Signature Yr Mo Day

Report 1

Government of Alberta

Water Well Drilling Report

View in Metric

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy.
The information on this report will be retained in a public database.

GIC Well ID 123548
GoA Well Tag No.
Date Report Received 1986/05/14

1. Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Postal Code
FECKLEY, F.L.	P.O. BOX 723 ROSEBUD			T0J 2T0

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	SE	13	027	22	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 51.303384 Longitude -112.964646
How Location Obtained
Map

Elevation ft
How Elevation Obtained
Not Obtained

2. Drilling Information

Method of Drilling
Drilled

Type of Work
Chemistry

Proposed Well Use
Domestic

3. Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description

4. Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
190.00 ft			

Borehole

Diameter (in)	From (ft)	To (ft)
0.00	0.00	190.00

Surface Casing (if applicable)
Size OD : 0.00 in
Wall Thickness : 0.000 in
Bottom at : 0.00 ft

Well Casing/Liner
Size OD : 0.00 in
Wall Thickness : 0.000 in
Top at : 0.00 ft
Bottom at : 0.00 ft

Perforations

From (ft)	To (ft)	Diameter (in)	Interval (in)

Perforated by

Annular Seal
Placed from 0.00 ft to 0.00 ft
Amount

Other Seals

Type	At (ft)

Screen Type
Size OD : 0.00 in

From (ft)	To (ft)	Slot Size (in)

Attachment
Top Fittings
Bottom Fittings

Pack
Type
Grain Size
Amount

7. Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
UNKNOWN DRILLER

Copy of Well report provided to owner
Date approval holder signed

Government of Alberta

Water Well Drilling Report

View in Metric

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy.
The information on this report will be retained in a public database.

GIC Well ID 123548
GoA Well Tag No.
Date Report Received 1986/05/14

1. Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Postal Code
FECKLEY, F.L.	P.O. BOX 723 ROSEBUD			T0J 2T0

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	SE	13	027	22	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 51.303384 Longitude -112.964646
How Location Obtained
Map

Elevation ft
How Elevation Obtained
Not Obtained

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level in
Is Artesian Flow
Rate igpm
Is Flow Control Installed
Describe

Recommended Pump Rate igpm
Recommended Pump Intake Depth (From TOC) ft
Pump Installed
Type
Depth ft
Model
H.P.

Did you Encounter Saline Water (>4000 ppm TDS)
Depth ft
Gas
Depth ft
Well Disinfected Upon Completion
Geophysical Log Taken
Submitted to GIC
Additional Comments on Well
Sample Collected for Potability
Result Attached Yes

5. Yield Test

Measurement in Imperial Taken From Ground Level

Test Date	Start Time	Static Water Level
		ft

Method of Water Removal

Type
Removal Rate igpm
Depth Withdrawn From ft

If water removal period was < 2 hours, explain why

6. Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	ig	

7. Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
UNKNOWN DRILLER

Copy of Well report provided to owner

Date approval holder signed

US Congress Investigates EnCana's Hydraulic Fracturing & allegations of water contamination

July 19, 2010

Buy Our Silence

EnCana increases donation to $350,000

EnCana Rosebud Centre August 24, 2010

EPA tells Pavillion, Wyoming residents not to drink their water

September 1, 2010

EnCana agreed to provide treatment or alternate source of drinking water.

Pavillion, WY

WW	Methane µg/L
W30	808

(highest found by the EPA in 2010 in citizen water wells)

Rosebud, Alberta

WW	Methane µg/L
V	42,800 before steam cleaning
V	66,300 after steam cleaning
S	26,200
R	38,360
Ernst	36,525
Hamlet	3,810 (from reservoir, not wells)

Above after EnCana frac'd Rosebud aquifers

L 6

4 miles to the SE of Rosebud, where EnCana did not frac the aquifers.

Summer 2010, Office of the Information & Privacy Commissioner violates my right to privacy

Gives my unlisted phone number to 7 parties without asking my permission, including to 4 secret parties in *my* Inquiry about cover up and data withholding of drinking water contamination cases in Alberta

Mr. Michael Binnion (President & CEO Questerre):

Testimony to Parlimentary Committee on Natural Resources, Evidence

Ottawa, November 18, 2010

"In Alberta, regulations were put in place after an incident in Rosebud, Alberta. It was believed that some shallow fracs in coal bed methane had interfered with groundwater."

Mr. Richard Dunn

(VP Encana):

Testimony to Parliamentary Committee on Natural Resources, Evidence

Ottawa, November 23, 2010

MP Nathan Cullen: Mr. Dunn...we had one of your competitors up earlier committing publicly to disclose the chemicals used in the fracturing process. Is that something Encana is doing right now....?

Mr. Richard Dunn: **Yes, we're doing it now.**

No, they're not.

What EnCana calls chemicals

316 fracs performed on 14 wells on 1 pad with

- Water treatment / friction reduction package:

  Chemicals include: FR8 (Friction reducer), Acroclear (H2S scavenger), Nalco 6574A (scale control)
- Linear gel package:

  Chemicals include: Trican WG 111-L (Water gellant), Trican GBO-1 (Fracturing fluid breaker)
- Acid package:

  Chemicals include: Trican IF-85 (Formic acid), Hydrochloric acid, Trican AI-7 RN (corrosion inhibitor), Trican DF-1 (anti foam), Trican S-6 (surfactant)

December 16, 2010
CAPP's Creepy Secret
New West Partnership

BC, Saskatchewan and Alberta Ministers of Energy signed with CAPP agreeing to use taxpayer money to mislead the public about hydraulic fracturing.

January 2011 Report by The Tyndall Centre
University of Manchester, UK
Frac'ing poses:

"significant potential risks to human health and the environment."

New Gas Wells Leaking, Quebec Jan 5 2011

31 gas wells were inspected

'more than half have problems'

"Alberta-based Talisman Energy owns 11 of the wells...spokesperson Hope Deveau-Henderson said leaks are a common occurrence...they are a normal part of the exploration process."

Alberta ERCB

January 28, 2011

Deep *and shallow* shales to be frac'd

Unconventional Gas Regulatory Framework

Jurisdictional Review by the Alberta Energy and Utilities Board Report 2011-A

Fish Scale Shales in Alberta

Reportedly radioactive

EnCana refuses to disclose to me if they plan to frac or have frac'd the shales around Rosebud,

or those I own under my land.

"You never have control. Fractures will always go into the path of least resistance."

March 1, 2011

Cuadrilla's Chief Executive to *The Guardian*

March 8, 2011 Bape Report

Quebec frac moratorium

Called for

'strategic environmental assessment'

Regulator ordered gas leaks repaired

Attempts failed

Robb, Alberta Husky/Gasfrac Propane Frac
March 7 2011

13 Injured, 2 from Nova Scotia

Gasfrac Energy Services Inc “suspended all operations for more than two weeks as it sought to figure out what went wrong.”

http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/husky-well-fire-injures-several-alberta-workers/article1932947/

April 2011, Office of the Information and Privacy Commissioner names the 4 secret parties in my water contamination data cover up Inquiry

- ERCB
- EnCana
- Petrobakken
- Schlumberger

!!!!

April 27, 2011

Ernst Lawsuit against EnCana, ERCB & Alberta Government goes public

All allegations remain to be proven in court, all parties will be able to respond to the allegations

May 9, 2011 Jackson *et al*'s (Duke University) Peer Reviewed Study

17x more methane in water wells near drilled & fractured energy wells

June 2011, European Union Report

by LECHTENBÖHMER, *et al* for the European Parliament's Committee on Environment, Public Health and Food Safety

"high risk if the technology is not used adequately and partly have a possible high risk for environmental damages and hazards to human health even when applied properly…."

"it is well known that small earthquakes can be induced by hydraulic fracturing which might mobilize gas or fluids through "naturally" created fractures"

June 30, 2011

France votes to ban
hydraulic fracturing

Penalties if caught frac'ing include
fines and imprisonment

The Colbert Report does Talisman's Terry
July 11, 2011

Here lies Talisman Terry Fracosaurus

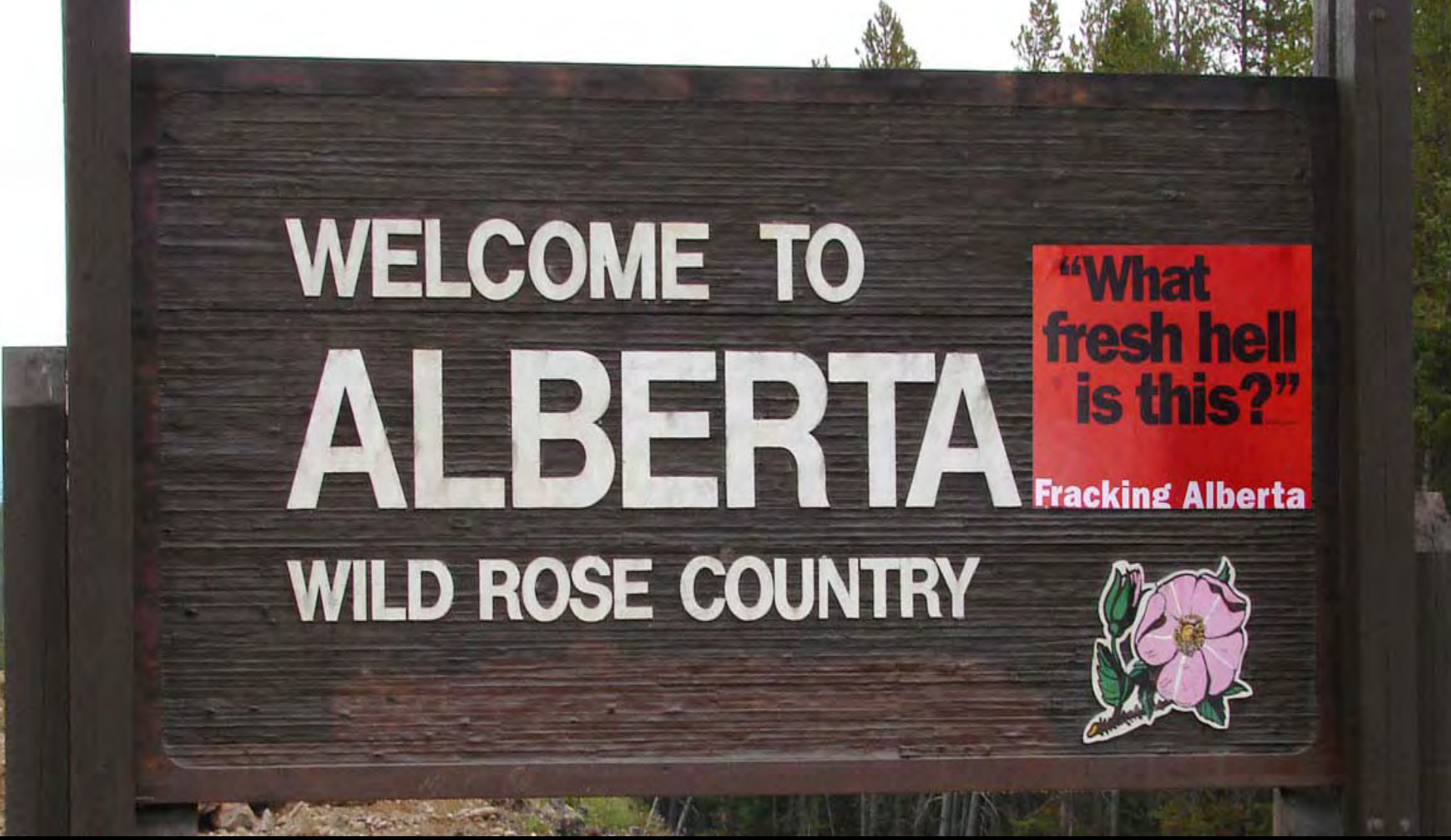
RIP

2009-July 14, 2011

USGS scientist

August 2011

'We're only starting to learn' about Fracking…



September 10, 2011: POWERSAlberta Demands Moratorium

If Alberta has the best energy regulation in the world,

What does the rest of the frac'd world get?

September 21, 2011
Ten years too late!

The Canadian Government announced
it will initiate (when?)
2 frac studies

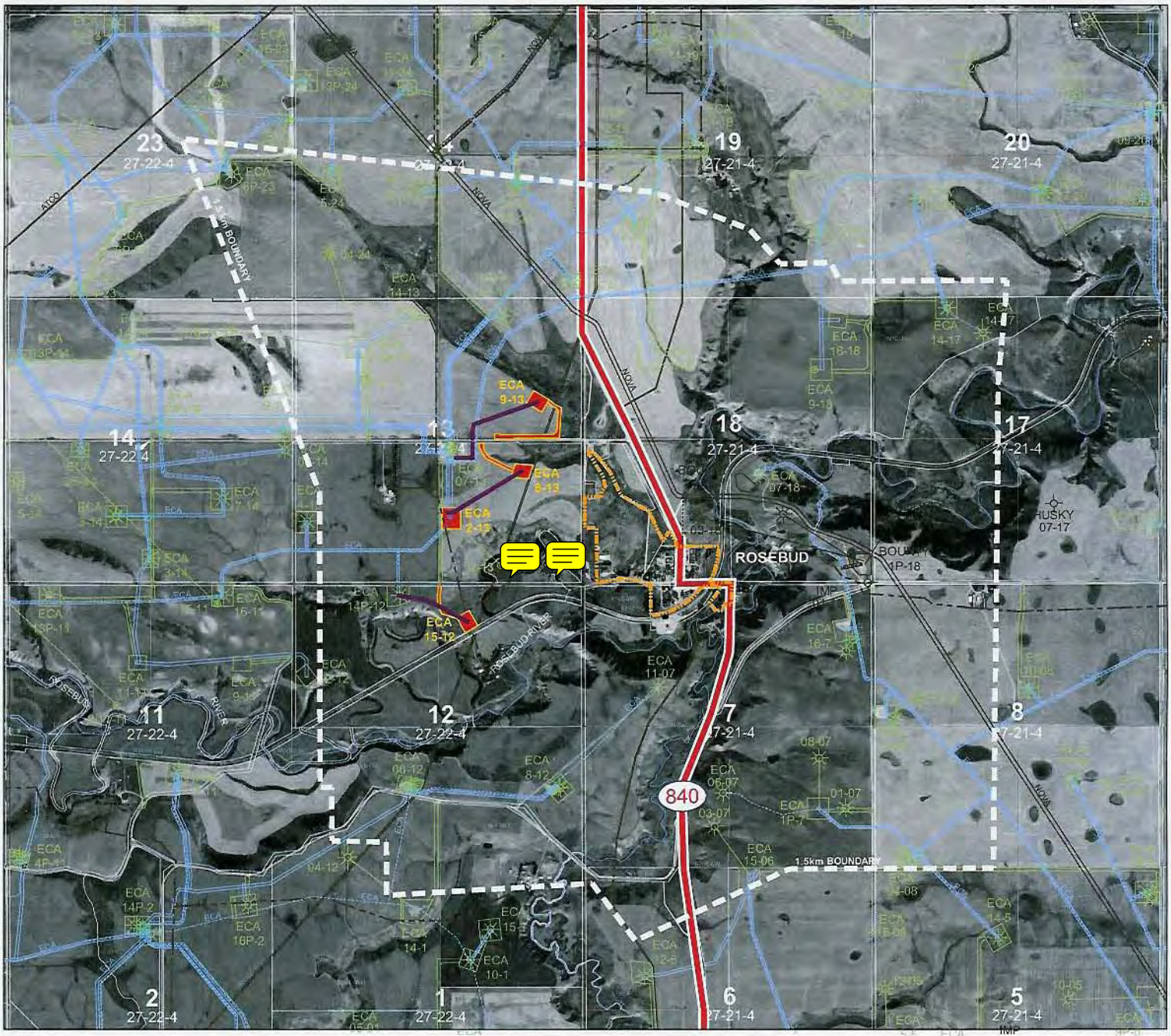
12-15 member panel, 18 months

In the meantime, drill & frac, drill & frac ...

October 6, 2011
ERCB Bulletin 2011-29:

Frac Hell is Imminent

Unless we act now!



ENCANA

MOSAIC PLAN
SHOWING
WELLSITES & PIPELINES
WITHIN
TWP. 27 - RGE.'s 21 & 22 - W.4M.
ALBERTA
SCALE 1: 15 000

LEGEND

SERVICE WELLS
OIL WELLS
GAS WELLS
GAS INJECTION WELLS
SUSPENDED GAS WELLS
ABANDONED GAS WELLS
SUSPENDED OIL WELLS
ABANDONED OIL WELLS
SURFACE HOLE LOCATION
LOCATION
SUSPENDED
ABANDONED

ECA WELLSITES
EXISTING SURVEYED (LICENSED)
EXISTING SURVEYED (NOT LICENSED)

ECA PIPELINE (EGIS)
FOREIGN PIPELINES (EGIS)
GAS CO-OP LINE

CALTECH SURVEYS LTD

It’s never enough


ENCANA
100/15-24-027-22W4
ENCANA
100/11-24-027-22W4
encana
100/03-25-027-22W4/00

Access ENCANA
TO

EMERGENCY PHO
403-645-333
4-23-27-22

ENCANA

FLAMMABLE

100/10-23-027-22W4

24 HR. EMERGENCY PH: 1-403-645-3333


ENCANA
100/09-23-027-22W4
100/14-23-027-22W4
100/15-23-027-22W4
100/13-24-027-22W4
100/01-26-027-22W4
100/07-26-027-22W4
24 HR. EMERGENCY @ 1-403-645-3333


ENCANA
FLAMMABLE
100/09-23-027-22W4
100/14-23-027-22W4
100/15-23-027-22W4
100/13-24-027-22W4
100/01-26-027-22W4
100/07-26-027-22W4
24 HR. EMERGENCY PH: 1-403-645-3333

ENCANA

100/15-13-027-22W4
100/04-23-027-22W4
100/06-23-027-22W4
100/08-23-027-22W4
100/09-23-027-22W4
100/14-23-027-22W4
100/06-24-027-22W4
100/08-24-027-22W4
102/08-24-027-22W4
24 HR. EMERGENCY PH: 1-403-645-3333

ENCANA

100/15-24-027-22W4
24 HR. EMERGENCY PH: 1-403-645-3333

ENCANA
ENCANA CORPORATION
EMERGENCY PHONE
403-645-3333
11·24·27·22

ENCANA

102/08-23-027-22W4
24 HR. EMERGENCY PH: 1-403-645-3333

ENCANA
ENCANA CORPORATION
EMERGENCY PHONE
403-645-3333
5·24·27·22

ENCANA

100/16-23-027-22W4
24 HR. EMERGENCY PH: 1-403-645-3333


ENCANA
ENCANA CORPORATION
EMERGENCY PHONE
403-645-3333
8-13-27-22
Fire
Hazard


FIRST AID
STATION
EYE WASH
STATION
NOTICE
NO
SMOKING
CAUTION
DANGER
HEARING
PROTECTION
REQUIRED
HOT
STEAM
TC SH9280
CAODC 3922
TANK TYPE 1A
OUT-OF-SERVICE BY:
2014/12/31
1202
4X4
OFF ROAD
F250
FYU-565


ENCANA
EMERGENCY PHONE
403-645-3333
ENCANA
ENCANA


TRICAN
TRICAN
TRICAN

ENCANA

AUTHORIZED
PERSONNEL ONLY

DANGER
OPEN PITS

NO
TRESPASSING

ENCANA
ENCANA CORPORATION
Keep Gate
CLOSED

ENCANA
ENCANA CORPORATION
EMERGENCY PHONE
403-645-3333
1-5-2721

Radioactive Waste Dumping?

Metal Concentrations

Table #1 – Average Metals Concentrations in Recycled WBFF and Drilling Waste

Parameter	Recycled WBFF (mg/L)	Drilling Waste (mg/L)
Arsenic	**0.0617**	**0.507**
Barium	**1.44**	**13.01**
Beryllium	**0.0629**	**0.00263**
Cadmium	**0.00**	**0.00213**
Cobalt	**0.0328**	**0.315**
Chromium (total)	**0.091**	**0.857**
Copper	**0.133**	**1.174**
Mercury	**0.0078**	**0.0214**
Molybdenum	**0.0218**	**0.0294**
Nickel	**0.0121**	**1.13726**
Lead	**0.0894**	**0.137**
Antimony	**0.004**	**0.00121**
Selenium	**0.0171**	**0.055**
Tin	**0.00167**	**0.0105**
Thallium	**0.0004**	**0.00263**
Vanadium	**0.172**	**1.94**
Zinc	**0.544**	**3.29**

100's of Confidentiality Agreements sealed contamination from frac'ing

How many in Alberta?

Water moves!

Sealing water contamination cases is wrong

Must be made illegal

The old Rosebud River on my land

Frac'ing is a global issue.

What can we do?

Slide 1:
EnCana 2-13-27-22-W4M being directionally drilled (deviated drilling is a factor of major impact of gas leakage, as admitted by the ERCB, refer to reference for slides #113-116) by Precision Drilling under Jessica Ernst's land, November 2011

Slide 2:
Alberta's Unconventional Oil & Natural Gas, Answering Your Questions About Our Energy Resources Alberta Energy Resources Conservation Board, September 7, 2011

Slides 3 & 4:
From historic water wells records that used to be publicly available (removed in recent years without consulting Albertans; altered records replaced the historic records) at ***Alberta Environment Water Well Information Database***

Slide 5:
Amended statement of claim Jessica Ernst vs. EnCana Corporation, Energy Resources Conservation Board and Her Majesty the Queen in Right of Alberta

Slide 6:
Dyck, W. and Dunn, C.E. 1986. ***Helium and methane anomalies in domestic water wells in southwestern Saskatchewan, Canada, and their relationship to other dissolved constituents, oil and gas fields, and tectonic patterns*** *Journal of Geophysical Research* **91**(B12): 12,343-12,353. doi:10.1029/JB091iB12p12343.

Slide 7:
EPA Report to Congress: Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy Volume 1 of 3 Oil and Gas, EPA/530-SW-88-003, December 1987.
EPA report on water well contamination from hydraulic fracturing.

Slide 8:
Effective Hydraulic Fracturing Of The Lower Amaranth Formation In Southern Manitoba by Kooyman, RW, MB Muir, RP Marcinew, K Bennaceur in *Journal of Canadian Petroleum Technology* Vol 28, No. 5, Sept-Oct 1989. Paper No 89-05-05.

Following the unsuccessful stimulation of several wells in the South Pierson field where hydraulic fractures propagated into the underlying water zone, a comprehensive re-evaluation and detailed design effort was implemented to minimize the potential for water production.

Slides 9-11:
Schmitz, Ron, P. Carlson, M. D. Watson, and B. P. Erno. 1993. *Husky Oil's Gas Migration Research Effort – an Update.* (Photo by Jonathan Wright of EnCana leases not part of Husky's research)

Slides 12-13:
Chafin, Daniel, T. 1994. ***Source and Migration Pathways of Natural Gas in Near-Surface Ground Water Beneath the Animas River Valley, Colorado and New Mexico*** USGS Water Resources Investigations Report 94-4006. (Photo by Jonathan Wright of EnCana leases not part of Chafin's research)

Slides 14-19:
Canadian Association of Petroleum Producers. 1995. *Migration of Methane into Groundwater from Leaking Production Wells Near Lloydminster; March 1995.* CAPP Pub. #1995-0001.
Canadian Association of Petroleum Producers. 1996. *Migration of Methane into Groundwater from Leaking Production Wells Near Lloydminster; Report for Phase 2 (1995).* CAPP Pub. #1996-0003.
"The Canadian Association of Petroleum Producers (CAPP) represents 190 companies whose activities focus on exploration, development and production of natural gas, natural gas liquids, crude oil, synthetic crude oil, bitumen and elemental sulphur throughout Canada. CAPP member companies produce approximately 95 percent of the Canada's natural gas and crude oil. CAPP has 115 associate member companies who provide the broad range of services that complete the infrastructure of this country's upstream petroleum industry."

Slides 20-21:
Photos by Ernst

Slides 22-23:
Hutchinson, Kansas Natural Gas Explosion and Fire January 17, 2001. Photo from Hutchinson Fire Department.

Slide 24:

Dusterhoff, Dale, G. Wilson, and K. Newman. 2002. *Field Study on the use of Cement Pulsation to Control Gas Migration*. Presented to the Society of Petroleum Engineers Inc.

Slide 25-27:

Crowe, A.S., K.A. Schaefer, A. Kohut, S.G. Shikaze, C.J. Ptacek. 2002. *Groundwater Quality*. Canadian Council of Ministers of the Environment. Winnipeg, Manitoba. ***Linking Water Science to Policy Workshop Series.*** Report No.2, 52 pages.

Slide 28-29:

EnCana perforation and fracture depth data, summarized with various news:

Tainted water lights fire under gas fears by Hanneke Brooymans, Originally published on the front page of *The Edmonton Journal* December 13, 2005.

Eminently unsuitable by Andrew Nikiforuk, *Canadian Business Magazine*, May 22-June 4, 2006 issue (will soon be at ***CBM & Frac News Tab*** at www.ernstversusencana.ca)

Trouble in the Fields: Is our water safe? Cover article by Jeremy Klazsus, photographs by Colin Smith, originally published in *Alberta Views* October 2006. Vol 9, No. 8.

EnCana announces Gwyn Morgan's retirement from its Board of Directors

Governor General Announces 54 New Appointments to the Order of Canada

Appointments to the Order of Canada**,** December 30, 2010

Governor General to Invest 39 Recipients into the Order of Canada Order of Canada Investiture Ceremony, November 2, 2011

Slide 30-31:

EnCana 2003 test results on Ernst water well, before the company perforated and fractured into the fresh water aquifer that supplies the Ernst well and others in her community.

Slide 32:

Gunter, W. January, 2003. *Climate change solutions may be found in coalbed methane recovery*. Climate Change Central Newsletter 5. [The Harper Government removed this document from the Internet; Ernst saved copy of it before it was removed]

Slide 33:

Dusseault, M. B. 2003. ***Some Recommendations Relating to Alberta Heavy Oil.*** Report prepared for the Alberta Department of Energy.

Slide 34:

Coleman, D. 2004. *Source Identification of Stray Gases by Geochemical Fingerprinting.* Isotech Laboratories, Inc. champaign, Illinois, USA. Solution Mining Research Institute; Spring 2004 Technical Meeting Wichita, Kansas, USA, 18-21 April 2004.

Slides 35-36:

EnCana perforation and fracture depth data for the 00/05-14-27-22-W4M

Slide 37:

EnCana perforation and fracture depth data for the 00/05-14-27-22-W4M submitted to ***Alberta's Groundwater Centre***

"The Groundwater Centre has been maintaining a groundwater database for the past 22 years. In 1979, The Groundwater Centre started the process of merging the AENV (Alberta Environment) GIC database with its own database. This process allowed The Groundwater Centre to dramatically upgrade the existing AENV groundwater dataset."

Slide 38:

from Hydrogeological Consultants Ltd. January, 2005. *EnCana Corporation. Redland Area. NE10-027-22-W4M. Sean Kenny Site Investigation.* File No.: 04:510.

Slide 40:

Alleged Violations of the rules and regulations of the Colorado Oil and Gas Conservation Commission (COGCC) by EnCana Oil & Gas (USA) Inc. Cause No. 1V, Order No. 1V-276 before the Oil and Gas Conservation Commission of the State of Colorado, September 16, 2004. 29.

Slide 41:

Results from FOIP request by Ernst to the Alberta Research Council (now called Alberta Innovates Technologies Futures), June 2008, cost $4,150.00 on the records used by the council to dismiss the dangerous contamination in Rosebud water and other communities, and suggest nature is to blame. The most important records and data remain withheld and or heavily censored, including government identifiers on public water well data collected under Alberta Environment's Standard for Baseline Water-Well Testing. The matter is under Inquiry by the Commissioner's Office; completion data recently extended from October 2011 to March 31, 2012.

Slides 47-48:
As Titled on page 47

Slide 49:
Meeting Minutes October 4, 2004, 9:30 to 1:30, Red Deer Room, Red Deer Lodge. Coalbed Methane/Natural Gas in Coal Multi-Stakeholder Advisory Committee (the Committee). Not one regulatory agency or industry group told the Alberta public that companies were producing fresh water from coalbed methane, not even the Pembina Institute.
In attendance: Dept of Energy, Alberta Environment, The Pembina Institute, Alberta Energy, Sustainable Resource Development, Alberta Agriculture, Food and Rural Development, Alberta Environmental Network Society, Alberta Energy & Utilities Board (now ERCB), Alberta Surface Rights Federation, Canadian Association of Petroleum Landmen, Canadian Association of Petroleum Producers (CAPP), Canadian Society for Unconventional Gas (now Canadian Society for Unconventional Resources), Small Explorers and Producers Association of Canada, Freehold Petroleum & Natural Gas Owners Association, Alberta Beef Producers, Alberta Association of Municipal Districts & Counties, Alberta Environmental Sustainable Agriculture Committee, Alberta Surface Rights Federation, Community Development, the Coal Association of Canada.

Slide 50:
EnCana In Your Community. October 2004 Newsletter.

Slides 51-53:
Photos by Ernst

Page 54&55:
As titled on Page 54

Slide 56:
Investigators say an accumulation of gases appears to have caused the explosion that destroyed the Rosebud water tower and sent a Wheatland County employee to hospital by *Strathmore Standard*, January 27, 2005

Slides 57-58:
Photos by Ernst

Slides 59-62:
Photos by Jonathan Wright

Slide 64:
Photo by Ernst

Slide #66:
Draft Noise Control Directive 038, Draft Sept. 2005. Revisions to EUB Guide 38: Noise Control Directive User Guide (November 1999)
CPAWS won't wait for government to develop coalbed methane regulations by Graeme McElheran, originally published in the *Yukon News*, December 2, 2005.

Slide 70:
Tainted water lights fire under gas fears by Hanneke Brooymans, *The Edmonton Journal* December 13, 2005.

Slide 71:
Directive 027, Shallow Fracturing Operations—Interim Controls, Restricted Operations, and Technical Review January 31, 2006. The Alberta Energy and Utilities Board (EUB/Board) has approved this directive on January 31, 2006. <original signed by> M. N. McCrank, Q.C., P.Eng. Chairman. "Effective immediately, licensees must not conduct fracturing operations at depths less than 200 m unless they have fully assessed all potential impacts prior to initiating a fracturing program." The original is no longer available on the Alberta Energy regulator's website.

Slide 72:
Alberta Hansard 26th Legislature, 2nd Session (2006), Afternoon
"**Mr. Boutilier:** Thank you, Mr. Speaker, and I thank the hon. member for the question because it is a very serious and a very important issue, that **all Albertans enjoy safe drinking water.** I think what is also equally important is that since we were first notified in October by some of the families that you've mentioned, we've been working very closely with them as Alberta Environment in terms of looking at alternative water options for them. We're committed to doing that, as we've indicated to them. Also, it's important as we go forward to develop a baseline of information in terms of what the impact is from drilling and also what the impact is from the natural flow of methane that, of course, takes place based on how this world has been created. So my commitment in terms of working with the families

when it was first brought to our attention: we're doing that. I'm actually looking forward to recommendations very quickly in the future that will be going to the EUB relative to the issue of how we go forward regarding automatic baseline testing for what the hon. member has brought up."

"**Mr. Boutilier:** Mr. Speaker, let me reiterate to the hon. member and to the families that are here today: **it is a very serious issue.** As Alberta Environment I will use every fibre of energy in my body to assist this family relative to safe drinking water now and into the future. I'm not aware of any returned phone call, but I can assure you that we are working with them and we will continue to work with them **because this is a very important issue to this family and to many other families that have been impacted,** be it by the natural flow or because of what is being asserted relative to what is taking place in the water supply." [red and bold emphasis added]

Water better be OK, Ralph Vows to Intervene on Coalbed Methane Complaints, by Darcy Henton, Legislature Bureau, originally published in *The Edmonton Sun*, March 1 2006.

Slide 75:
March 7, 2006 at Camrose and Pigeon Lake
March 8, 2006 at Edmonton and Trochu
March 9, 2006 at Calgary and Nanton
Presenters Tweeti Blanchet, Gwen Lachelt and Jessica Ernst

Slide 76:
Alberta Environment. April 2006. ***Standard for Baseline Water-Well Testing for Coalbed Methane/Natural Gas in Coal Operations (April 2006)***

Slide 78: (the complete data set are attached at the end of the references)
Data Ernst obtained via FOIP, after years of fighting for it. Summary analysis by two different labs of the isotopic fingerprinting results comparing results for one of the 3 Rosebud water wells with 4 EnCana wells. This damning result even with the regulator not investigating *any* of EnCana's 60 gas wells perf'd and frac'd above 200 m, not even the 2 CBM wells at Rosebud that EnCana perf'd directly into fresh water supplies (one at 121.5 m, the other at 100.5 m) before the Alberta government mandated some baseline gas testing.

Slide 81-82:
Photos by a member of the Happy Valley Surface Rights Association, Spirit River, Alberta

Alberta Hansard, May 17, 2006: Private water well explosion at Spirit River under *Coalbed Methane Drilling.*

Slide 86:
Alberta Environment. March 2006. Analytical Report for Rosebud Hamlet. Data collection by Alberta Environment, analysis by ALS Laboratory Group and the Alberta Research Council.

Slides 87-88:
Alberta Environment investigation "damning data" obtained from Wheatland County – not included in any of the reports by the Alberta Research Council.

Slide 89:
Photo by Ernst of Trican frac'ing an EnCana shallow coalbed methane well (00 08 14 27 22 W4M) near Ernst contaminated water well during the year that Alberta Environment was refusing to do a comprehensive investigation.

Slide 90:
IEA Greenhouse Gas R & D Programme (IEA GHG), ***2nd Wellbore Integrity Workshop, 2006/12***, *September, 2006.*

Slide 91:
Water Chemistry of Coalbed Methane Reservoirs; Central Alberta, 2005 by Lemay, T.G. and K. Konhauser. September 2006. EUB/AGS Special Report 081© Her Majesty the Queen in Right of Alberta, 2006 ISBN# 0-7785-1512-5

Slide 92:
Photo of Ernst water 2006 by Colin Smith

Slide 93:
Results from sampling by Alberta Environment on various citizen water wells at Rosebud, Alberta.
Canadian Association of Petroleum Producers. 1996. *Migration of Methane into Groundwater from Leaking Production Wells Near Lloydminster; Report for Phase 2 (1995).* CAPP Pub. #1996-0003.

"The data from the Rosebud, Alberta area suggest groundwater gas concentrations are being underestimated by a factor of three when TDGP is not measured" ***Alberta Environment Standard for Baseline Water Well Testing for CBM Operations, Science Review Panel Final Report*** by Dr. Cathy Ryan, U of Calgary. December 5, 2008. ***GeoEdmonton'08 : 61st Canadian Geotechnical Conference and 9th Joint CGS/IAH-CNC Groundwater Conference: conference proceedings***, September 21-24, 2008, Edmonton, Canada. ISBN:: 9780920505403

Slides 94-98:
January 22, 2007 photos of EnCana rig crash that sent one worker to hospital to be treated for shock. Refer to the end of the references for the EnCana and ERCB incident reports (that contradict on what caused the crash).

Slide 99:
May 2007 Letters from Alberta Environment Deputy Minister Peter Watson to landowners with contaminated water wells at Rosebud, Alberta

Slides 101-104:
Photos by Ernst

Slide 106:
Report of the Rosenberg International Forum on Water Policy to the Ministry of Environment, Province of Alberta, February 2007. Rosenberg International Forum on Water Policy University of California, Division of Agriculture and Natural Resources
324 Giannini Hall, University of California, Berkeley.
Participants from the Alberta Government:

Mr. Peter Watson, Deputy Minister, Alberta Environment
Ms. Bev Yee, Assistant Deputy Minister, Alberta Environment
Ms. Nga de la Cruz, Senior Hydrologist, Alberta Environment
Mr. Colin Fraser, Hydrologist, Alberta Environment
Mr. Rob George, Groundwater Quality Specialist, Alberta Environment
Dr. Kevin Parks, Provincial Geologist, Alberta Geological Survey
Ms. Kate Rich, Manager, Water Strategy Office, Alberta Environment
Ms. Heather von Hauff, Groundwater Quality Specialist, Alberta Environment

Slide 107:

Testimony on water contamination and non-disclosure of chemicals used in shallow hydraulic fracturing of coalbed methane wells in Alberta to The Standing Committee on Environment and Sustainable Development Number 056, 1st Session, 39th Parliament in Ottawa, May 8, 2007.

Slide 108 -112:

Charges of Spying Zap the Reputation of Alberta's Energy Regulator
The Perras Report September 7, 2007
Alberta Hansard Various

Slides 113-116:

Watson and Bachu – Factors Affecting or Indicating Potential Wellbore Leakage by Theresa Watson (T.L. Watson and Associates Inc.) and Stephan Bachu (Alberta Energy and Utilities Board), 2007 Presentation; SPE Paper 106817, 200
ERCB *Teresa Watson appointed newest Board Member, September 2009.*

Slide 117:

Photo by Ernst

Slide 118:

Ernst Well Complaint Review, by Dr. Alexander Blyth for Alberta Research Council Inc. Permit to Practice P03619. Prepared for Alberta Environment, December 31, 2007.

Slide 119:

Alberta Environment/Energy Resources Conservation Board Response to the Report "Potential for Gas Migration Due to Coalbed Methane Development"
First Review, winter 2008. "The report concludes that gas migration due to natural pathways is unlikely to occur for the areas of active or anticipated CBM development...It also highlights the potential higher risk for gas migration where there are very shallow coals...."

Slide 120:

Closure of Groundwater Contamination Investigation No. 7894 Water Well Complaint at SE-13-027-22-W4M. January 16, 2008. Letters to Complainants from Mr. David McKenna, Alberta Environment, Groundwater Policy Branch.

Slide 121:
Photo by Ernst

Slide 122:
EnCana denies doing any water well contamination by Rick Northrop, originally published in *The Drumheller Valley Times,* Vol. 9, No. 50, April 22, 2008.

Slide 123:
Shallow gas wells mapped by Jessica Ernst from publicly available energy well data to April 1, 2006 and ***Base of Groundwater Protection data at the ERCB***, ***AccuMap*** and ***Abacusdatagraphics***. Many more EnCana gas wells have since been drilled and fractured in the map area, including above the Base of Groundwater Protection. Instead of using isotopic fingerprinting data from gas wells around Rosebud that indicate match of gases in Rosebud water to gases from EnCana's gas wells, the Alberta Research Council used data (that they refuse to disclose) on unidentified gas wells frac'd deeper over 100 miles away to dismiss the water contamination. Give the map time to load, and blow it up. All energy wells are mapped with legal land descriptions in detail.

Slide 124:
Evaluation of Phase II Hydrogeologic Study for Garfield County by Geoffery Thyne, Prepared for Garfield County, December 20, 2008

Slide 125:
Alberta Gas: Battle over wells wages in pristine valley *CTV W5*, February 7, 2009.

Slides 126-128:
Photos of Royal Mounted Canadian Police on the Ernst property by Jessica Ernst.

Slide 130:
A Primer for Understanding Canadian Shale Gas – Energy Briefing Note
National Energy Board, November 2009

Slide131:
Talisman Terry is born

Slide 132:
Safety Advisory 2010-03 Communication during fracture stimulation by the BC Oil and Gas Commission, May 20, 2010.

Slides 134-136:
Alberta Environment Water Well Information Database

Slide 137:
US Congress letter to EnCana investigating the company's hydraulic fracturing and allegations of water contamination Congress United States House of Representatives Committee on Energy and Commerce July 19 2010

Slide 138:
Buy Our Silence; EnCana increases donation to $350,000

Slide 139:
EnCana Frac Field - Pavillion, Wyoming-area residents told not to drink water by Dustin Bleizeffer, *Star-Tribune*, September 1, 2010.

Slide 140:
EPA Groundwater Investigation: EnCana's frac field at Pavillion, Wyoming Analytical Reports for Rosebud water wells. Data collection by Alberta Environment, analysis by various labs.

Slide 141: Letter from Office of the Information and Privacy Commissioner to 7 parties, three named, four not.

Slide 142:
Testimony that hydraulic fracturing interfered with Rosebud groundwater to The Standing Committee on Natural Resources, Number 032, 3rd Session, 40th Parliament, Evidence presented in Ottawa, November 18, 2010

Slide 143:
Testimony on hydraulic fracturing and public disclosure of all chemicals used in the process to The Standing Committee on Natural Resources, Number 033, 3rd Session, 40th Parliament, Evidence presented in Ottawa, November 23, 2010

Slide 144:
EnCana Letter to MP Nathan Cullen

Slide 145:
Documents Reveal Industry and Gov't Collude on Shale Gas Alberta New Dems release secret agreements about handling public opinion by Andrew Nikiforuk, *TheTyee.ca*, August 19, 2011
New Release: Western Canadian Energy Ministers "Collaborate" in secret with influential petroleum cartel on development of controversial fracking policies September 6, 2011 ***Backgrounder to the Press Release***

Slide 146:
Shale gas: a provisional assessment of climate change and environmental impacts by The Tyndall Centre, University of Manchester, January 2011
Shale gas moratorium in UK urged by Tyndall Centre by Roger Harrabin, *BBC News*, January 16, 2011
"We are aghast that government accepted the assurances of industry on this while their own consultation had not even finished. There was a shale gas rush in the US and now they are looking into the implications - we need to do it the other way round."

Slide 147:
Leaks found in shale gas wells: Que. Report
31 were inspected 'and more than half have problems,' says envrionmental expert CBC News, January 5, 2011

Slide 148:
Unconventional Gas Regulatory Framework—Jurisdictional Review by the Alberta Energy and Utilities Board January 28, 2011. Report 2011-A.

Slide 149:
The Fish Scales, a Hybrid Shale Gas Play – Characterization, Regional Extent and Controls on Productivity by Roy Benteau, EOG Resources Canada and Basim Faraj, Talisman Energy Inc. 2008
Chapter 20 Cretaceous Colorado / Alberta Group of the Western Canada Sedimentary Basin Alberta Geological Survey and Energy Resources Conservation Board March, 1994

Slide 150:
Results of controversial 'fracking' for shale gas in UK will be kept secret by Tim Webb, The Guardian, March 1, 2011

Slide 151:
Que. report urges halt on shale gas drilling The Canadian Press, March 8, 2011

Slide 152:
Photo of Husky/Gasfrac propane explosion

Slide 153:
Alberta Husky/Gasfrac propane frac explosion March 7, 2011

Slide 154:
Letter from Office of the Information and Privacy Commissioner to Ernst and 7 parties, now all named.

Slide 155:
Multi-Million Dollar Landmark North American Lawsuit on Hydraulic Fracturing and Its Impact on Groundwater
Suit accuses EnCana, Alberta Environment and Energy Resources Conservation Board of negligence and unlawful activities.

Slide 156:
Fracking, methane and drinking water by Dianne Saxe, *Envirolaw*, MAY 17, 2011. The Ernst v. Encana fracking lawsuit gained strength this month with the publication of Rob Jackson's peer-reviewed paper: *Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing*.
Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing by Stephen G. Osborn, Avner Vengosh, Nathaniel R. Warner, and Robert B. Jackson In *Proceedings of National Academy of Sciences*. Published online before print May 9, 2011, doi:10.1073/pnas.1100682108PNAS May 17, 2011 vol. 108no. 20 8172-8176. Approved April 14, 2011 (received for review January 13, 2011)
National Geographic Methane on Tap: Study Links Pollution to Gas Drilling by Rachel Kaufman, *National Geographic News* May 9, 2011

Slide 157:
DIRECTORATE GENERAL FOR INTERNAL POLICIE POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY Impacts of shale gas and shale oil extraction on the environment and on human health
by Stefan LECHTENBÖHMER, Matthias ALTMANN, Sofia CAPITO, Zsolt MATRA, Werner WEINDRORF, Werner ZITTEL for the European Parliament's Committee on Environment, Public Health and Food Safety, June 2011.

Slide 158:
France Becomes First Country to Ban Extraction of Natural Gas by Fracking
by Davide Castelvecchi *Scientific American blog*, June 30, 2011

Slide 159:
The-colbert-report/#clip505136

Slide 160:
RIP Talisman Terry

Slide 161:
USGS scientist: 'We're only starting to learn' about fracking, fluid injection, earthquakes by David O. Williams, Colorado Independent, August 27, 2011

Slide 162:
"What Fresh Hell is this?" Fracking Alberta
POWERS holds first workshop in Alberta on hydraulic fracturing and demands Frack Moratorium

Slide 163:
Environment Canada to study hydraulic fracturing by Jason Fekete and Rebecca Penty, PostMedia News and Calgary Herald, September 21, 2011

Slide 164:
ERCB Bulletin 2011-29: Changes to the Province-Wide Framework for Well Spacing for Conventional and Unconventional Oil and Gas Reservoirs October 6, 2011.

Slide 165:
Map sent to me by EnCana in 2010. EnCana received licence on April 7, 2011 from the ERCB to drill and fracture more gas wells near **and under** my already adversely affected land. Most of my valid concerns submitted to the regulator about EnCana having fractured the aquifer that supplies my well, the dangerous levels of methane in my water, and the company planning to drill and fracture under my land and the old Rosebud River that meanders my land remain unaddressed or deflected, most significantly my request for EnCana's chemicals to be used and their submission to ***Congress investigating EnCana's fracturing activities and all allegations of water contamination***. The ERCB wrote me in their letter post marked April 7, 2011: **"Therefore, based on all the information before the Board, it does not appear that you have rights or interests that may be directly and adversely affected by approval of the Applications."**

Photos 168-193:
Photos by Ernst, October and November 2011, of EnCana drilling and frac'ing more and more wells around Rosebud.

Photos 195-199:
Undisclosed waste dumping by EnCana about one half mile west of Ernst's property and near the Rosebud River.

Slide 197:
EnCana. 2005. *Recycling Frac Fluid Pilot Investigation into Water Based Frac Fluid Use in Drilling Fluids Associated with Shallow Gas Wells on the Suffield Block.* PTAC 2005 Water Efficiency and Innovation Forum, June 23, Calgary.
http://www.ptac.org/env/dl/envf0502p07.pdf **Recently removed off the Internet**.

Slide 200:
DRILLING DOWN, One Tainted Water Well, and Concern There May Be More
by Ian Urbina *The New York Times*, August 3, 2011.
"I can assure you that the Jackson County case was not unique," said Mr. Derkics, who retired from the agency in 1994. "That is why the drinking water concerns are real."

+ s. 17(4)(g)

	13C1	13C2	13C3	13iC4	13nC4	CO2	
*	-66.93	-42				-5.15	
*	-68.71	-41.66	-27.62	-28.16	-25.54	-8.9	close to
*	-65.76	-44.27	-31.71	-29.37	-31.96	-7.68	each other
8-12 CBM	-40.81	-31.12	-30.48	-33.1	-13.23	-56.15	
3-14 CBM	-60.3	-43.33	-31.17	-28.73	-29.31	-11.21	similar to * and * wells. Need to get D&C
14-12 Deep	-52.78	-32.06	-29.53	-28.62	-28.24	-2.59	report from Encana for competion depth
8-12 Deep	-59.5	-34.71	-29.92	-29.4	29.04	-12.2	

Maxxam Analytics Inc

Maxxam File: A614781-B01326
Sample Date: 2006/04/12

Water Well location: Rosebud Area
Water Well Name: Residence –Discharge Pump

s.17(4)(g)

Analysis Summary

Table1: Air components

	Hydrogen (H2)	Helium (He)	Oxygen (O2)	Nitrogen (N2)	Carbon Dioxide (CO2)
April 12, 2006	0.01	Trace	8.36	33.65	0.44

Table 2: Hydrocarbon Component

	Methane (C1)	Ethane (C2)	Propane (C3)	N-Butane (NC4)	Butane (C4)
April 12, 2006	57.50	N/D	N/D	N/D	N/D

Table 3: Stable Carbon Isotope

	$\delta^{13}C$ C_1	$\delta^{13}C$ C_2	$\delta^{13}C$ C_3	$\delta^{13}C$ i-C_4	$\delta^{13}C$ n-C_4	$\delta^{13}C$ CO_2
April 12, 2006	-65.76	-44.27	-31.71	-29.31	-31.96	-7.68

***N/D= not detected
*** All gas components are reported in percent (%)

Stable Carbon Isotope Interpretation

	Maxxam	U of A
Possible Depth (m)	**N/A**	**N/A**
Possible Geologic Formation:	**Near Belly River**	**N/A**

I think this is Dahm

- Maxxam's interpretation and remarks were done by Margaret Woodruff
- Email: margaret.woodruff@maxxamanalytics.com
- The University of Alberta interpretation and remarks were done by Dr. Karlis Muehlenbachs
- Email: karlis.muehlenbachs@ualberta.ca

Maxxam Analytics Inc

Maxxam's Remarks:

- Based on a comparison of the carbon isotope data to the data from the reference well (3-14-27-22-w4m and 102/8-12-27-22-w4m) it is a likely source of this water well gas is from near or from the Belly River Formation.
- When comparing this gas the with the database is likely coming from a shallow, mixed source of biogenic and thermogenic gas

Dr. Karlis Muehlenbachs' Remarks (University of Alberta):

- Methane isotope value indicates a biogenic source whereas ethane, propane and butanes indicates a source from or near the shallower wells, 27-22-W4
- Water well gas may be a mixture of in situ biogenic gas with some deeper gas.

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- Email: karlis.muehlenbachs@ualberta.ca

Maxxam Analytics Inc

Maxxam File: A614781-B01325
Sample Date: 2006/04/12

Water Well location: Rosebud Area
Water Well Name:

s. 17(4)(g)

Analysis Summary

Table1: Air components

	Hydrogen (H2)	Helium (He)	Oxygen (O2)	Nitrogen (N2)	Carbon Dioxide (CO2)
April 12, 2006	Trace	Trace	1.02	21.45	0.17

Table 2: Hydrocarbon Component

	Methane (C1)	Ethane (C2)	Propane (C3)	N-Butane (NC4)	Butane (C4)
April 12, 2006	77.36	N/D	N/D	N/D	N/D

Table 3: Stable Carbon Isotope

	$\delta^{13}C$ C_1	$\delta^{13}C$ C_2	$\delta^{13}C$ C_3	$\delta^{13}C$ i-C_4	$\delta^{13}C$ n-C_4	$\delta^{13}C$ CO_2
April 12, 2006	-68.71	-41.66	-27.62	-28.16	-25.54	-8.90

***N/D= not detected
*** All gas components are reported in percent (%)

Stable Carbon Isotope Interpretation

	Maxxam	U of A
Possible Depth (m)	**N/A**	**N/A**
Possible Geologic Formation:	**Near Belly River**	**N/A**

I think this is Kenney

- Maxxam's interpretation and remarks were done by Margaret Woodruff
- Email: margaret.woodruff@maxxamanalytics.com
- The University of Alberta interpretation and remarks were done by Dr. Karlis Muehlenbachs
- Email: karlis.muehlenbachs@ualberta.ca

Maxxam Analytics Inc

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Dr. Karlis Muehlenbachs' Remarks (University of Alberta):

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- The University of Alberta interpretation and remarks were done by Dr. Karlis Muehlenbachs
- Email: karlis.muehlenbachs@ualberta.ca

Maxxam Analytics Inc

Maxxam File: A614781-B01324
Sample Date: 2006/04/12

Water Well location: Rosebud Area
Water Well Name: 1 Water Hydrant

s. 17(4)(g)

Analysis Summary

Table1: Air components

	Hydrogen (H2)	Helium (He)	Oxygen (O2)	Nitrogen (N2)	Carbon Dioxide (CO2)
April 12, 2006	Trace	0.01	0.76	11.60	0.24

Table 2: Hydrocarbon Component

	Methane (C1)	Ethane (C2)	Propane (C3)	N-Butane (NC4)	Butane (C4)
April 12, 2006	87.39	N/D	N/D	N/D	N/D

Table 3: Stable Carbon Isotope

	$\delta^{13}C$ C_1	$\delta^{13}C$ C_2	$\delta^{13}C$ C_3	$\delta^{13}C$ i-C_4	$\delta^{13}C$ n-C_4	$\delta^{13}C$ CO_2
April 12, 2006	-66.93	-42.00	N/D	N/D	N/D	-5.15

***N/D= not detected
*** All gas components are reported in percent (%)

Stable Carbon Isotope Interpretation

	Maxxam	U of A
Possible Depth (m)	**N/A**	**N/A**
Possible Geologic Formation:	**Near Belly River**	**N/A**

Ricard's my next door neighbours about 400 m East.

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- Email: karlis.muehlenbachs@ualberta.ca

Maxxam Analytics Inc

Maxxam's Remarks:

- Based on a comparison of the carbon isotope data to the data from the reference well (3-14-27-22-w4m and 102/8-12-27-22-w4m) it is a likely source of this water well gas is from near the belly river.
- When comparing this gas the with the database is likely coming from a shallow, mixed source of biogenic and thermogenic gas

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- Methane isotope value indicates a biogenic source, whereas ethane indicates a source from or near the shallow resource wells, 27-22-w4
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- Email: karlis.muehlenbachs@ualberta.ca

Maxxam Analytics Inc

CARBON ISOTOPE ANALYSIS

Sample Point I.D.	Client I.D.	Meter Number	Laboratory Number
			A610309:A78171
ALBERTA ENVIRONMENT (Operator Name)		0008-12-027-22-W4M (LSD)	102/08-12-027-22W4/0 ** (Well ID)
ENCANA 0008-12-027-22-W4M (Well Name)		DB/AS (Name of Sampler)	MAXXAM (Company)
REDLAND (Field or Area)	Pool or Zone	WELLHEAD (Sample Point)	Tedlar Bag (Container Identity)

Test Recovery | Interval 1 | Interval 2 | Interval 3 | Elevations (m): 820.4 KB, 818.0 GRD | Sample Gathering Point ** | Solution Gas

Test Type N/A Multiple Recovery | From / To | Well Fluid Status | Well Status Mode

Production Rates: Water m3/d | Oil m3/d | Gas 10^3m3/d | Gauge Pressures kPa: Source | As Received | Temperature °C: 18.8 Source | As Received | Well Status Type | Well Type 294935 | Gas or Condensate Project | Licence No.

Date Sampled Start	Date Sampled End	Date Received	Date Reported	Date Revision Reported	Analyst
2006/03/14 11:38		2006/03/15	2006/03/30	2006/03/30	MW ,MS2

COMPOSITION

COMPONENT	MOLE FRACTION AS REC'D	MOLE FRACTION AIR FREE	CARBON ISOTOPE ABUNDANCE
H2	0.0012	0.0012	
He	Trace	Trace	
O2	0.0005		
N2	0.0336	0.0317	
CO2	Trace	Trace	-56.15
H2S	0.0000	0.0000	
C1	0.9611	0.9635	-40.81
C2	0.0033	0.0033	-31.12
C3	0.0003	0.0003	-30.48
IC4	0.0000	0.0000	-33.1
NC4	0.0000	0.0000	-13.23
IC5	0.0000	0.0000	
NC5	0.0000	0.0000	
C6	0.0000	0.0000	
C7+	0.0000	0.0000	
TOTAL	1.0000	1.0000	

SAMPLE CLASSIFICATION

Mud Depth (m):

NOTES

Carbon isotope abundance is measured in units of:

$$\text{*delta 13C (PDB) ppt} = \frac{(13C/12C)-(13C/12C)PDB}{(13C/12C)PDB} \times 1000$$

Where PDB is an international sample of Belemnite taken from the Pee Dee formation in South Carolina.

** Information not supplied by client -- data derived from LSD information

Results relate only to items tested

Remarks:

Maxxam Analytics Inc

CARBON ISOTOPE ANALYSIS

A610309:A78172
Laboratory Number

Sample Point I.D. | Client I.D. | Meter Number

ALBERTA ENVIRONMENT | 0008-12-027-22-W4M (LSD) | 100/08-12-027-22W4/0 ** (Well ID)
Operator Name

ENCANA 0008-12-027-22-W4M | DB/AS (Name of Supplier) | MAXXAM (Company)
Well Name

HUSSAR (Field or Area) | BELLY RIVER & VIK & MANN (Pool or Zone) | WELLHEAD (Sample Point) | Tedlar Bag (Container Identity) | Percent H2S

Test Recovery | Sample Gathering Point | Solution Gas

Test Type | No. | Multiple Recovery

	Interval 1	Interval 2	Interval 3
From:	1207.5	1192.5	
To:	1209.0	1195.0	

Elevations (m): 822.2 KB | 818.0 GRD

Well Fluid Status | Well Status Major

Production Rates: Water m3/d | Oil m3/d | Gas 1000m3/d

Gauge Pressures kPa: 220 Source | As Received

Temperature °C: 10 Source | 18.8 As Received

Well Status Type | Well Type

Gas or Condensate Present | 276864 Licence No.

2006/03/14 11:43		2006/03/15	2006/03/30	2006/03/30	MW ,MS2
Date Sampled Start	Date Sampled End	Date Received	Date Reported	Date Revised: Reported	Analyst

COMPOSITION

COMPONENT	MOLE FRACTION AS REC'D	MOLE FRACTION AIR FREE	CARBON ISOTOPE ABUNDANCE
H2	0.0000	0.0000	
He	0.0008	0.0008	
O2	0.0002		
N2	0.0230	0.0222	
CO2	0.0006	0.0006	-12.2
H2S	0.0000	0.0000	
C1	0.9532	0.9542	-59.5
C2	0.0131	0.0131	-34.71
C3	0.0055	0.0055	-29.92
IC4	0.0008	0.0008	-29.4
NC4	0.0015	0.0015	-29.04
IC5	0.0005	0.0005	
NC5	0.0004	0.0004	
C6	0.0002	0.0002	
C7+	0.0002	0.0002	
TOTAL	1.0000	1.0000	

SAMPLE CLASSIFICATION

Mud Depth (m):

NOTES

Carbon isotope abundance is measured in units of:

$$\text{*delta 13C (PDB) ppt} = \frac{(13C/12C)-(13C/12C)PDB}{(13C/12C)PDB} \times 1000$$

Where PDB is an international sample of Belemnite taken from the Pee Dee formation in South Carolina.

** Information not supplied by client - data derived from LSD information

Results relate only to items tested

Remarks:

Maxxam Analytics Inc

CARBON ISOTOPE ANALYSIS

A610309:A78174
Laboratory Number

Sample Point I.D. | Client I.D. | Meter Number

ALBERTA ENVIRONMENT — Operator Name
0003-14-027-22-W4M — LSD
100/03-14-027-22W4/0 ** — Well ID

ENCANA 0003-14-027-22-W4M — Well Name
DB/AS — Name of Sampler
MAXXAM — Company

HUSSAR — Field or Area
Pool or Zone
WELLHEAD — Sample Point
Tedlar Bag — Container Identity
Percent Full

Test Recovery
Test Type | No. | Multiple Recovery
Interval 1 | Interval 2 | Interval 3
From:
To:
Elevations (m): KB 834.6 GRD
Sample Gathering Point
Solution Gas
Well Fluid Status
Well Status Mode
Well Status Type
Well Type
Gas or Condensate Project
Licence No. 352872

Production Rates: Water m3/d | Oil m3/d | Gas 1000m3/d
Gauge Pressure kPa: 10 (Source | As Received)
Temperature °C: 18.8 (Source | As Received)

2006/03/14 11:58 — Date Sampled Start
Date Sampled End
2006/03/15 — Date Received
2006/03/30 — Date Reported
2006/03/30 — Date Revision Reported
MW ,MS2 — Analyst

COMPOSITION

COMPONENT	MOLE FRACTION AS REC'D	MOLE FRACTION AIR FREE	CARBON ISOTOPE ABUNDANCE
H2	0.0000	0.0000	
He	Trace	Trace	
O2	0.2082		
N2	0.7434	0.0000	
CO2	0.0484	1.0000	-11.21
H2S	0.0000	0.0000	
C1	Trace	Trace	-60.3
C2	0.0000	0.0000	-43.33
C3	0.0000	0.0000	-31.17
IC4	0.0000	0.0000	-28.73
NC4	0.0000	0.0000	-29.31
IC5	0.0000	0.0000	
NC5	0.0000	0.0000	
C6	0.0000	0.0000	
C7+	0.0000	0.0000	
TOTAL	1.0000	1.0000	

SAMPLE CLASSIFICATION

Mud Depth (m):

NOTES

Carbon isotope abundance is measured in units of:

$$\text{*delta 13C (PDB) ppt} = \frac{(13C/12C)-(13C/12C)PDB}{(13C/12C)PDB} \times 1000$$

Where PDB is an international sample of Belemnite taken from the Pee Dee formation in South Carolina.

** Information not supplied by client -- data derived from LSD information

Results relate only to items tested

Remarks:

Maxxam Analytics Inc

CARBON ISOTOPE ANALYSIS

Sample Point / I.D.	Client I.D.		Meter Number	A610309.A78173 Laboratory Number
ALBERTA ENVIRONMENT Operator Name			0014-12-027-22-W4M LSD	100/14-12-027-22W4/0 ** Well ID
ENCANA 0014-12-027-22-W4M Well Name			DB/AS Name of Sampler	MAXXAM Company
HUSSAR Field or Area	VIKING Pool or Zone	WELLHEAD Sample Point		Tedlar Bag Container Identity / Percent Full

Test/Recovery	Interval 1	Interval 2	Interval 3	Elevations (m)		Sample Gathering Point	Solution Gas
Test Type / Nr. / Multiple Recovery	From: 1426.5	1205.5		823.4 KB	819.5 GRD	Well Fluid Status	Well Status Mode
	To: 1420.0	1207.0				Well Status Type	Well Type
Production Rates: Water m3/d / Oil m3/d / Gas 1000m3/d	Gauge Pressure kPa: 150 Source / As Received			Temperature °C: 10 Source	18.8 As Received	Gas or Condensate Project	287031 Licence No.

2006/03/14 10:55 Date Sampled Start	Date Sampled End	2006/03/15 Date Received	2006/03/30 Date Reported	2006/03/30 Date Revision Required	MW ,MS2 Analyst

COMPOSITION

COMPONENT	MOLE FRACTION AS REC'D	MOLE FRACTION AIR FREE	CARBON ISOTOPE ABUNDANCE
H2	Trace	Trace	
He	0.0008	0.0008	
O2	0.0003		
N2	0.0285	0.0273	
CO2		0.0013	-2.59
H2S	0.0000	0.0000	
C1	0.9153	0.9167	-52.78
C2	0.0308	0.0309	-32.06
C3	0.0128	0.0128	-29.53
IC4	0.0022	0.0022	-28.62
NC4	0.0032	0.0032	-28.24
IC5	0.0010	0.0010	
NC5	0.0009	0.0009	
C6	0.0010	0.0010	
C7+	0.0019	0.0019	
TOTAL	1.0000	1.0000	

SAMPLE CLASSIFICATION

Mud Depth (m):

NOTES

Carbon isotope abundance is measured in units of:

$$\text{*delta 13C (PDB) ppt} = \frac{(13C/12C)-(13C/12C)PDB}{(13C/12C)PDB} \times 1000$$

Where PDB is an international sample of Belemnite taken from the Pee Dee formation in South Carolina.

** Information not supplied by client - data derived from LSD information

Results relate only to items tested

Remarks:

From: Darin Barter
Darin.Barter@gov.ab.ca
Sent: Friday, January 26, 2007 8:33 AM
Subject: RE: fallen rig at Rockyford

Good morning,
Following are the answers to your questions as you requested.
1. Was anyone hurt?
It is my understanding that one rig worker was taken to Strathmore for shock. Please contact Workplace Health & Safety for further information as they are responsible for this information.

2. Was the rig in operation when it tipped over?
Yes. The preset casing drill rig lost circulation at 72 metres while drilling the surface casing hole and tipped over.

3. How often does this occur?
This is a rare occurrence. We do not keep statistics on this specifically but after discussing with EUB field inspectors, it is apparent that this is a highly unusual occurrence.

Because this is a workplace accident, Workplace Health and Safety may be able to provide more statistics related to this.

4). Was Encana in compliance of all safety regulations and suggested good management practices as per the EUB guidelines?
You will need to talk to Workplace Health and Safety for information related to worker safety regulations. The company was not in contravention of EUB regulations. The company lost circulation and the pressure build pushed the preset casing drill rig over.

5) How much spill was there? Were the "hazardous spill " people called in? If not , why not?
No gas or oil was released. Approximately half a cubic metre of drilling mud was spilled on lease. The mud will be cleaned up. I am not sure who you are referring to by 'hazardous spill people'. An EUB field inspector attended the scene on Monday evening after receiving a call from EnCana.

6) Where can the details of this particular incidence be examined by the public?
As this incident falls primarily within Workplace Health and Safety (workplace accident), you will need to contact them to determine how to obtain details of this incident. The information gathered by the attending EUB field inspector, could be obtained through FOIP and would include the information I have provided in this email.

7) What measures could be made by the EUB to prevent this from happening again?
The company is responsible for the safety and well being of their employees. This was a workplace accident. The company was not in contravention of EUB regulations. The company lost circulation and the pressure build pushed the preset casing drill rig over due to shallow depth of the rig at the time.

Again, because this was a workplace accident, I encourage you to contact Workplace Health and Safety for detailed information and for further discussion on worker safety regulations.

Let me know if I can be of further assistance to you.
Darin Barter

Incident Report

Rockyford, Alberta, (January 26, 2007) – On Monday, January 22, a drilling rig working for EnCana east of Rockyford was in the process of drilling a 200 foot depth surface casing well bore on a sweet shallow gas well, when an obstruction sealed off the return flow of the fresh water drilling fluid up the wellbore. The fluid and drill pipe were pushed up the wellbore acting like a hydraulic jack, causing the derrick to tilt on its side where it came to rest on the rig shack.

There were no injuries to any of the personnel, authorities were contacted immediately and a full investigation was conducted the next day by Occupational Health & Safety and the Alberta Energy and Utilities Board.

At no time was there any danger to public safety, ground water or the surrounding environment. The drilling rig was removed for inspection purposes, new equipment was brought in and the well operation has been completed.

While such incidents are very rare, EnCana takes all aspects of safety and environmental protection very seriously. We have appropriate response and mitigations plans in place if they are needed, and we will review the details of the incident to prevent it from happening again.

EnCana is a leading North American unconventional natural gas and integrated oilsands company. By partnering with employees, community organizations and other businesses, EnCana contributes to the strength and sustainability of the communities where it operates. For more information, go to www.encana.com

For more information please contact (calling collect) Darci-Jane McAulay of our Community Relations at 403-645-4611