

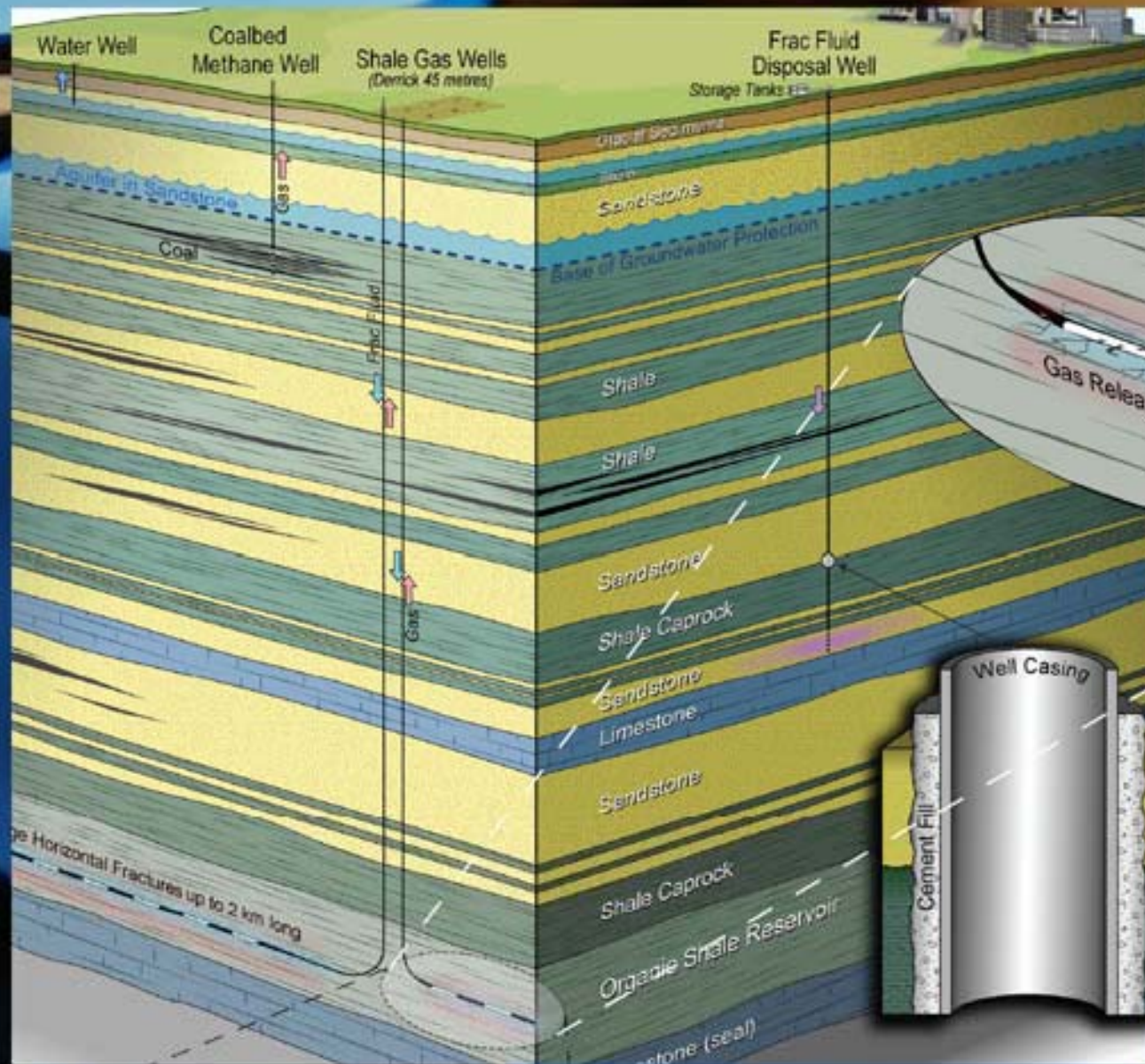
There's a hole in their story



by Jessica Ernst
October 1, 2011
New York City

www.ernstversusencana.ca

Allegations yet to be proven in court





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: 1986/05/14
Received:
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:
Well Owner'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 Sec Twp Rge West of
LSD M
SE 13 027 22 4
Location in Quarter
0 FT from Boundary
0 FT from Boundary

Lot Block Plan
Well Elev: How Obtain:
FT 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

5. Well Yield

Test Date Start Time:
yyyy/mm/dd:
Test Method:
Non pumping FT
static level:

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:

Rate of water Gallons/Min
removal:

Depth of pump FT
Intake:

Water level at FT
end of
pumping:

Distance from inches
top of casing to
ground level:

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

~ 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
money & confidentiality agreements

Kooyman *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

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 Experimental and Risky Shallow Hydraulic Fracturing at Rosebud:

Gas wells completed above BGWP*
in secret

2001: 3

2002: 6

2003: 17

2004: 40

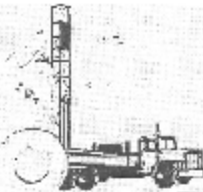
2005: 94

* BGWP = Base of Groundwater Protection

2003 – Frac'd Life: Noise, lots
of noise

2003

test by EnCana on my well
Water appearance: *Clear*



M & M Drilling Co. Ltd.

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

(403) 934-1271 • Fax (403) 934-4865

Name: ERNST, JESSICA
Address: BOX 733
Location: ROSEBUD, ALBERTA
Post. Code: T0J 2T0 Phone: 677-2074
Tested For: ENCANA CORP., G. PEKRUL
Well Location/Description: SE-13-27-22-W4 HOUSE WELL
Pumping Rate: STATIC & SAMPLES ONLY
GPS N-51-18-02.2 W-112-57-41.1
Test #: 1061 - 2311
Date: 6/20/2003
Start Time: 8:45 AM
State Level: 28' 5"
Well Name: ECA/ECOG REDLANDS
Land Location: 14-12-27-22-W4
APB Number: GD05391
Readings By: DAVID SAWYER

☒ PRE-TEST ☐ POST TEST ☐ REALSTATE

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:

☐ Chemical23: ☐ Other Sample

☒ Chemical51:

☒ Coliform Bacteri:

☐ Heavy Metals:

☒ TOC

☒ H2S:

☐ Oil And Grease:

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 industry's leaking gas had migrated more than six miles away

Alberta Energy Resources Conservation Board (ERCB), 2004

Number of leaking gas wells in the
Wabanum Lake area increased from

0 in 1990

to > 140 in 2004

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: EDA EDOG RUSSAR 5-14-27-22

METRIC REPORT

Easting (m): 138,503 ** 8463
 Northing (m): 5,583,326 **
 Elevation (m): 868.6 ***
[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
 Gemma 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) --

Stated: 121.5 to 122.5 m - 2 - Method: Other
 Stated: 127.7 to 130.0 m - 2 - Method: Other
 Stated: 137.4 to 138.4 m - 2 - Method: Other
 Stated: 173.1 to 174.1 m - 2 - Method: Other
 Stated: 182.1 to 183.1 m - 2 - Method: Other
 Stated: 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 (f)
405.5	463.0	(unknown)

General Comments / Observations

HC was added to be included in a x-section 54-510. 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

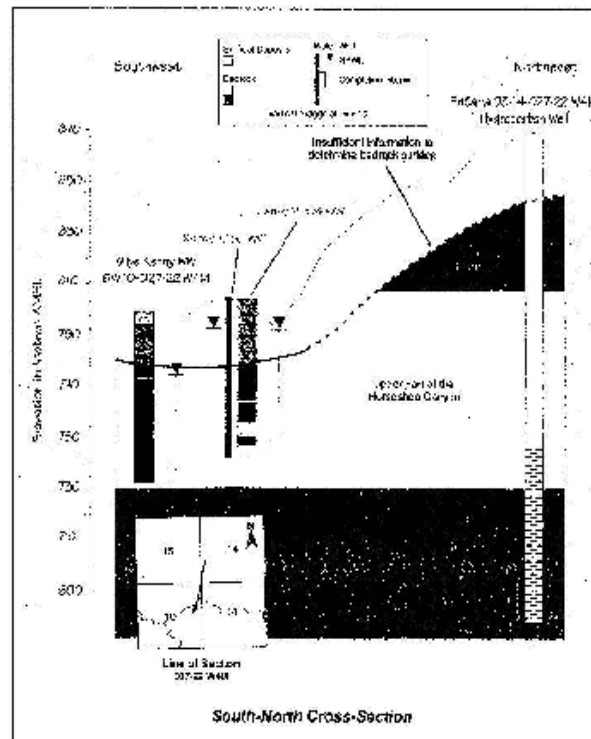
* TQWC calculated or determined value.
 ** 84 - Surveyed (other) — 107M NAD83
 *** 83 - Surveyed (other) — (Ground; AMSL)

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.

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 Var 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 ERCB and
EnCana will not disclose what chemicals
were injected**

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 investigates itself, finds itself innocent, but cements shut the gas well that frac'd our aquifers before the regulator can gather critical data.

Cement seals of well bores do not repair hydraulic fractures

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?

2004 EnCana Noise getting worse

Un-attenuated compressors
construction, drilling & frac'ing noise

EnCana's 2 non-compliant noise studies,
finds itself innocent in both
ERCB sucks & blows at the same time

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

January 2005

Rosebud water tower blows up in an explosion, seriously injuring a worker.

A propane torch is blamed.





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 ...

Nov 24 2005: Banished!

“I have instructed my staff to avoid any further contact with you.”

Jim Reid, EUB* Manager

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

November 24, 2005

Jessica Ernst
Box 753
Rosebud AB T0J 2K0

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* 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 in 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 perpetrate 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 rumours 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 opinion 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 invite 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 Ross
Manager
Operations Group
Compliance and Operations Branch

cc: RCMP Drumheller Detachment
Ron Paulsen, Manager, EUB Field Surveillance Branch
Al Palmer, Manager, EUB Security

STAMPED: "REFUSED BY ADDRESSEE"

REGIONAL - FOR USE WITHIN A REGION OF CANADA
LETTER CARRIER DEPOSIT #1
POSTAGE PREPAID
DEC 8 2005
CALGARY, AB T2P 1J0

1. Fill in your name and the receiver's address on the Xpresspost label (or apply your own pre-printed label(s) onto the shipping copy).
2. Peel and apply the label to the space indicated on the back. Retain your copy.
3. Deposit the envelope in any street letter box, at any postal outlet or designated Canada Post facility.

Envelope
Standard 152 x 260 mm

REGIONAL - LIVRAISON D'UN POINT À UN AUTRE D'UNE MÊME RÉGION AU CANADA
Comment utiliser les produits prépayés Xpresspost
1. Indiquez votre adresse et l'adresse du destinataire sur l'étiquette Xpresspost (ou appliquez vos propres étiquettes préimprimées sur l'étiquette d'expédition).
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

2005 12 07
DRUMHELLER, AB
T0J 0Y0



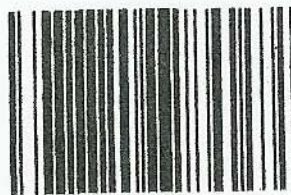
Xpresspost

1

SHIPPING COPY
Detach and
apply to item

ÉTIQUETTE D'EXPÉDITION
Détachez et apposez
sur l'article

Date Year Année MM DJ
2005 12 07
Expéditeur
Customer No. N° du client
Name Nom
Box 753
Address Adresse
Rosedale AB
City / Prov. / Postal Code
T0J 0Y0



PP 209 463 66

Xpresspost

1

Return to Sender Renvoi à l'expéditeur

Manifest or Collect
Postage Due
Manifeste ou
percevoir le port dû

Signature
on delivery?

Signature à
la livraison?

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

L'expéditeur garantit que cet envoi
ne contient pas de matières
dangereuses et accepte les conditions
à l'envers.



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

Is alarmed by the level of gas in my water, drop in static water level and other tests

I am to blame for the methane in my water because I do not run cattle, do not use my water well enough.

Red flag indicator of petroleum distillates in my water
Chromium increased by factor of 45

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



April 12 2006, The Alberta Government knew!!

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

Maxxam's Remarks:

- Based on a comparison of the carbon isotope data to the data from the reference well (3-14-27-22-w4a and 162/8-12-27-22-w4-a) 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

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

- Methane isotope value indicates a biogenic source, whereas ethane indicates a source from or near the shallow resource wells, 27-22-w4
- Water well gas maybe a mixture of in situ biogenic gas with some deeper gas

May 2006, Alberta Bruce Jack Water Well Explosion





2006: An EnCana well site in the rain near Rosebud



2006 Briefing Note by Alberta Research Council on the Contamination Cases (to blame bacteria)

Obtained 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**

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

Contact: West
SmpNo : 06MU080936 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

ESTIMATED
CONCENTRATION

TENTATIVELY IDENTIFIED COMPOUNDS // COMMENTS ug/L

Diols 25

Solvents (C8-C14) (Halogenated and Aliphatic 73
compounds)

Contact: West
SmpNo : 06MU080935 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

ESTIMATED
CONCENTRATION

TENTATIVELY IDENTIFIED COMPOUNDS // COMMENTS ug/L

Diols 30

Solvents (C8-C14) (consisting of halogenated, and 25
aliphatic compounds)

From: Larry West Date: _____
Re: _____ Pages: _____
cc: _____

☐ 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

Well Name _____

Field or Area _____

Pool or Zone _____

Sample Point _____

Head or Sample _____

Glass _____

Container Material _____

Percent Full _____

Test Recovery _____

Interval 1 _____ Interval 2 _____ Interval 3 _____

From _____ To _____

Elevation (m) _____

Sample Gathering Point _____

Solvent Code _____

Test Type _____

Multiple Recovery _____

Well Fluid Status _____

Well Status Date _____

Production Rates _____

Gauge Pressure (kPa) _____

Temperature (°C) _____

Well Status Type _____

Well Type _____

Water m3/d _____ Oil m3/d _____ Gas 1000m3/d _____

Source _____ As Received _____

Source _____ As Received _____

18.0 _____

Source _____ As Received _____

Use or Considerable Project _____

License No. _____

2008/03/14 15:00 _____

2008/03/15 _____

2006/05/19 _____

2006/05/19 _____

MS2 _____

Date Sampled Start _____

Date Sampled End _____

Date Received _____

Date Received _____

Date Received _____

Analysis _____

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:

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

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 LUG information

Residuals relate only to items tested

Remarks:

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

August 31, 2006 After Premier Klein
Promised “Whatever is necessary to be
done will be done”



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 (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



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)

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









Known carcinogen hexavalent chromium

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

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

2007 The Rosenberg 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....”

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

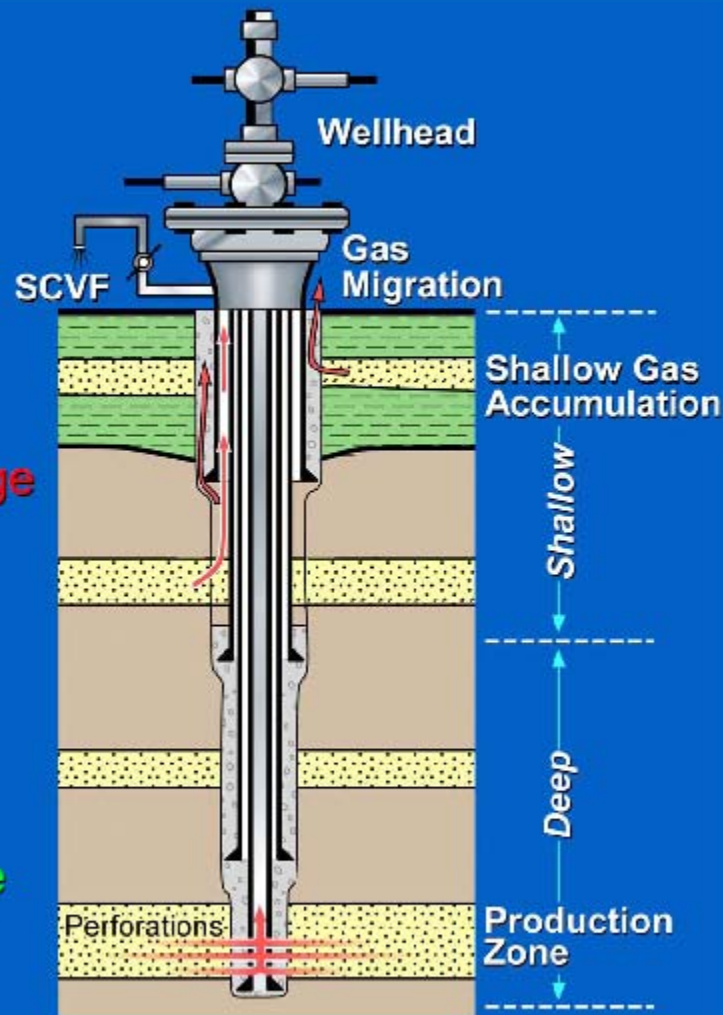
Leakage Potential along a Well

Shallower, upper part

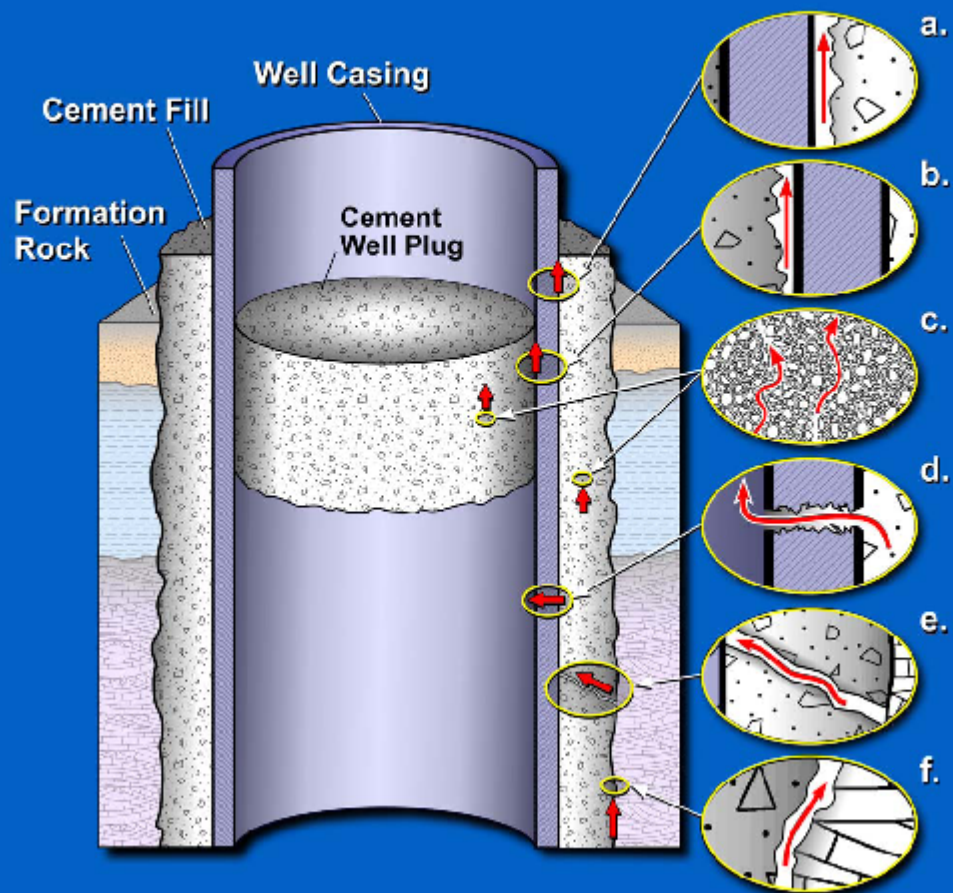
Higher potential for leakage

Deep, lower part
completed in
producing zones

Less potential for leakage



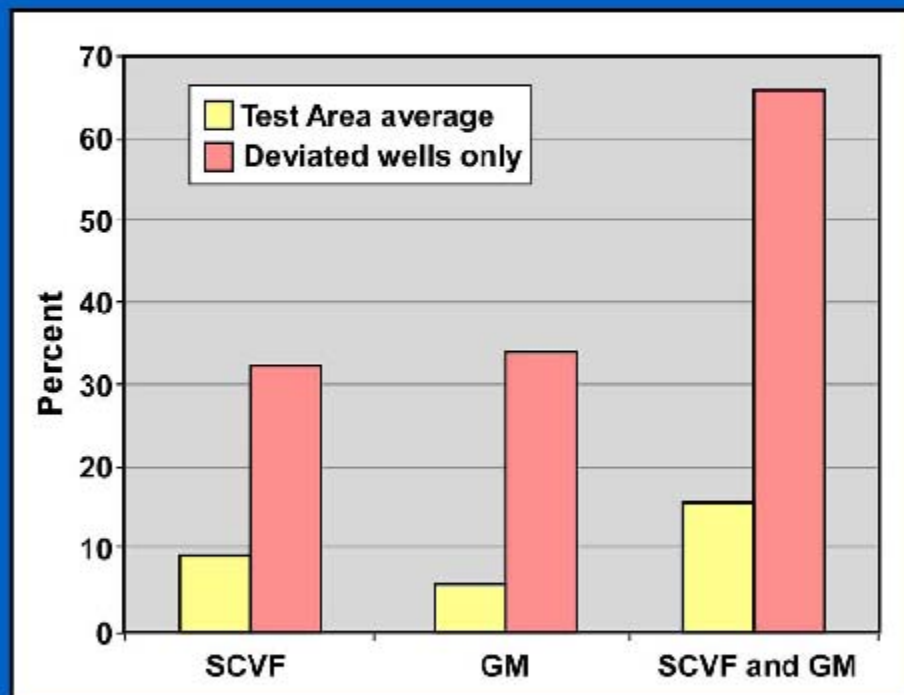
Potential Gas Migration Paths along a Well



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!**

Occurrence of SCVF/GM in the Test Area, Alberta



Alberta Research Council*

January, 2008

Dismissed contamination as **natural**

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

Used anecdotal, unsubstantiated stories
of methane in other water wells

Avoided damning data
Formal reports filled with “errors”

*Name changed to Alberta Innovates

April 2008: Alberta Environment Breaks Legislature Made Promise

Takes away the water deliveries

Declares our dangerously
explosive & toxic water safe



EnCana denies doing any water contamination

April 22, 2008

“We can’t do completion of shallow gas above 200 metres”

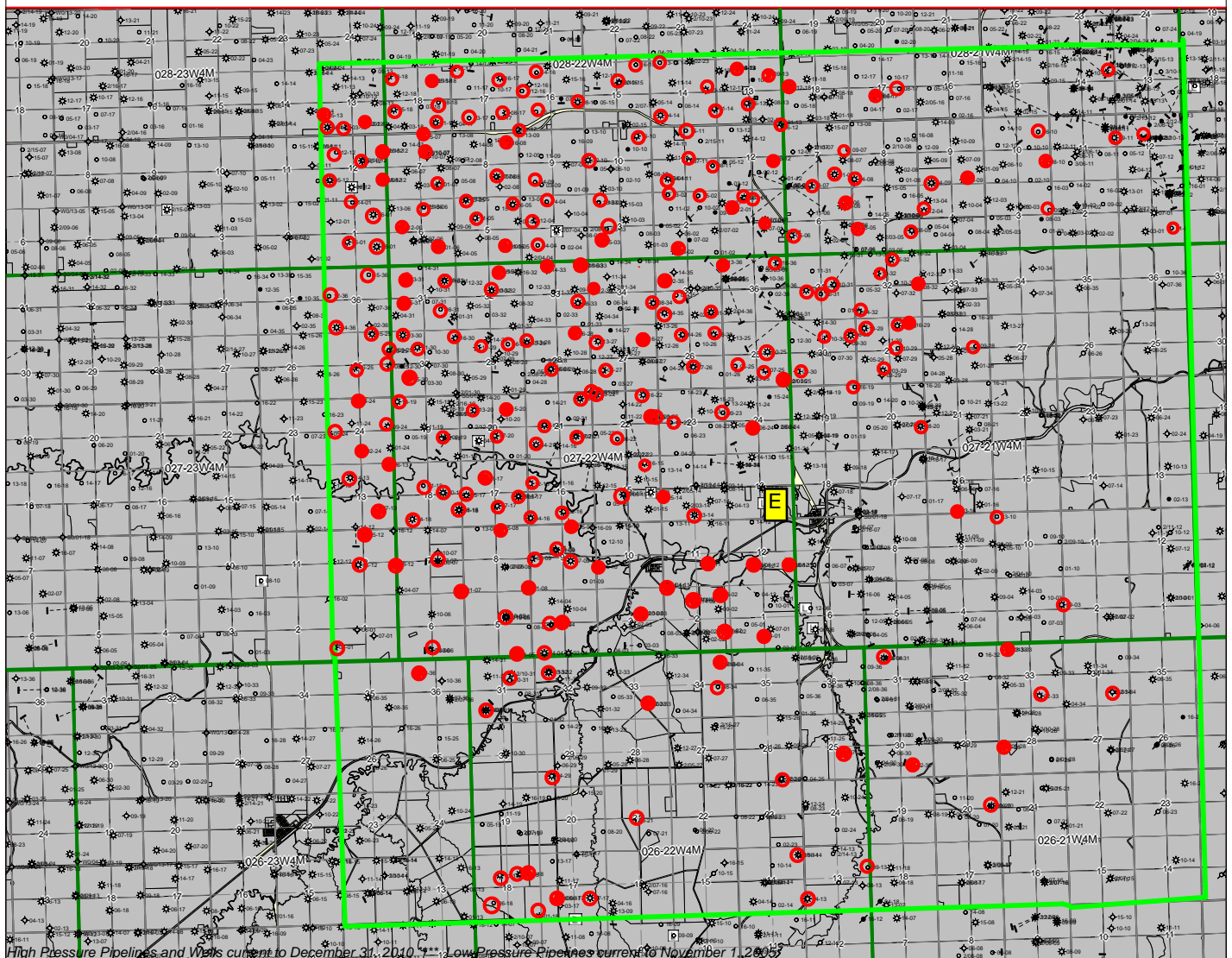
The *Drumheller Valley Times* quoted EnCana saying.

EnCana completed > 60 above 200 metres around Rosebud, including > 11 above 175 metres

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

Wellheads

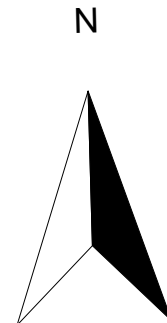
- ⊕ Abandoned Wellhead
- ⊙ Suspended Gas Wellhead
- ⊙ Suspended Oil Wellhead
- ⊙ Flowing Gas Wellhead
- ⊙ Location Wellhead
- ⊙ Flowing Oil Wellhead
- ⊙ Miscellaneous Wellhead
- ⊙ Water Wellhead
- ⊙ Well Downhole Location
- ⊙ Newly Licenced Well
- ⊙ Newly Spudded Well

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**

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.”

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.**

Mr. Michael Binnion (President & CEO Questerre):
**Testimony to Parliamentary 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)

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*

March 8, 2011 Babe Report Quebec frac moratorium

Called for
'strategic environmental assessment'

Regulator ordered gas leaks repaired
Attempts to repair them failed

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**

Jackson *et al*'s Duke Study

May 2011 Peer Reviewed

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

USGS scientist

August 2011

***‘We’re only starting to learn’ about
Fracking...***

**WELCOME TO
ALBERTA**

WILD ROSE COUNTRY

**“What
fresh hell
is this?”**

Fracking Alberta



**September 2011: Albertans Demand 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 ...

September 28, 2011
CBC News

**More than 30 earth quakes reported in the
area of the Horn River Shales since 2009**

**“The coincidence of earthquakes and gas
exploration warrants further
investigation”**

Confidentiality Agreements

Water moves!

Sealing water contamination cases is wrong

Must be made illegal

**Will I sign a Non Disclosure Agreement
and allow the Rosebud contamination
data to be sealed?**

No.

Water is
too important