






Lac-Mégantic, Quebec

July 6, 2013





Construction at Rosebud
water reservoir, June 2013.
Is this to make the
contaminated water safe,
nine years later? How?

Does regulation make frac'ing safe or green?

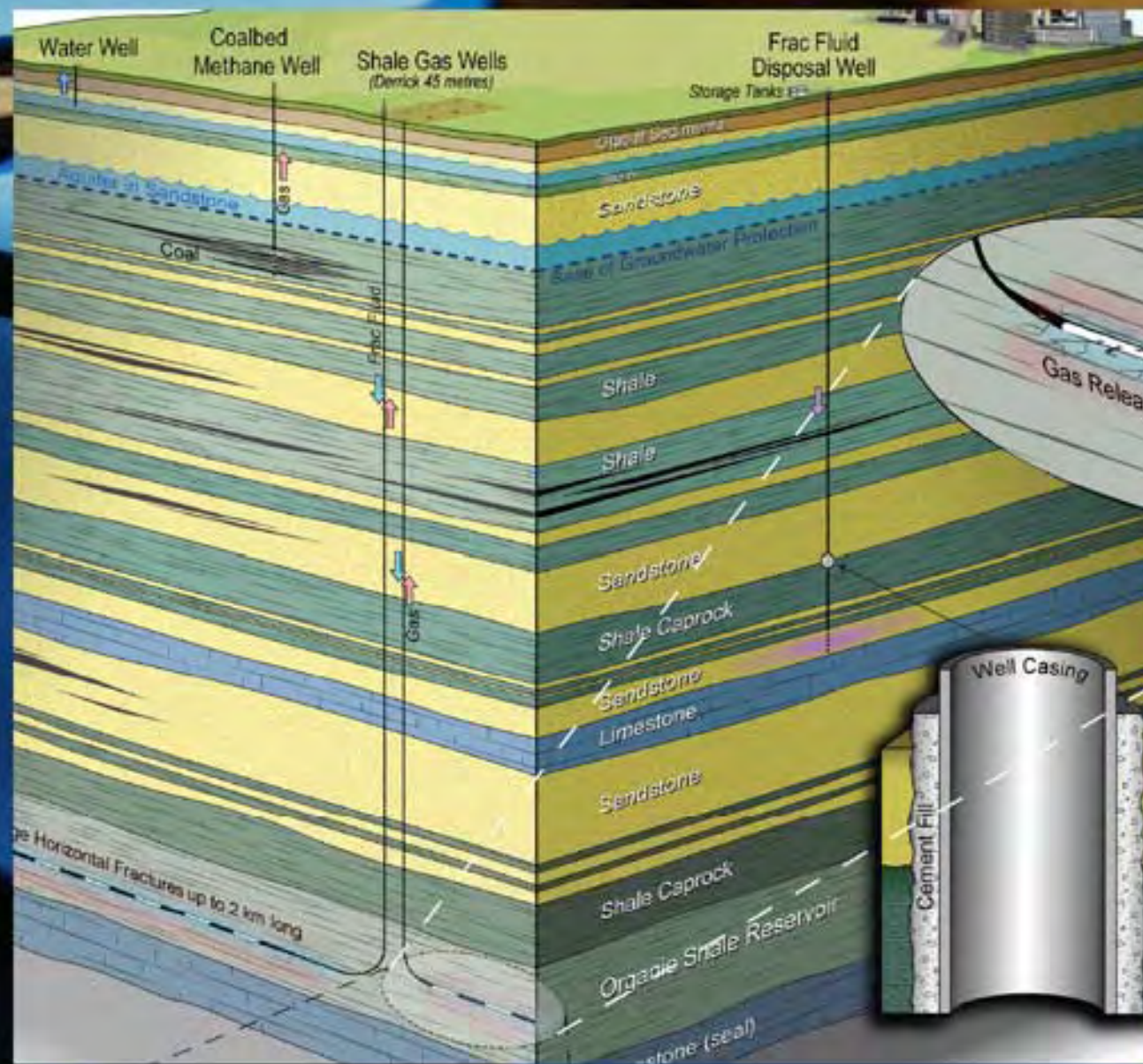
by Jessica Ernst
July 13, 2013
Marylhurst University
ernstvsencana.ca

CBM = Coalbed Methane

NGC = Natural Gas from Coal

Canada's National Energy Board on biogenic shales:

“bacteria feed on the available
organic matter...and release
biogenic methane”



ENCANA™



cenovus

E N E R G Y

Energy Utilities Board (EUB)

after caught breaking the law &
spying on Albertans



changed to

Energy Resources Conservation Board

changed to

Alberta Energy Regulator

NEW: Immunity from “omissions”

Alberta Environmental Protection

became



Alberta Environment

became

Alberta Environment and Water

became

**Alberta Environment and Sustainable
Resource Development**

became

Alberta Energy Regulator

NEW: Immunity from lawsuits

Alberta Research Council

“meeting the priorities of industry”



March 24, 1985

Fairfax Department Store Explosion

Late Sports

Los Angeles Times

Morning Final

Wednesday, March 27, 1985 11:37 AM PST

Monday, March 25, 1985

AP Wire Service 11:37 AM PST LOS ANGELES TIMES 0245 024

Blast Shatters Store; 23 Hurt



By David H. Johnson
Los Angeles Times Staff Writer

At least 23 people were injured and a large department store was shattered by a powerful explosion that tore through the front facade of the Fairfax Department Store in Los Angeles today.

The explosion, which occurred at about 10:30 a.m., was heard throughout the city. It was the most powerful explosion in the city since the 1947 bombing of the Los Angeles City Hall.

The explosion was caused by a gas leak from an abandoned oil field. The gas had seeped into the store's basement and exploded when it reached the ceiling.

The explosion caused a large section of the store's front facade to collapse. The collapse caused a large fire to break out. The fire was quickly extinguished by firefighters.

The explosion caused a large number of injuries. Twenty-three people were injured, including several children. The injuries were not serious.

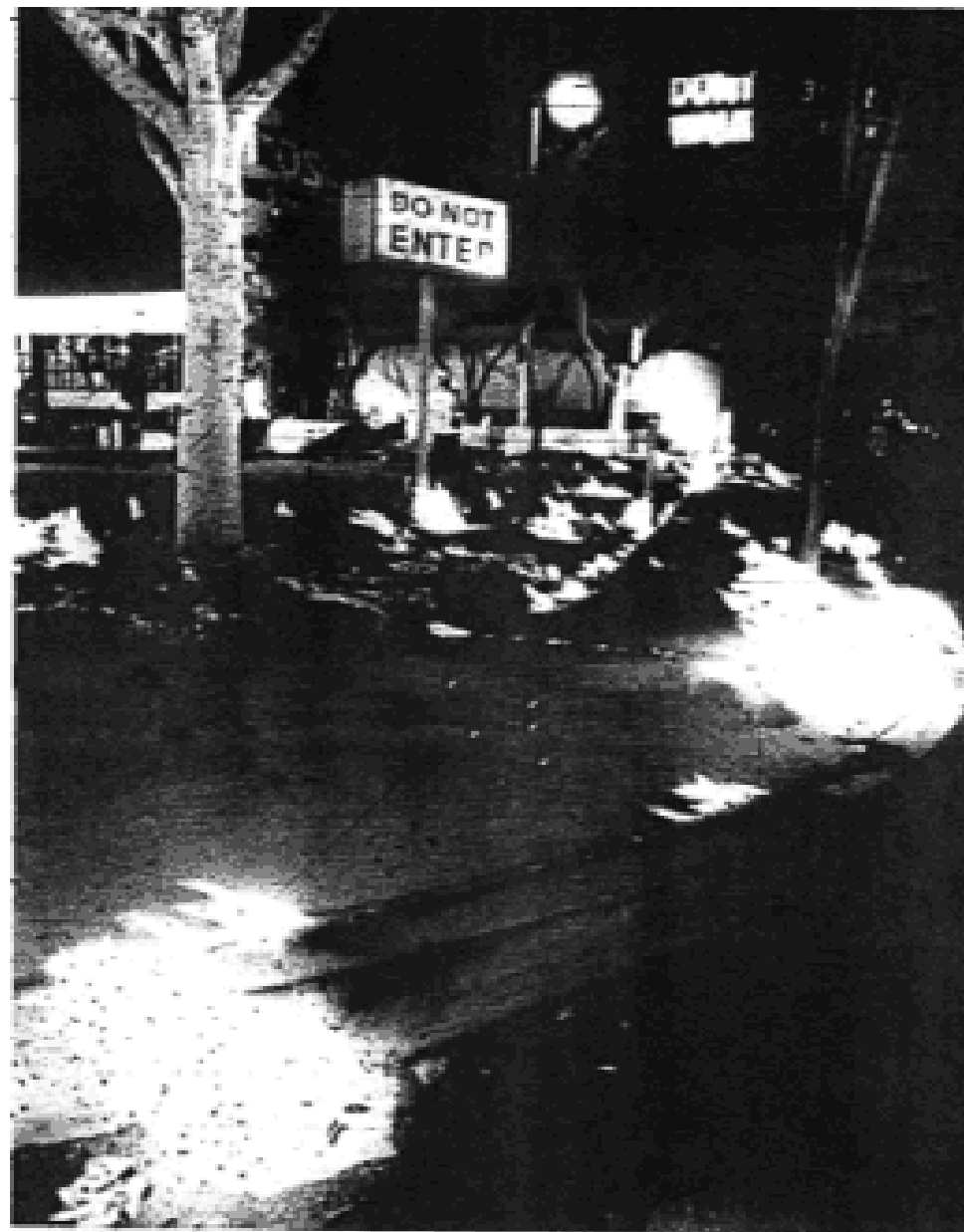
The explosion caused a large amount of damage to the store. The damage was estimated to be in the millions of dollars.

The explosion was a major disaster for the city. It was a reminder of the dangers of gas leaks and abandoned oil fields.

Wider Use Ahead
Heart Pump:

Regan Sees Close Vote
in House on MX Funds

U.S. Presses for
Allied Support



More than seven hours after original explosion, flames continue to seep up from cracks in pavement.

**BLAST: 23 Injured; Burnoff of Gas
Could Take Months, Fire Dept. Says**

Conclusions of Blast Task Force:

The gas was “biogenic”
shallow, made by bacteria

pressurized by rising water table in fresh-water
aquifer under the Ross Store

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

6. Well Yield

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

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:

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 pump test 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

Method of Drilling

Flowing Well:

Gas Present: No

~ 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



EPA, 1987

Documented case of
hydraulic fracturing by Kaiser
contaminating well water
(Kaiser plans to frac Calgary, Alberta!)

Reportedly 100's of other cases sealed by
confidentiality agreements

Husky, 1993

Industry Gas Migration Research Study in Alberta & Saskatchewan

Big problem

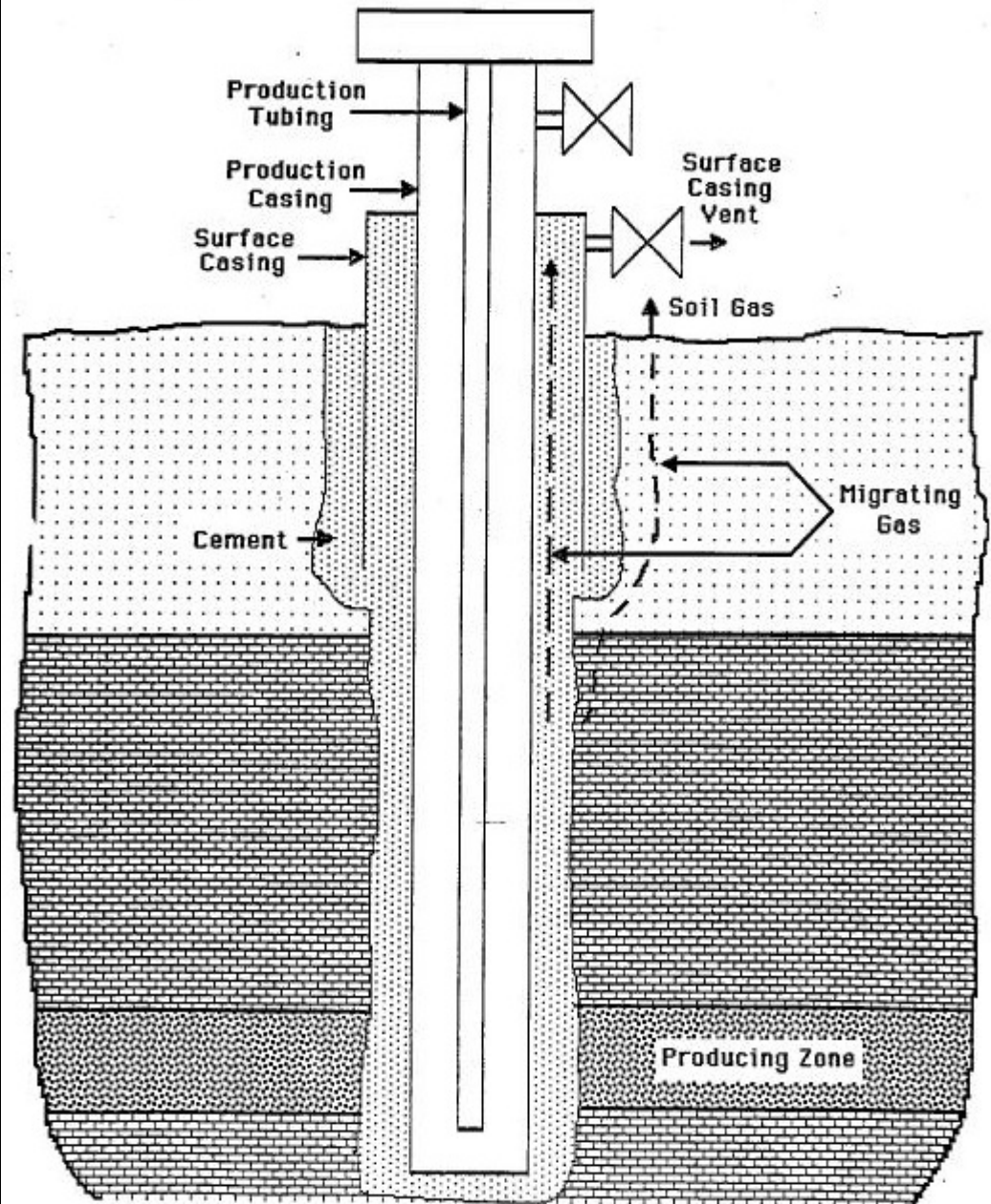
Expensive to fix

Difficult to completely stop

Husky 1993:

Natural
biogenic
gas in
shallow
zones

FIGURE 1 GAS MIGRATION SCHEMATIC



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

Canadian Association
of Petroleum Producers



Migration of Methane into Groundwater from Leaking Production Wells near Lloydminster

Report for Phase 2 (1995)

March 1996
CAPP Pub. #1996-0003

CAPP Gas Migration Study (Final Report 1995)

~24,000 historic Alberta water well records were
reviewed by the regulator

17 (0.07%) reported “gas” present before
oil & gas development (1935-53)

41 (0.17%) reported “gas” present after (1960-95)

Table 13. Water wells in study area in which gas was noted to be present (Alberta Environmental Protection waterwell database).

Q or LSD	Sec	T	R W4	Well Owner	Depth (m)	Year Reported	Q or LSD	Sec	T	R W4	Well Owner	Depth (m)	Year Reported
Reported between 1935 and 1953							Reported between 1960 and 1995						
NE	32	41	2	Feero	117.3	1935	NE	29	36	5	Provo Gas Prod.	237.7	1960*
SW	4	42	2	McMann	114.3	1935	NE	31	37	9	G. Hewitt	42.7	1960
NW	6	42	7	S. McLaughlin	19.8	1935	NW	28	41	13	D. Bownes	73.2	1979
SW	3	43	4	S.V. Snyder	3.0	1935		34	37	8	S. Twa	160.0	1988
SW	11	44	3	A. Cooper	97.5	1935	NW	23	37	13	R. Holloway	142.0	1964*
12	3	48	12	F. Ploc	45.4	1935	SW	15	50	2	W. Ulan	87.8	1964*
8	35	49	1		6.1	1935	SE	24	36	12	H. Plehnert	132.6	1965*
14	36	49	1		38.7	1935	SW	22	37	13	H. Wideman	189.0	1965*
1	3	50	1	Blackwell	50.6	1935	14	20	46	2	J. W. Gordon	106.7	1966*
15	23	50	1	K. Parr	34.1	1935	NW	30	43	9	Mon-Max Services	67.1	1967*
SE	34	50	2		28.3	1935	SW	4	39	13	D. Coppack	106.7	1968*
15	34	52	4	Hodgson	47.2	1935	NE	32	36	12	S. Mereski	82.3	1969*
4	36	52	4	R. Seville	102.4	1935	9	25	42	10	Hardisty Storage	125.3	1969*
SE	4	53	4	G. Brett	71.9	1935	SE	14	36	12	A. McRae	118.9	1970*
NE	16	45	11	G.F. Albrecht	115.8	1936	NW	4	57	3	North School (Frog L. IR)	56.4	1970*
SW	14	50	2	Plater	63.4	1949	SE	19	43	2	R. Morrison	71.9	1971*
4	7	45	12	Seman Engin.	54.9	1953	NE	3	40	5	H. Tennant	167.6	1972*
							11	25	50	5	Water Res.	51.8	1972*
								19	36	11	D.&E. Dennis	173.7	1973*
							NE	8	48	11	J. Veenstra	106.7	1973*
							SE	36	36	12	A. Bye	137.2	1974*
							NW	20	40	8	L. Crone	192.0	1974*
							SW	9	39	8	R. Gilbertson	152.4	1975*
							SE	18	51	2	General Crude Oil	91.4	1975*
							SE	6	36	3	R. Worobo	184.1	1976*
							NW	8	36	6	K. Gilmer	160.3	1976*
							NE	22	36	12	C. Plehnert	137.2	1976*
							SE	28	37	8	J. Ekro	177.4	1977*
							SW	36	41	9	B. Cullen	169.5	1977*
							SW	16	38	13	A. Engel	117.7	1978*
							NW	11	59	9	A. Severin	68.3	1978*
							NW	25	36	2	J. Scheck	142.0	1979*
							10	28	60	3	World Wide Energy	109.7	1982*
							SW	6	41	12	P. Spady	125.6	1986*
							NW	26	50	2	L. Gnyra	109.7	1989*
							NW	2	53	12	E. Horon	103.6	1989*
							NE	19	53	7	Jacula Farms	85.3	1990*
							4	21	38	1	Pan Cdn.	218.8	1992*
							8	33	42	11	C. Davidson	65.5	1994*
							NE	17	42	13	B. Kuefler	76.2	1994*
							SW	33	52	2	M. Hames	97.5	1995*

*reported by driller at time of well installation

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 $< 0.05 \text{ mg/l}$

2 highest were $\text{slightly} > 1 \text{ mg/l}$

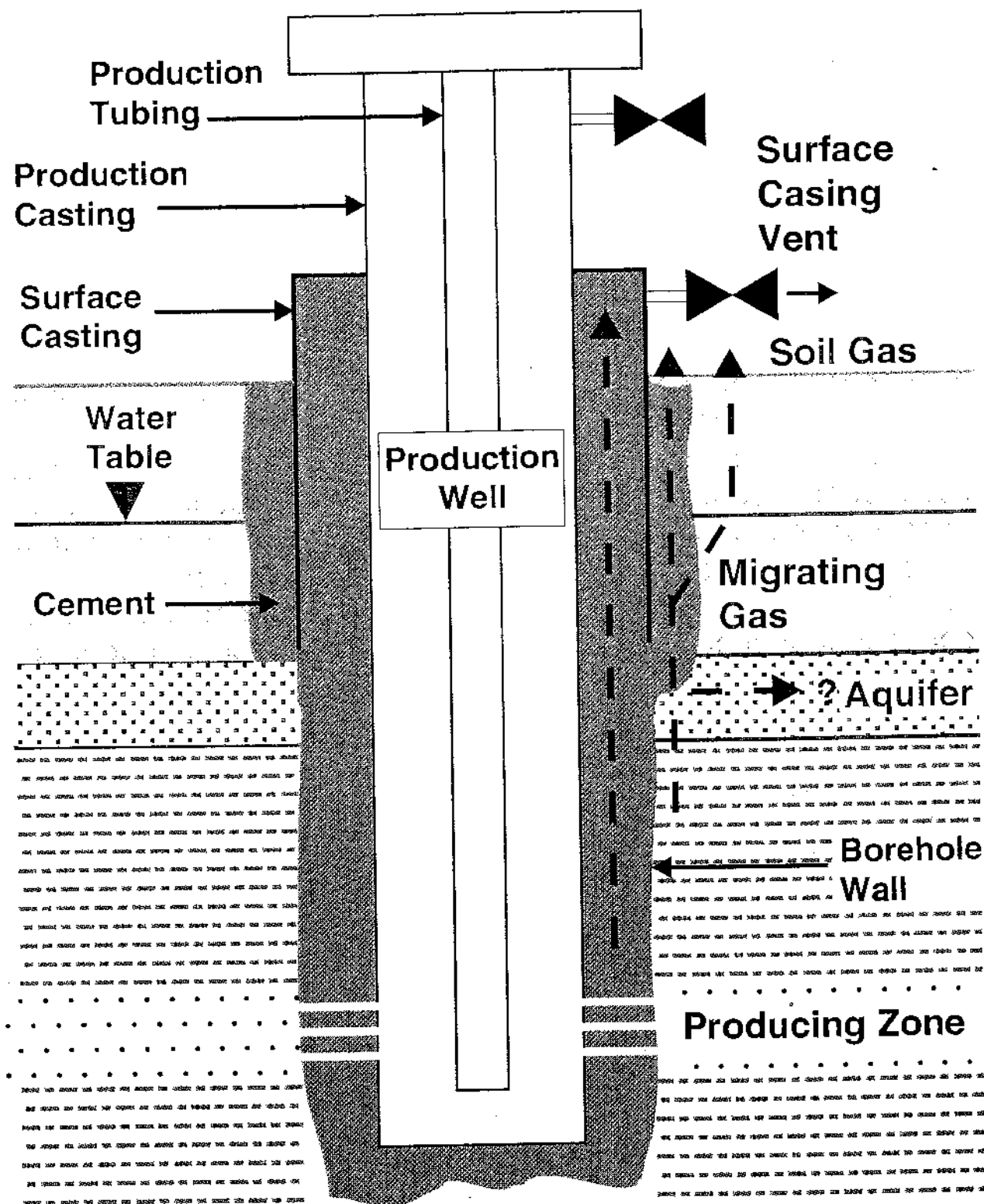


Figure 3 Schematic of gas migration, modified after Schmitz et al (1994).

I bought my place at Rosebud
in 1998





2000, Hamilton & Meehan on the 1985 Fairfax Explosion Task Force



Imaginative

Troublesome

legal issues

eliminated

Unscientific

“happily blameless ending”

“...the implication being that the methane **hazard** could exist virtually anywhere, so no human agency was at fault for its workings.”

January 2001 Hutchinson, Kansas





Trican Well Service & Husky Energy, 2002

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

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.”



Experimental, Risky Shallow Hydraulic Fracturing at Rosebud (~6 mi around my well):

Gas wells completed above
Base of Groundwater Protection
in secret

2001: 3
2002: 6
2003: 17
2004: 40
2005: 94



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: ☐ 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

Well Depth: N/A

Water: - Appearance ☒ Clear ☐ Colour



2003

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

Coleman, 2004

(and others over the years)

Investigations on Hutchinson Kansas 2001
explosions (killed two people)
demonstrated that industry's leaking gas
had migrated almost 7 miles

October 2004, Ghillingar & Endres on the 1985 Fairfax Explosion:



Corrosion & leaks in the
well casing

Industry's **leaking gas**
caused the explosion

Not bacteria!

Not water table rising!

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 #:	403-845-2000	BUSINESS ASSOCIATE CODE:	0028

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	188.1	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 ***

Lithology Details

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

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)**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}

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**

Shallow Operations Issues

Jim Reid, ERCB Manager

May 12, 2004

**shallow operations can be
“high risk”**

Elevation in Metres AMSL

Southwest

Northeast

Surficial Deposits



Bedrock



Water Well



NPWL

Completion Interval

Vertical exaggeration x 10

EnCana 05-14-027-22 W4M
Hydrocarbon Well

Insufficient information to
determine bedrock surface

Kenny 2004 WW

Kenny 1950 WW

Olive Kenny WW
SW 10-027-22 W4M

Scollard
Formation

upper part of the
Horseshoe Canyon

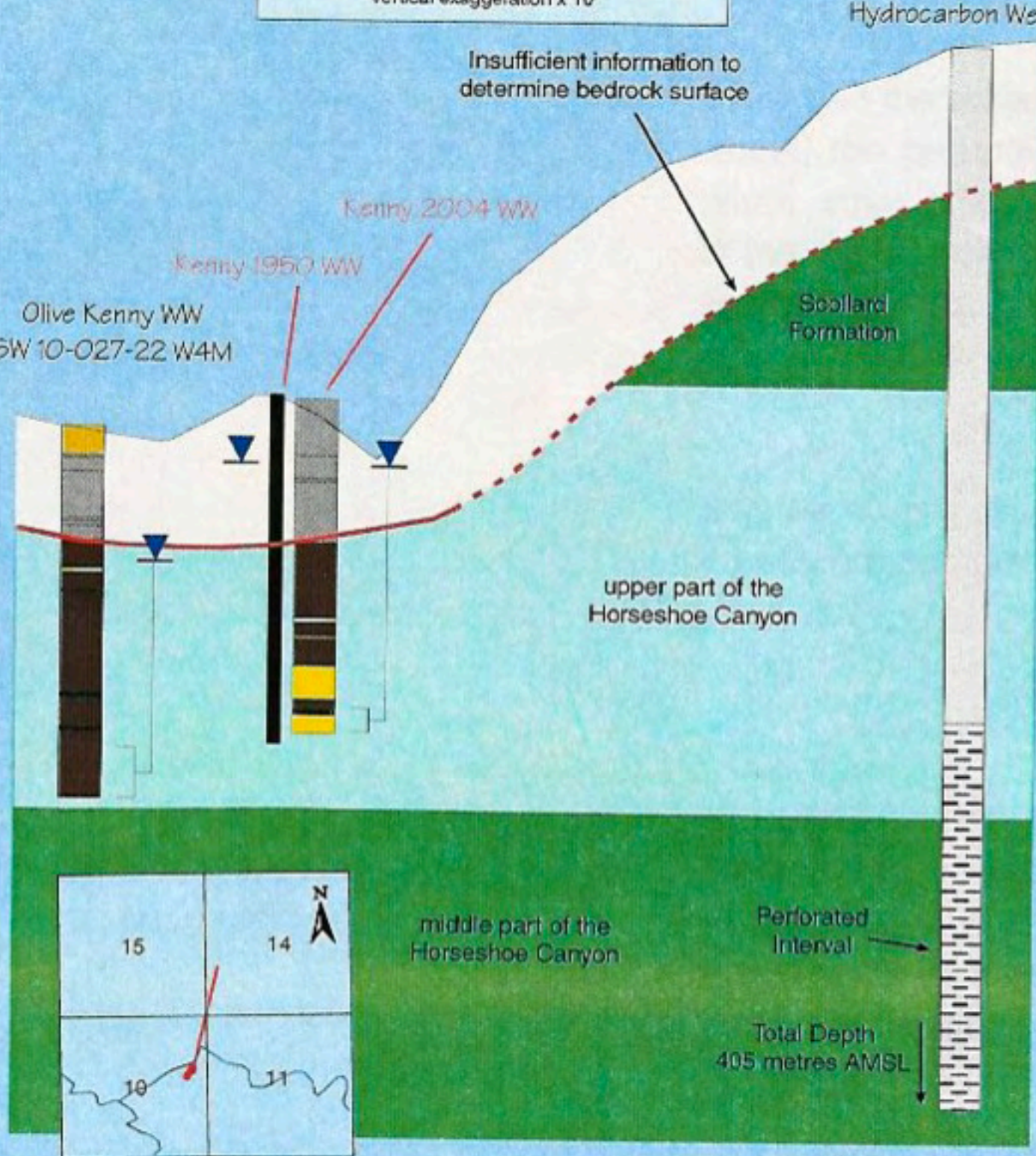
middle part of the
Horseshoe Canyon

Perforated
Interval

Total Depth
405 metres AMSL

Line of Section
027-22 W4M

South-North Cross-Section





ENCANA™



ALBERTA
RESEARCH
COUNCIL



will not disclose what
chemicals were injected

Summer 2004

Water wells start to go bad

EnCana investigated itself, declares itself innocent.

EnCana & Alberta Environment blamed our local water well driller!



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 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





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



Nov 24 2005: Banished!

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

Jim Reid, Regulator Manager

December 13, 2005

Edmonton Journal

edmontonjournal.com

EDMONTON'S NEWSPAPER SINCE 1913

Tainted water lights fire under gas fears



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 if
the methane is from
“natural flow”
or not.

The Campbells not
provided
safe water

their water is contaminated with
methane, ethane, propane,
butane, pentane, sour gas
after nearby frac'ing

Alberta Environment Testing Ernst Water 2006

March 3

Alarmed how much gas
is in my water

I am to blame because
I use too **little** water

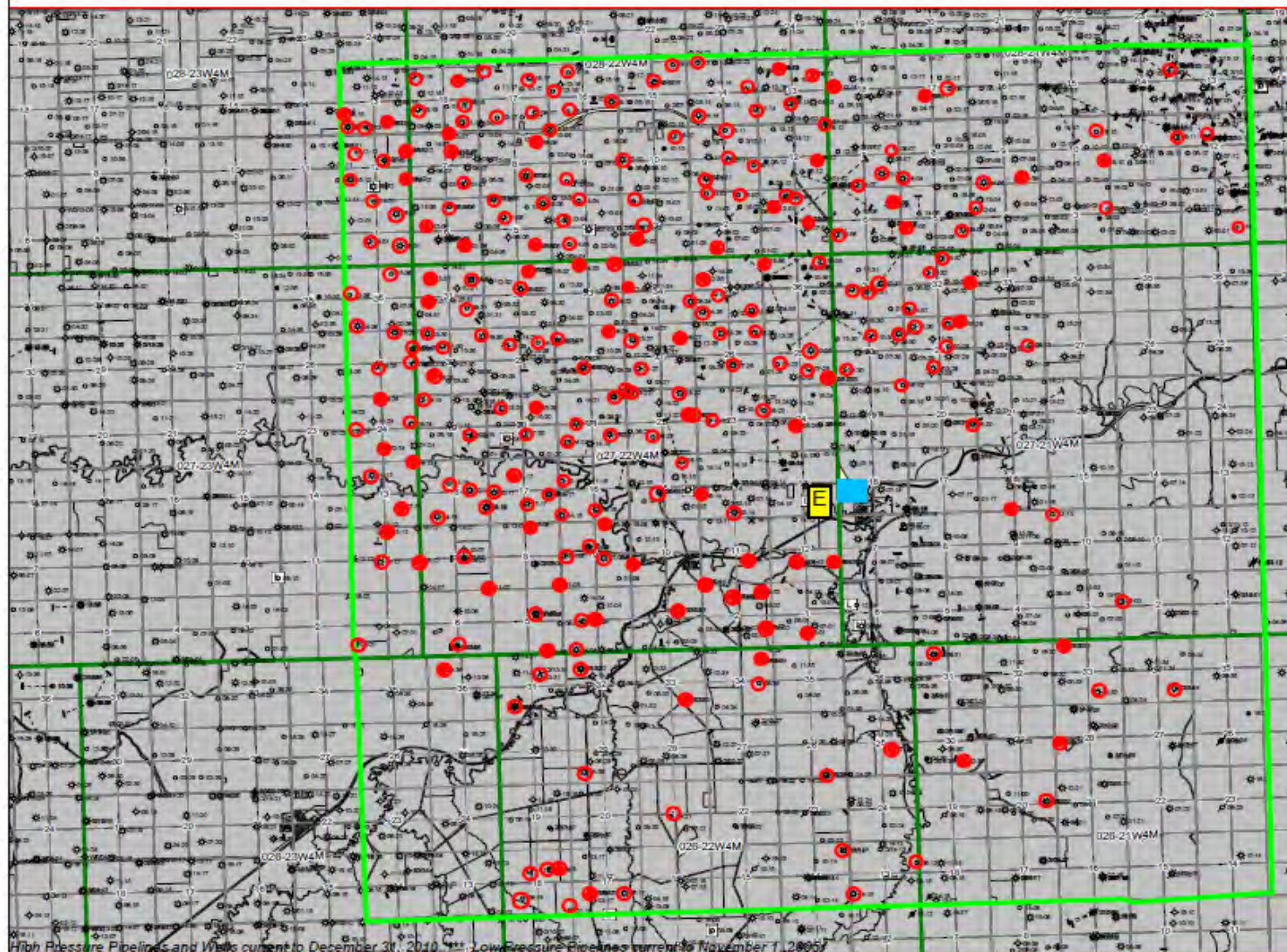
March 6

Meeting with Minister
& staff

I am to blame because
I use too **much** water

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



E = approximate location of Ernst property

~ 1 mile

■ = Rosebud Community Water Tower that exploded in 2005

April 12 2006, The Alberta Government knew!!



Two Labs:

- 1) Maxxam: “(3-14-27-22-w4m and 102/8-27-22-w4m) it is a likely source of this water well gas”

- 1) Dr. Karlis Muehlenbachs: “indicates a source from or near the shallower wells, 27-22-W4M”

(obtained via FOIP, 2 years later)





Zimmermans by Wetaskiwin



also have
dangerous levels of
methane in their
water after
Quicksilver
fractured nearby













Methane in Rosebud Water

30 – 66 mg/l

Risk of explosion at **1** mg/l

(if water passes confined space in CAPP Gas Migration Report, 1996)

Compare to historic data:

My water well: Gas Present: **No**

CAPP 1996: most < 0.05

**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”**

EnCana frac'd & still frac's biogenic naturally occurring methane



June 8, 2006

Interrogation of Ernst by ERCB Lawyer

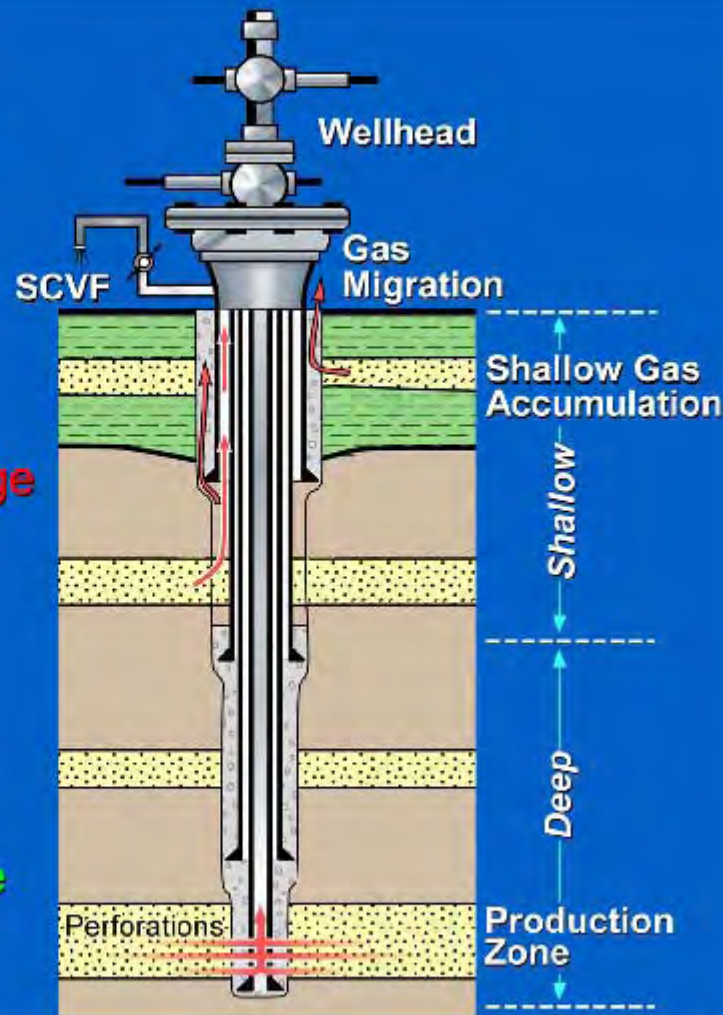


Admitted on tape, the ERCB never considered me a threat

Leakage Potential along a Well

Shallower, upper part
Higher potential for leakage

Deep, lower part
completed in
producing zones
Less potential for leakage





2007

Alberta Environment retains
the Alberta Research Council

to review the 5 water well
contamination cases
that had been reported in the
media

Alberta Research Council (now Alberta Innovates)
January 2008

Ignored:

1986 historic data on my well: *Gas Present: No*

Used stories of methane in other water wells

Encana frac'd the aquifer that supplies my well

Encana's 2003 test on my water

Blamed nature and bacteria

Instead of using the damning
data the regulator
collected in our community
they used
data from energy wells
over 100 miles away

(that were frac'd much deeper!)

January 2008
Rosebud & Wetaskiwin
cases **closed!**

Bruce Jack case was
never investigated
by regulator

April 2008: Alberta Environment Breaks Legislature Made Promise

Takes away the water deliveries

Declares our dangerously
explosive & toxic water safe



2 thousand gallons takes about an hour to fill
I forgot to bring a book



My turn. 185 gal tank.



Magic always comes along





November 2009

National Energy Board

“the rate of development of shale gas
may become limited by the
availability of **required resources,**
such as fresh water”

British Columbia Regulator Safety Advisory May 20, 2010

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

January 28, 2011
ERCB Unconventional Gas
Regulatory Framework

Deep **and shallow** shales will be frac'd

Hydraulic fracturing **can contaminate**
“useable water aquifers” with toxic
chemicals and **“is a recognized risk”**

ERCB Report 2011-A

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

September 22, 2011
Alberta regulators knew!

**Caltex/Crew/Gasfrac's gelled propane frac
“accidentally” contaminates fresh
groundwater**

**The regulators continued to lie to the public
for over a year**

October 6, 2011
ERCB Bulletin 2011-29

Removes limits for unconventional oil and gas





October 30, 2011 EnCana Drilling under my land

Encana Waste Dumping Rosebud, October 30, 2011







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

December 19, 2011

Expert Dr. Karlis Muehlenbachs:

Frac'ing Contamination

“will get worse”

Alberta Frac Blowout

January 13, 2012



ERCB does not answer their Emergency Response Phone!



WE ARE COMMITTED TO
THE PUBLIC INTEREST







April 2012

Ontario Assessment Review Board

Reduced methane contaminated
property's taxation value to **zero**

The methane problem, it ruled, is more
than a mere nuisance, posing a **real hazard**

April 26, 2012

Drumheller Court

Justice Barbara L. Veldhuis requests a shortened statement of claim and volunteers as case manager.

ERCB demands that my full statement of claim is removed from the court and public record.

Denied.

Ernst Replacement Drinking Water

June 2012 Plains Midstream Crude Oil Spill into Red Deer River



**July 2012, Nationwide Insurance
Internal memo on frac risks:**

“too great to ignore”

EU 2012 Report:

**25% to 100% of water used is
lost permanently**



Water Trucks: Who pays for the Road Damages?

Photo by Pierre Bluteau, Leclercville, Quebec

October 1, 2012

Case Management Call

The Defendants want my case moved to Calgary

“It clearly tips in favour of the defendants’ position, that it ought to be in Calgary and not in Drumheller”

Justice Veldhuis: According to Alberta’s Chief Justice, the case is to be heard in Drumheller



Encana's Drumheller Office

Encana lawyers: will not drive to Drumheller
The case is subsequently moved to Calgary.

Encana drilling waste Rosebud, November 2012





December 5, 2012 Defendant Legal Filings

No arguments by Encana!

Encana website:

“Ms. Ernst's claims are not supported by the facts and her lawsuit is without merit”

But EnCana did not argue this in court and did not ask the judge to throw my case against them out

Best in the World, World Class

ERCB argued for my case against them to be thrown out:

I am a terrorist, they can violate my rights

“No duty of care” to Albertans and groundwater;

Legally immune from all acts and **omissions**, gross negligence, bad faith, deliberate acts.

171,000 Frac'd wells later ...





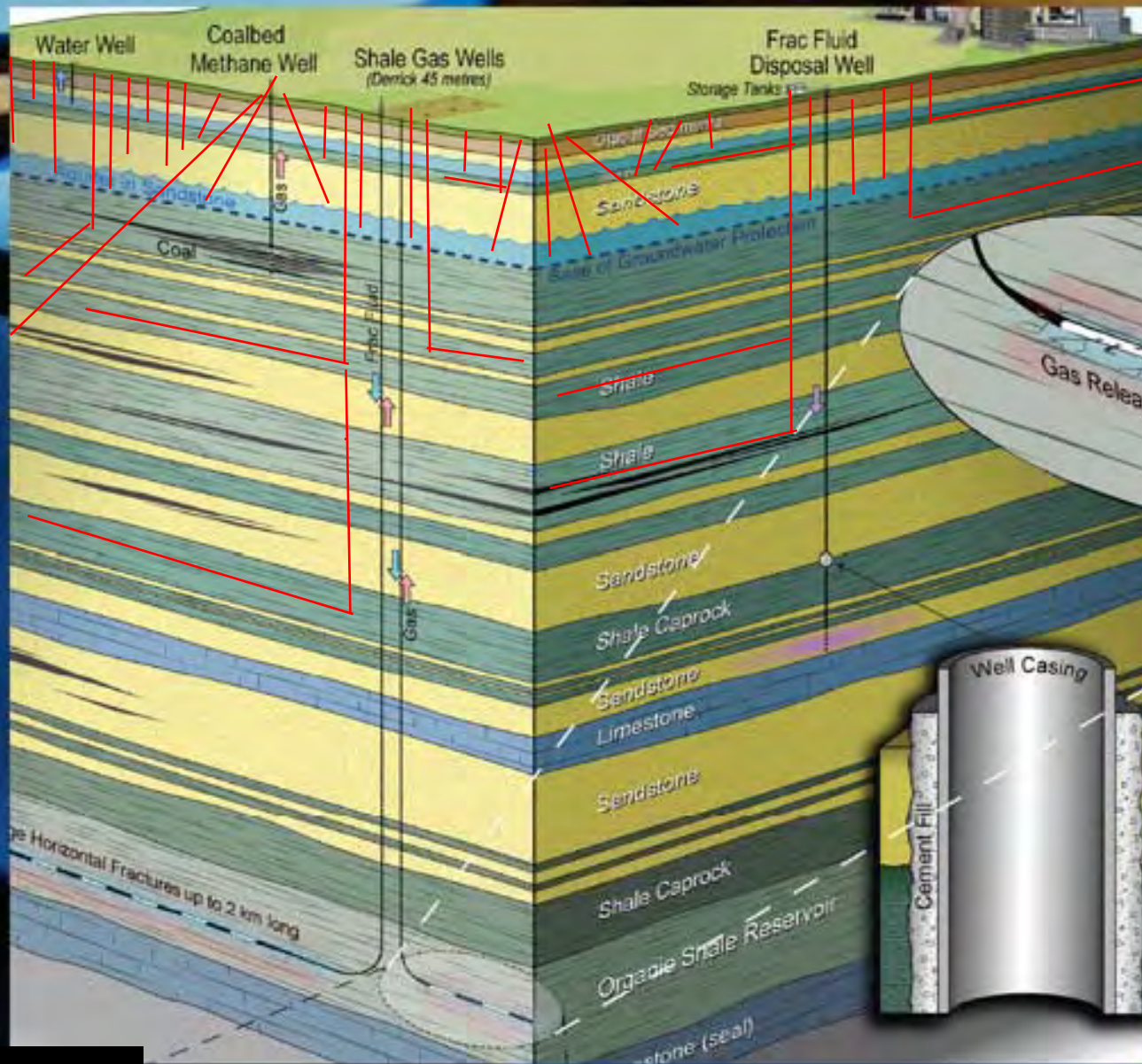




December 6, 2012

ERCB releases draft frac regulations





Red lines = what the new ERCB frac directive allows

Frac directive allows single barrier or no barrier design, dramatically reducing groundwater protection

December 16, 2012
ERCB releases frac blow-out report
Hydraulic fracturing caused the blow-out
No fines, no punishment levied



December 20, 2012
ERCB releases Caltex/Crew/Gasfrac
Report

**Admits frac'ing contaminated fresh
groundwater at Grand Prairie**

No fines, no punishment levied

January 18, 2013 . 10AM–4PM
Hearing in Calgary Court

Encana rig near my home
Encana argued **nothing** in court!



Court is packed, not enough seats

Ernst attends Drumheller Court 10AM-4PM
where by law the hearing would ordinarily be heard



Environment Commissioner's Audit, tabled in House of Commons February 5, 2013



Growth Leaving Canada Exposed to Disaster

Oh Canada!

Oil and gas companies exempt from
reporting chemicals

“A complete list of substances used in
Canada is not known”

Environment Canada doing **voluntary** survey
of oil and gas companies

February 8, 2013

The Harper Government

Appoints Justice Barbara L. Veldhuis to the Court of Appeal of Alberta

Rule on the Jan 18 hearing? “Not an option”



Department of Justice Canada / Ministère de la Justice Canada

Canada

Department of Justice
www.justice.gc.ca

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ALBERTA JUDICIAL APPOINTMENTS ANNOUNCED

OTTAWA, February 8, 2013 – The Honourable Rob Nicholson, P.C., Q.C., M.P. for Niagara Falls, Minister of Justice and Attorney General of Canada, today announced the following appointments:

The Honourable Barbara L. Veldhuis, a judge of Her Majesty's Court of Queen's Bench of Alberta in Calgary, is appointed a judge of the Court of Appeal of Alberta to replace Mr.

February 19, 2013: Letter from ERCB lawyer Gary Perkins

to FOIP request records on all frac-related
incidents in Alberta:

“massive undertaking”

“potentially in the order of millions
of pages of records”



**Alberta's Chief Justice
takes over**

**On April 15, 2013, he
asks Encana to file
Statement of Defence**

**As of July 13, 2013,
no judgement and no
Statement of Defence**

April 2013: Alberta government appoints big oil & gas to Chair new all-in-one energy regulator, the AER



Gerard J. Protti

Executive Vice-President, Corporate Relations
President, Offshore & International Division
EnCana Corporation



Gerard Protti is Executive Vice-President, Corporate Relations, and President, Offshore & International Division, for EnCana Corporation. His Corporate Relations responsibilities include regulatory services and international, aboriginal, public and community relations. In addition, he is accountable for EnCana's programs regarding corporate responsibility.

Ernst Gas Migration Paper sent to UK regulator June 13, 2013

- June 14: ERCB closes Campbell case after 8 yrs**
- June 15: Encana fails to file by deadline**
- June 18: US EPA delays frac study 2 yrs**
- June 20: US EPA pulls out of Pavillion, Wy
\$1.5 million Encana "donation"**

**Drilling &
Frac'ing
+
The
Campbell's
Water**

Regulated



Contaminated



Safe Water Supplied



Monitored



Decontaminated



Case Closed



Safe Water Supplied



2013.04.03

More Drilling & Frac'ing Allowed



June 25, 2013 Ad in Rocky View Weekly



A new energy regulator, a
long regulatory tradition.

The new Alberta Energy Regulator (AER) builds on 75 years of oil and gas regulation in our province. Providing for the safe and environmentally responsible development of hydrocarbon resources, the AER will oversee management of public lands, protection of the environment, and conservation of water—while securing economic benefits for all Albertans.

To learn more, visit www.aer.ca, call 1-855-297-8311 toll-free, or e-mail inquiries@aer.ca.

To report an oil and gas emergency, call 1-800-222-6514.

The Alberta
Energy Regulator.
World-class
regulation for a
world-class
resource.



What We're Promised: **Frac Regulation**

Construction at Rosebud water reservoir, July 10, 2013. Is this to make the contaminated water safe, nine years later? How?

What We Get:
Contamination, Deregulation
and
Case Closed!