

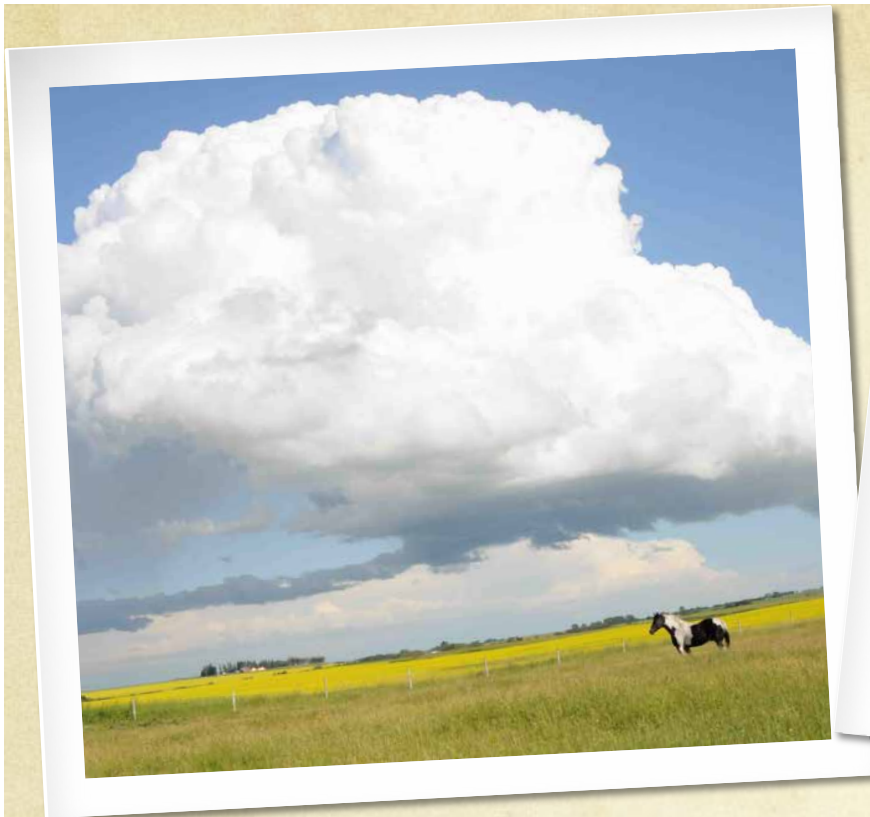
# Fracturing Our Lives

## Hydraulic Fracturing

And how it affects us all

By Diana Daunheimer

Alberta Surface Rights Federation Presentation-Camrose, Alberta-March 13<sup>th</sup>, 2014

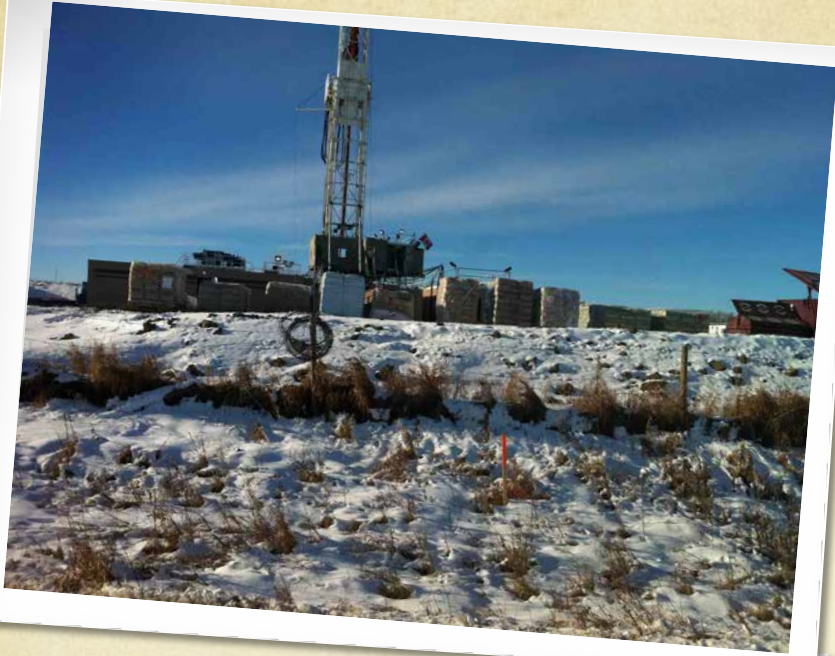


## Who We Are

Typical Alberta Family, living near Didsbury since 2002

Organic acreage, livestock, apiary, gardens, greenhouse=Peaceful Oasis

2 adorable children



# Our lives changed:

When 6 wells fracked within  
500 meters of our home

We lost our “Oasis” of:

Healthy, Fresh Air

Good Water

Tranquility

Beauty

Safety





We  
Become  
Educated

After discovering sumps in the water table  
contaminated with horizontal cuttings, diesel  
invert, 300m NE of our property



# Complaint Filed with the AER October 2012

Sump waste did not match previous records

Company wanted to use site for remote storage



**Removing Signage, Smells horrible**

Toxic waste left for 5 months

Signage was incorrect

Concerns over  
water table,  
drainage, aquifer  
recharge

Total  
remediation  
took over a  
year, sumps  
2013





**Waste Everywhere**

Crushed frac bottles, buckets of waste

No Respect



## **This Led to Many Concerns**

Directives were violated many times, especially on sour crude oil site drilled 2010

Insisted on non-compliances being levied, some were, most not

# Angle Open House June 2013

Attended with my  
children to talk to  
company reps/  
landowners

Share our horror/  
mistreatment

Angle sells to  
Bellatrix, October  
2013

**ANGLE ENERGY**  
**OUR NEW NEIGHBOUR AND WORST NIGHTMARE**



**DANGER**  
• H2S POISONOUS GAS MAY BE PRESENT VENTING ON LOCATION  
• NO SMOKING, MATCHES OR OPEN LIGHTS  
• NO ADMITTANCE EXCEPT AUTHORIZED PERSONNEL  
• PROTECTIVE EQUIPMENT MUST BE WORN IN THIS AREA



THE ANGLE SITE TO THE SOUTH OF US HAS BEEN VENTING SOLUTION GAS WITH H2S ON OUR FAMILY FOR THREE YEARS, ONLY RECENTLY DID THEY CONTROL OFF-LEASE ODOURS (AND PUT THIS SIGN OUT), AS PER REGULATIONS. H2S GAS CAN CAUSE RESPIRATORY ILLNESS, HEADACHES, DIZZINESS AND DEATH

Angle Energy has ruined every aspect we cherished about living in MountainView County.

Our peace and tranquility have been shattered, the beauty of the surrounding landscape is scarred, the fresh air we once enjoyed is now poisoned and the health and safety of our family is forever compromised. In fact, our very freedom to walk around our own property has been cruelly taken from us, now there are signs declaring that poison gas is venting from a tank just meters from our land where we used to take daily walks with our dogs and ride our bikes with our young children.

There is the ever present concern that our fresh water will be contaminated and the land surrounding us is a wasteland, littered with pipes, drilling waste and contaminated run-off. The company responsible for this nightmare is Angle Energy and they are planning hundreds of more wells in our area.

They do not care about us and they will not care about you, they want your land for profit and you may suffer our very fate. With the current system in place, if you are impacted there is very little, if nothing at all that can or will be done to help you.

Do not take the decision to lease your land lightly, read on and see what the true impacts of oil/gas activity are over the lifetime of a well, what the current regulations govern and what type of activity is endangering your health. Our region needs more education so that landowners can make informed decisions about the risks and realities involved in dealing with the oil and gas industry.



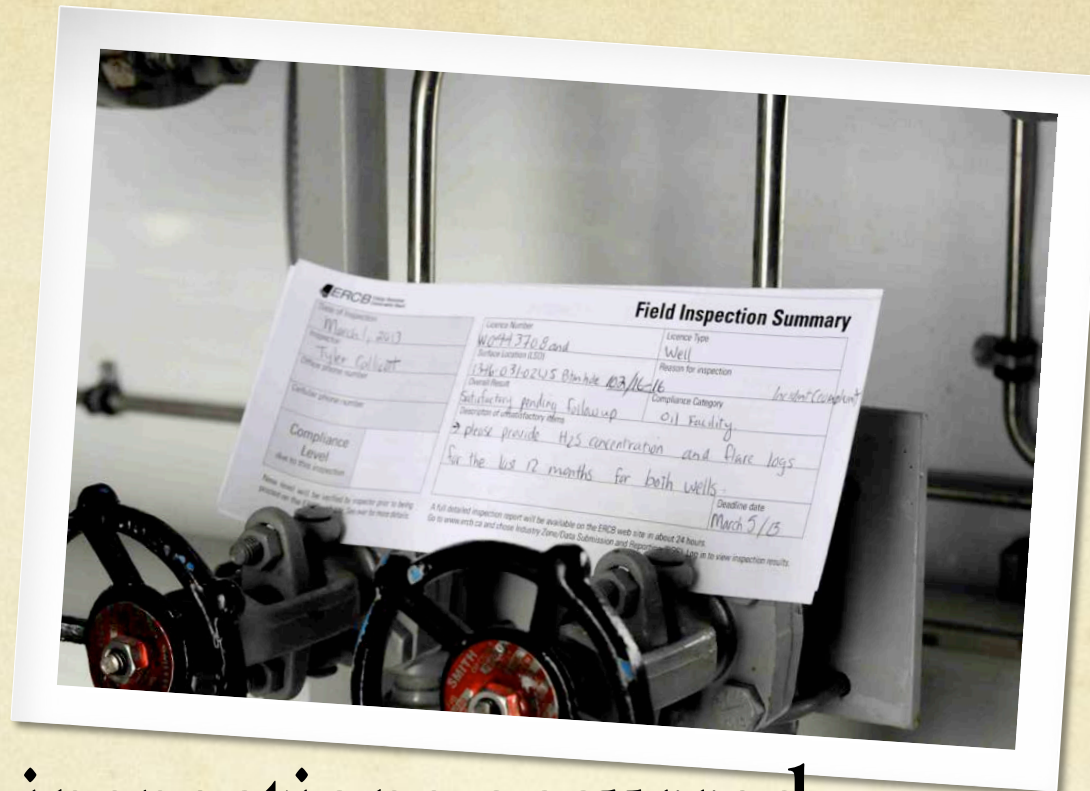
CONTAMINATION THAT WAS LEFT TO BE WASHED AWAY, EVEN THOUGH WE SENT PICTURES TO COMPANY AND REQUESTED CLEAN-UP



WASTE ON SITE, YEARS OF GARBAGE



JUST ONE OF NUMEROUS SPILLS, LEFT TO WASH AWAY



## Over 27 inspections occurred

Unsatisfactory performance

Darin Barter AER: “We’ve got some high risk non-compliance issues as well as some low-risk inspections and the company has said they have acted in an unacceptable manner in that area. I understand they are comfortable saying that.” Mountain View Gazette, July 9, 2013

# AER Closes our Angle Files

Concerns not addressed got this reply:

“ Hi Diana, On December 19<sup>th</sup> we discussed Angle’s facilities near your location. The files have been closed and we are not going to review further historical operational performance concerns. These files have been thoroughly reviewed and enforcement actions were issued. ” Jenn Lutz, AER



# Our Water Under the Greatest Threat

Millions of litres of fresh potable water used in every well, most of it so polluted cannot be returned to hydrologic cycle

Drilling and completions of energy wells place your water well and source aquifers at risk, indefinitely

# Our Water Woes

Our well water tested after finding sumps,  
cause for concern

We requested comprehensive testing from AE,  
ERCB, November 2012, Refused

Responsibility ping pong ensued

November 2013, submitted additional  
comprehensive request

AESRD confirms testing will occur

# Indications of Well Contamination

- Unusual turbidity or color
- Objectionable odors and taste; salty fish
- Animals refusing to consume water
- Reoccurring gastrointestinal distress, livestock and family
- Rashes and irritation



# Testing Day

Review our septic and well system, is contamination your fault?

Discussed testing parameters for hydrocarbon gases, metals, sulphides and additional priority pollutants (BTEX, VOC, PAH's)

Testing from the kitchen faucet? No thanks, samples taken at hydrant head

Six weeks later results are sent



# Normal Results?

- “Hi Diana, well all the results are in. As per the labs and Larry's analysis of the test results; The only thing that showed is very low levels of phthalate compounds (they are plasticizers). According to the ARC this occurs where the water runs through plastic pipe. Health Canada hasn't established any limits for these compounds.” ....“Unless there is any new information, I will be closing the file. I hope this helps put you and your families mind at ease regarding your ground water. If you have any questions regarding the testing or values, please feel free to contact Larry West or myself. Respectfully,*Jordan King*”

# Concerns Indeed

- Glaring omissions-No testing for hydrocarbons, sulphides, or e. coli
- Phthalates in our water?
- Hold times violated
- 5 of 7 pages missing from report
- Mercury test not in proper container, lacking proper preservative
- Vanadium test inadmissible
- Immediately requested review/re-test

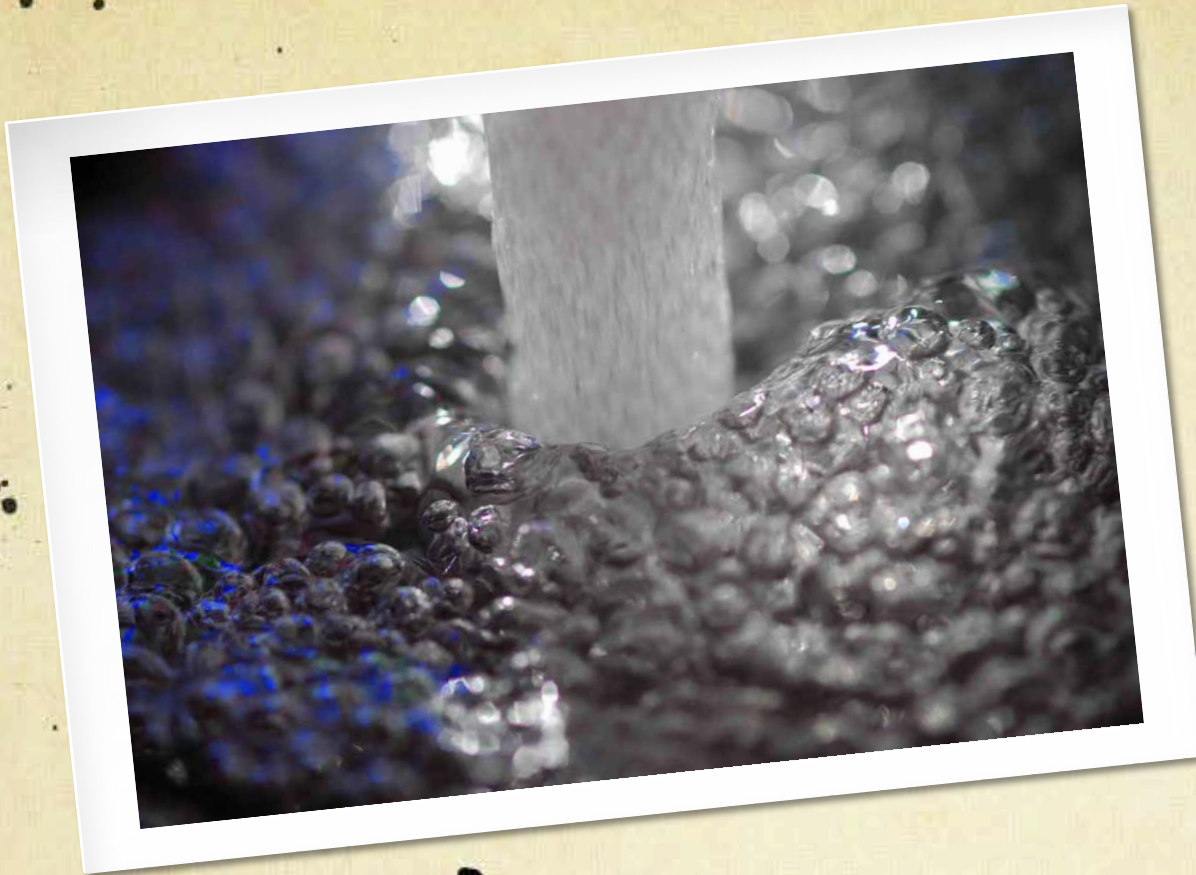


# The Review

- “...The missing pages from the last round of sample {s} were testing results from another client of the lab, when they farmed out your samples, they also farmed out other sample. When the other lab (ALS) submitted the results to the first lab (ARC), they put all samples in one submission. Therefore the other pages do not belong to AESRD, we have no right to request them nor are they relevant. All that being said, since there were so many mistakes made by the lab in the first testing event, I will not use any of those results moving forward on the file, they would not hold up to any scrutiny. This is why the decision was made to do a re-sample of your well. ” Jordan King
- Let me get this straight....just a month ago, these results were fine and should have alleviated our concerns, now you say they are so flawed they cannot be used?

# Ongoing Concerns

- We continue to seek confirmation from AESRD regarding testing parameters, hold times, release of missing pages
- “This list is not final and is subject to change”
- “We will have to wait and see if anything is detected”
- “I cannot guarantee the private lab will not exceed hold times, if they do we will sample again.”
- “I do not know who the missing pages belong to as they were never provided to me. The lab has assured us they are results from other clients and I have no reason to suspect otherwise. I have no legal right to them or any legislative power to demand them.”



“Don’t  
drink  
that !” We  
tell our  
kids every  
time they  
are at the  
tap

- We worry every time they’re in the bath. Each breath in the house.
- We cannot even trust our local government to provide valid, professional or timely water testing

# How does this happen?

Oil and water do not mix – risk on many levels

Drill through aquifers with toxic chemicals

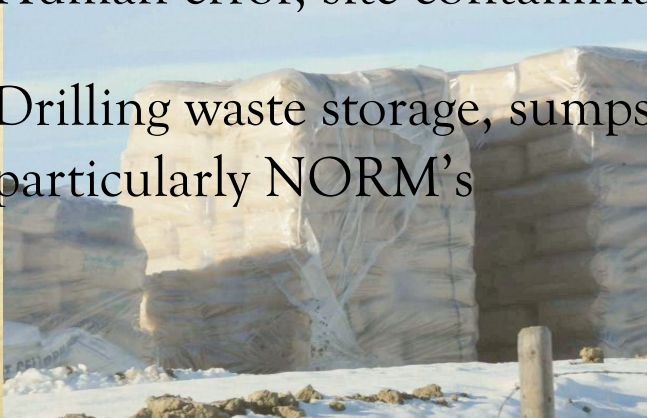
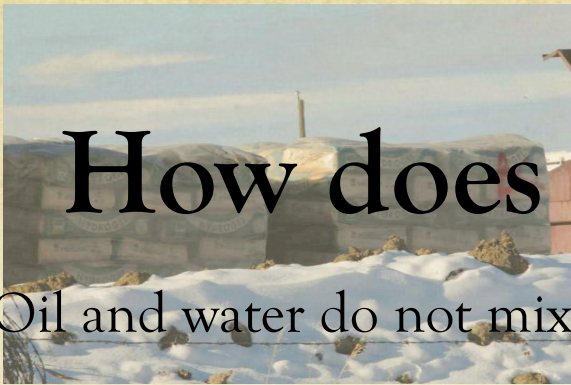
300 tonnes of sulphite used in ONE well near us

Known fluid loss- 362,000 litres of diesel invert lost in another well

Lead in cement mixes, casing failures, communications

Human error, site contamination, spills, emissions accumulations

Drilling waste storage, sumps, mix-bury, cover, land-spreading,  
particularly NORM's





## Testing for Bare Minimum Prior to Disposal

Testing parameters not sufficient to protect land and water from contamination. Horizontal cuttings are known source of radioactive contaminants, waste is never tested for this. Waste above was permitted to be buried on site

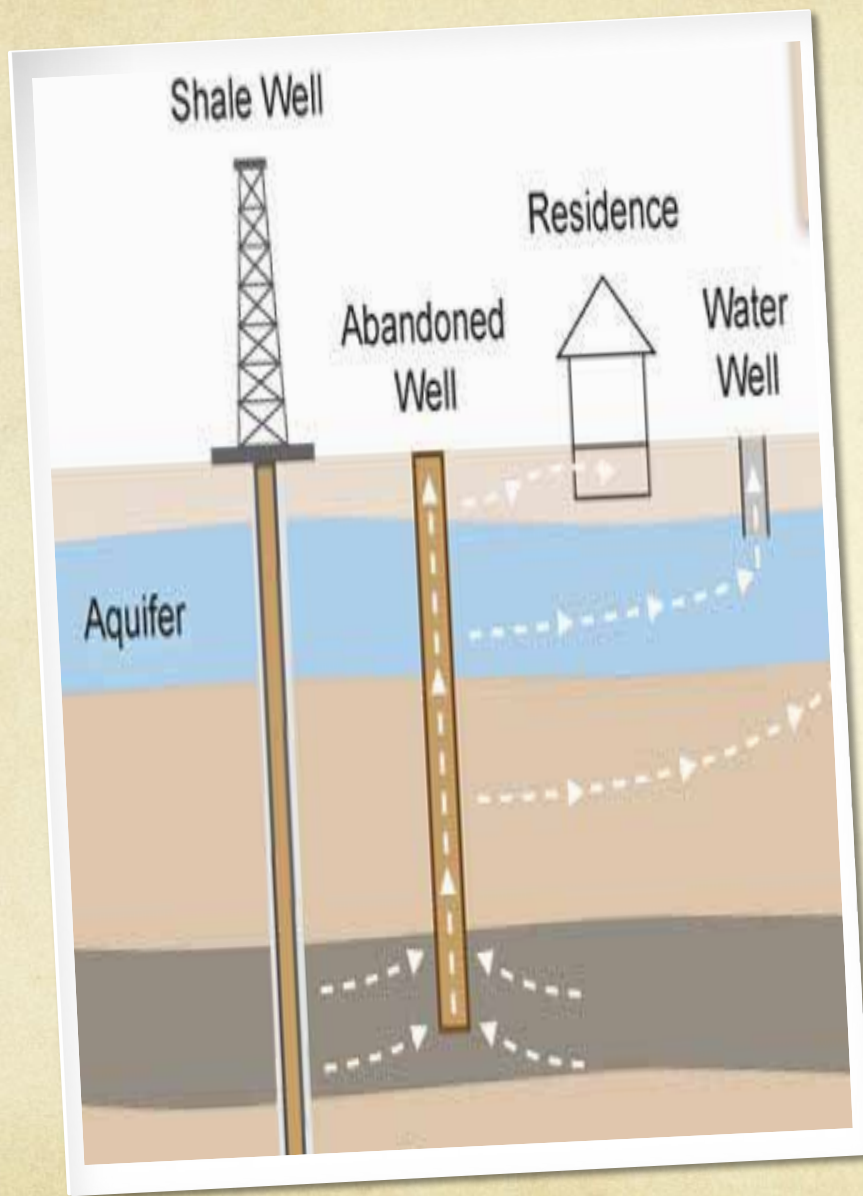
Contaminated waste can impact surface run-off and recharge water for source aquifers. Hydrocarbons and radioactive isotopes are highly mobile in soil and water



# Natural Fractures

One way used and produced well bore fluids/gases can impact local aquifers/well water

20,050 litres of frac oil lost to annulus in yet another well by our home, where does it go?



# Abandoned Wells

A pathway risk for the migration of fluids and gases from nearby activities

Our home, sour crude well frac'd 100 m from abandoned well

	Hydrocarbon	8008-20-6	100.000000%
	Crystalline silica (Quartz)	14808-60-7	100.000000%
Breaker	Fuels, diesel	68334-30-5	90.000000%
Breaker	Magnesium oxide	1309-48-4	40.000000%
Crosslinker	Ferric sulphate	10028-22-5	60.000000%
Crosslinker	2-Dibutylaminoethanol	102-81-8	30.000000%
Crosslinker	Ethoxylated oleyl amine	13127-82-7	10.000000%
Demulsifier	Isopropanol	67-63-0	100.000000%
Demulsifier	Oxyalkylated phenolic resin	63428-92-2	30.000000%
Demulsifier	1,2,4-Trimethyl benzene	95-63-6	5.000000%
Demulsifier	Ethoxylated alcohols, C6-C12	68439-45-2	5.000000%
Demulsifier	Light aromatic solvent naphtha	64742-95-6	5.000000%
Demulsifier	1,3,5-Trimethyl benzene	108-67-8	1.000000%
Demulsifier	Xylene	1330-20-7	1.000000%
Friction Reducer	Kerosene	8008-20-6	100.000000%
Friction Reducer	Isopropanol	67-63-0	10.000000%
Friction Reducer	Ethylene glycol	107-21-1	5.000000%
Gelling Agent	Phosphoric acid, mixed polyoxyalkylene, esters	Not Available	100.000000%

	Water		(% by mass)
	Crystalline silica (Quartz)	Not Available	
	Crystalline silica (Quartz)	14808-60-7	100.000000%
	Crystalline silica (Quartz)	14808-60-7	100.000000%
Bactericide/Biocide	Crystalline silica (Quartz)	14808-60-7	100.000000%
Bactericide/Biocide	Non-Hazardous Ingredients	Trade Secret	100.000000%
Breaker	Bronopol	Trade Secret	100.000000%
Breaker	Ammonium persulfate	52-51-7	13.000000%
Breaker	Non-Hazardous Ingredients	7727-54-0	100.000000%
Breaker	Non-Hazardous Ingredients	Trade Secret	100.000000%
Buffer	1,2-Ethanediol	Trade Secret	40.000000%
Buffer	Non-Hazardous Ingredients	107-21-1	30.000000%
Buffer	Non-Hazardous Ingredients	Trade Secret	100.000000%
Buffer	Organic acid	Trade Secret	100.000000%
Crosslinker	Inorganic base	8454	100.000000%
Crosslinker	Borate salt	8296	100.000000%
	Non-Hazardous Ingredients	8293	7.000000%
		Trade Secret	100.000000%
			70.000000%

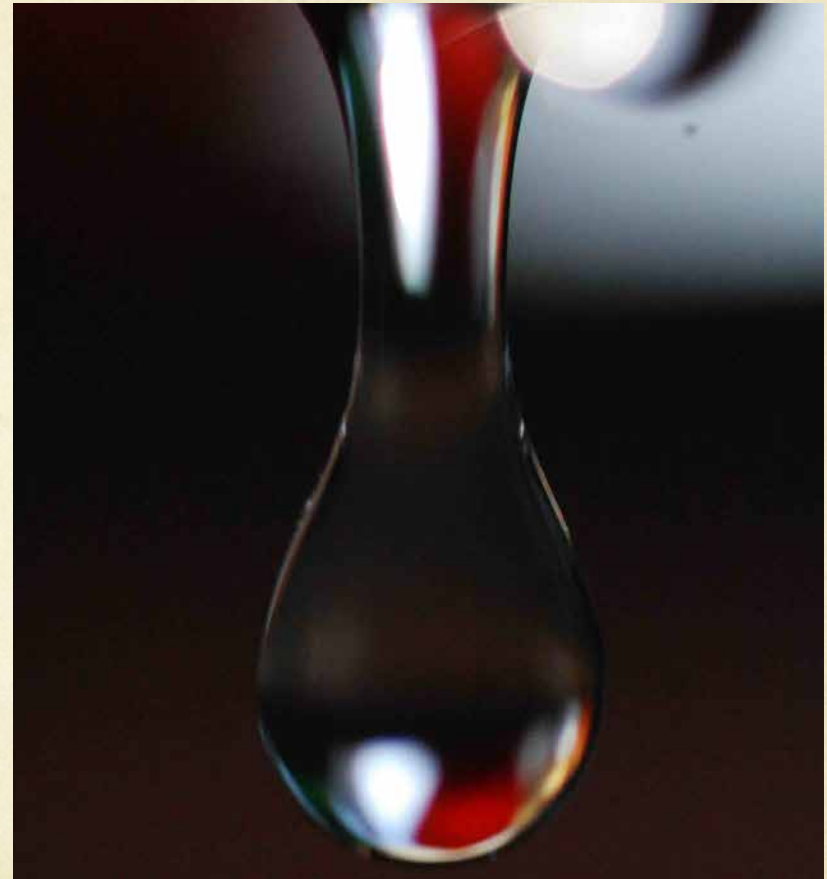
## Fracture Fluid Fears

All six wells by our home were pure hydrocarbon fracture scenarios

No water in fracture fluid, 100% hydrocarbon based fluid with chemical additives (some carcinogenic)

# Water Unprotected

- The AER 100% industry funded, indemnified from legal action, does not owe duty of care to Albertans, yet enforces the Water Act?
- Key media campaign-No documented cases of water contamination in Alberta
- Chemicals used in Oil/Gas Exempt from Canadian Drinking Water Guidelines-No Standards for hydrocarbons, phthalates, gasoline, etc
- Industry self-regulated
- Can you trust this system?



# Safeguarding our Water

- Comprehensive water testing, bi-annually
- Information about projects near us, so we know what to test for....trade secret ingredients, tracer in chemicals
- Requests to Bellatrix to discontinue using toxic, carcinogenic products



# It's Not Just US

Many Albertan's drinking water impacted  
by energy projects

Water is irreplaceable, Energy is not



# No More Fresh Country Air

Step out our door, Smell sour gas

Angle had “no idea” where odors were coming from

High risk non-compliance for public notifications, November 2013, well drilled 2010





June 2013, PAMZ air quality monitoring trailer installed on our land

Venting operations at sites were immediately suspended

Data still showed contaminants-fugitive emissions?

# Venting: Why do we smell gas?

AER inspection claimed no venting on sour site as operations were temporarily suspended for inspection

Tanks were removed late summer 2013

Solution gas, sweet or sour, has varying levels of BTEX's (.05 to 5%) that can effect health. Sour gas causes serious health impacts

5 years of exposure, health consequences?



# Venting Solutions

Scrubbers for sour gas-don't work if not maintained. Does this site look maintained to you?

Sixth well by our home was also licensed to vent sour gas

We objected (when you still could) Measures were put in place to conserve the gas

In-line conservation should be standard on all energy wells





# Emissions:

## The Invisible Impacts

Despite what Industry, land-men, AER, CAPP, Synergy has told us flaring/incineration not 100% conversion efficient

Combustion process creates 70-150+ hazardous hydrocarbon by- products

Dispersion/fall-out of contaminates effects farmland, surface run-off and health

Unknown hazardous contaminants created from fracture returns



**Billions of litres of waste gas/fracture returns  
have been flared/incinerated by our home**

Incinerators above burned waste gases from sour crude well that was frac'd with liquid propane, frac oil and "sand" for 19 days

Well test non-compliant on many levels. ERCB inspection occurred prior to the flare event but stated operations were satisfactory



## Non-Compliances

Incinerators cannot be operated with exposed flame, high risk

DDS notifications to extend flare time past 72 hours, low risk

Total volume of native flared gases cannot exceed  $400 \text{ e}3\text{m}3$  per event. But  $399.95\text{e}3\text{m}3$  is OK

# Surface Casing Vent Flow

Discovered one well near our home had SCVF through FOIP process

Not recorded or tested for 3 years

Migrating gas can impact aquifers and air sheds

Much more common of a problem than reported

Non-revenue generating costs to repair, left unmitigated

Vent flow check 90 days after drilling, but never again

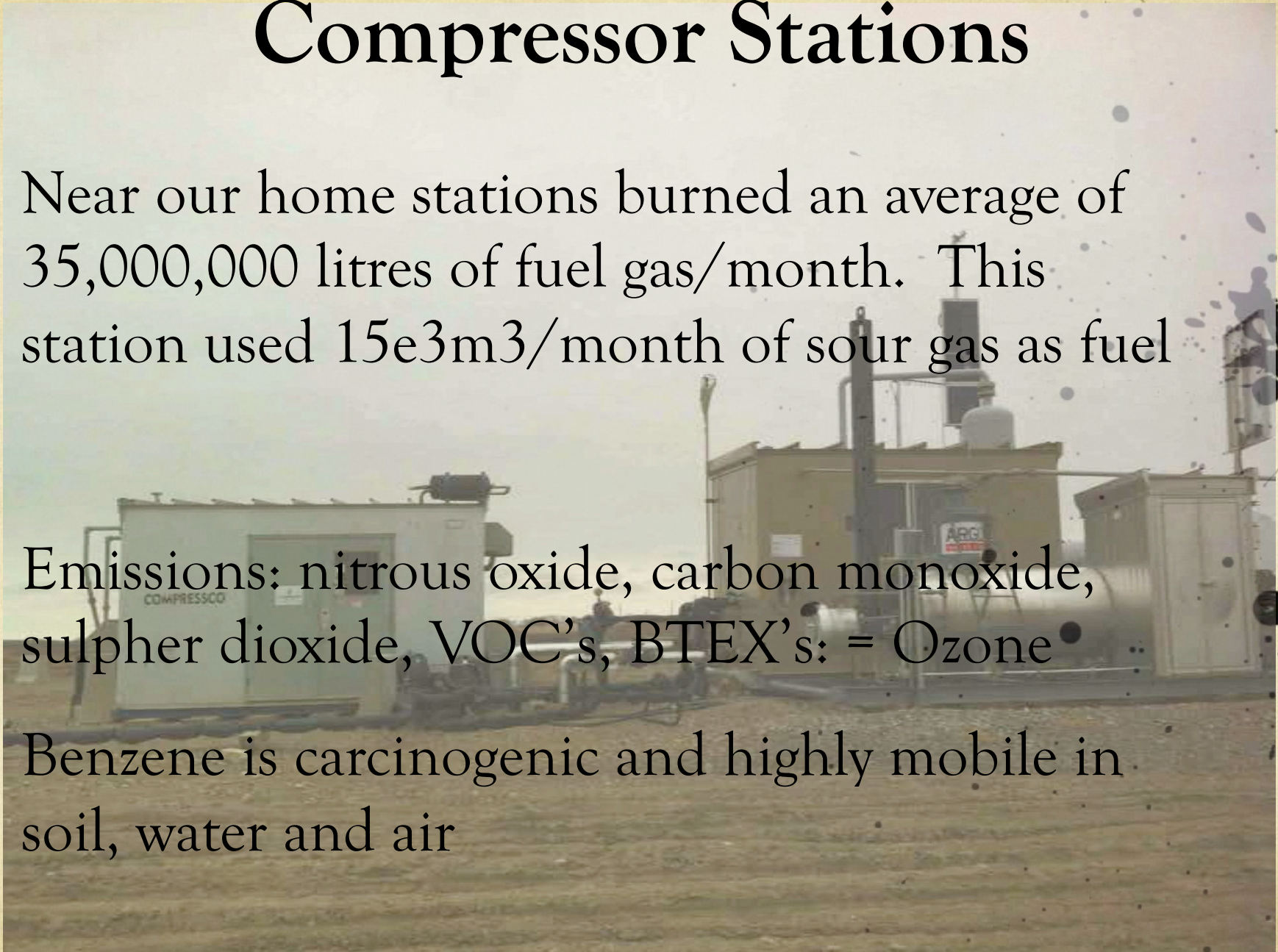
Highest pressure well bore is subject to during completions. No requirement to check vents flows afterwards

# Compressor Stations

Near our home stations burned an average of 35,000,000 litres of fuel gas/month. This station used  $15 \times 10^3 \text{ m}^3$ /month of sour gas as fuel

Emissions: nitrous oxide, carbon monoxide, sulphur dioxide, VOC's, BTEX's: = Ozone

Benzene is carcinogenic and highly mobile in soil, water and air



# Fugitive Emissions

Considerable gases are released continually at well sites from phalanges, valves, regulators, thief hatches, compressor seals, open ended lines and other various equipment

Directive 60: licensees “should” detect and repair leaks, not mandatory

CAPP also not mandatory

The volumes of leakage are completely unaccounted for in environment



# Site Contamination

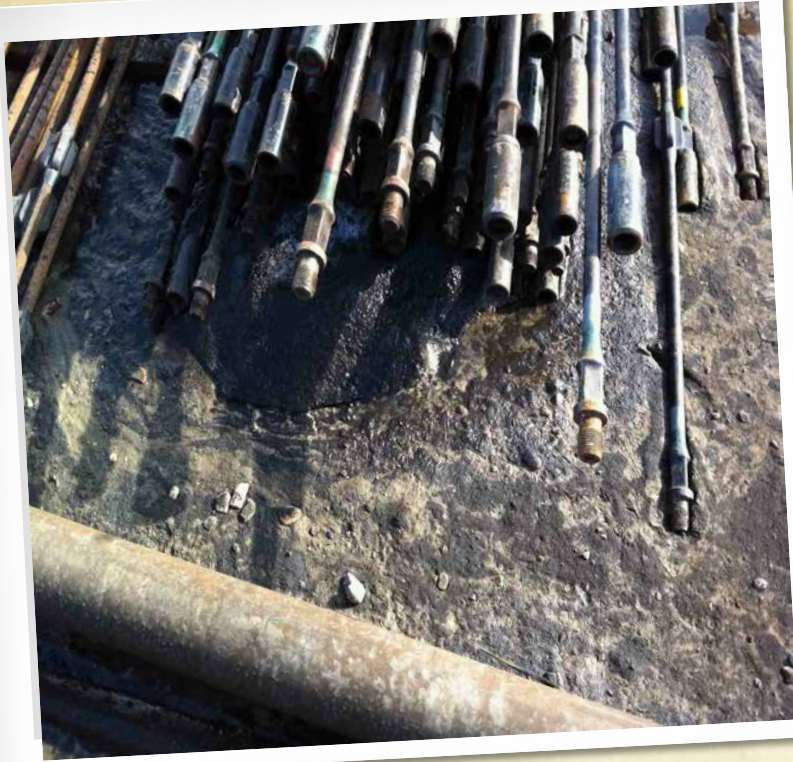


All sites around our home drain  
into Rosebud River

Years of cumulative impacts  
migrating off lease

Soil from this site was heavily  
contaminated with frac oil but  
was never removed





## Your land-Their dumping ground

2 Low-risk “house-keeping” non-compliances issued, within 3 weeks of one another

3 years of pipe-yard waste





Would this concern you if it drained on to your land and into local watershed? It did not concern Angle, despite our repeated requests for clean-up. “It’s got to go somewhere!” Angle said



# An Organic Farm?

How will being surrounded by a toxic industry affect our future?



# Outside of Natural Law

Why is the oil and gas industry above the rules and law?

If your neighbour did this you could access solutions but when your neighbour is oil and gas there is no remedy



**Oilfield Waste: Ours forever**

On our land, in our land

By our water, in our water

Injected under our homes, vented into our air



# Protecting our Children

Our children are  
precious to us

We have done  
everything in  
our power to  
provide a safe  
home for them



# We could not protect them from this:



Flaring

Incineration

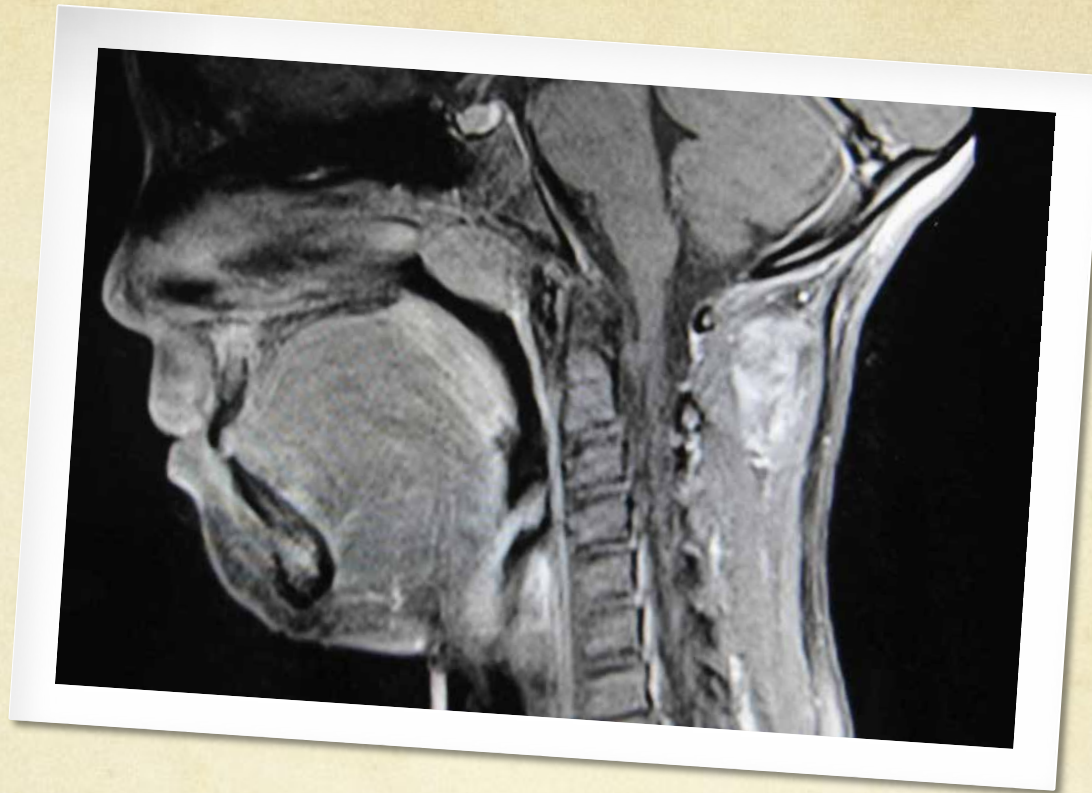
Venting

Noise, light pollution

Unsafe traffic

Water contamination

Land contamination



**Could this have been avoided?**

Or the sinus infections, dizziness,  
respiratory illnesses, migraines, headaches,  
vision troubles, sleep disturbances, rashes



## Livestock-Sick and Dying

Once healthy farm turned into infirmary

Sinus and lung infections, still births,  
gastrointestinal troubles, premature death

# Infrastructure and Safety

Constant pressure on both

Costs to municipality=tax increases

Daily inspections not sufficient to safeguard people, i.e. failing back pressure valve

AER states they rely on landowners to report deficiencies

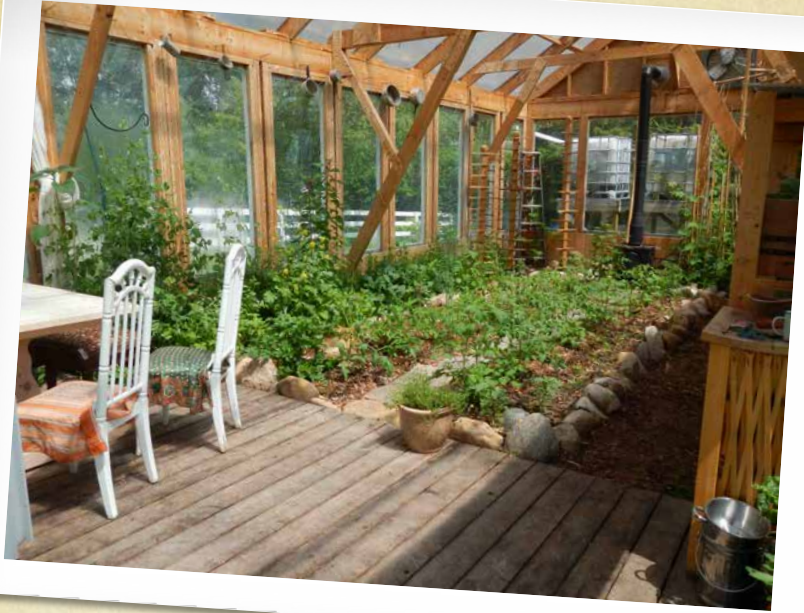


# Just One Bad Company?

Phone conversation with Tyler  
Callicott, AER Red Deer:

“Why are you picking on Angle,  
Diana? They (being every company)  
are all doing the same thing.”

That made me feel much better



We should be  
able to enjoy  
this....

Without  
always having  
to worry  
about this!





## Time to Reflect-What happens Now?

Future effects of our 6 years (and counting) of exposure?

Can we live with more wells near our home?

Potentially 24 more within 1km, 1000's more in our community

BENZENE (ACN/DOT)	2,712,800	PENTANE (ACN/DOT)	1.08
HEPTANE (DOT)	78,800	4-PENTEN-1-OL	3.39
CYCLOHEXANE, METHYL-	30,400	CYCLOHEXANIDOT	7.18
CYCLOPENTANE, ETHYL-	2,500	BENZENE (ACN/DOT)	4.20
BENZENE, METHYL-	494,000	PENTANE, 3-ETHYL-	3.10
CYCLOHEXANE, 1,2-DIMETHYL-, TRANS-	13,200	CYCLOPENTANE, 1,2-DIMETHYL-	34.4
CYCLOHEXANE, 1,3-DIMETHYL-	1,280	HEPTANE (DOT)	0.66
CYCLOPENTANE, 1-ETHYL-2-METHYL-, CIS-	2,600	2-BUTENOIC ACID, METHYL ESTER, (E)-	7.05
CYCLOHEXANE, 1,3-DIMETHYL-, CIS-	1,340	CYCLOHEXANE, METHYL-	54.7
OCTANE (DOT)	10,200	BENZENE, METHYL-	7.00
CYCLOHEXANE, ETHYL-	8,300	HEXANE, 2,5-DIMETHYL-	1.81
BENZENE, ETHYL-	11,800	CYCLOPENTANE, 1-ETHYL-1-METHYL-	1.17
HEPTANE, 2,5-DIMETHYL-	2,800	CYCLOHEXANE, 1,3-DIMETHYL-, CIS-	27.7
BENZENE, 1,3-DIMETHYL-	15,300	OCTANE (DOT)	7.99
BENZENE, ETHYNYL-	244,000	CYCLOHEXANE, ETHYL-	3.80
BENZENE, ETHENYL-	42,000	HEXANE, 4-ETHYL-2-METHYL-	0.38
NONANE	6,370	3-HEPTENE, 4-ETHYL-	1.00
CYCLOHEXANE, 1-ETHYL-2-METHYL-, TRANS-	1,050	CYCLOHEXANE, 1,3,5-TRIMETHYL-	1.36
ALPHA-PINENE (ACN)	2,380	HEPTANE, 2,3-DIMETHYL-	10.8
BENZENE, 1-ETHYNYL-4-METHYL-	28,600	BENZENE, ETHYL-	55.6
1,3-CYCLOPENTANEDIONE, 2,2-DIMETHYL-	1,800	BENZENE, 1,4-DIMETHYL-	9.91
BENZENE, 1-METHYL-4-(1-PROPYNYL)-	2,200	HEXANE, 4-ETHYL-2-METHYL-	5.07
THIOPHENE, 1-METHYLENE-	11,700	CYCLOHEXANE, 1,2,3-TRIMETHYL-, (1,1-ALPHA,2-ALPHA,3-BETA,3-ALPHA)-	12.8
NAPHTHALENE (ACN/DOT)	658,000	BENZENE, 1,3-DIMETHYL-	28.0
NAPHTHALENE, 2-METHYL-	32,800	NONANE	1.44
NAPHTHALENE, 1-METHYL-	300	CYCLOHEXANE, 1-ETHYL-2-METHYL-, TRANS-	30.90
	76,800		

# SPEAK OUT!

It's time to start speaking the truth and standing up against the lies and propaganda

# Obtaining Information

We spent years and thousands of \$'s getting information, FOIP, AER products catalogue, internet research

Angle refused to meet with us (even when AER asked) or give us requested information

The AER “shared” the bare minimum despite stating such information is publicly and readily available

Frac Focus-Trade Secrets?

**OF CALGARY**

DEFENDANT(S)  
DOCUMENT

Angle Energy Incorporated  
**STATEMENT OF CLAIM**

ADDRESS FOR SERVICE AND  
CONTACT INFORMATION OF  
PARTY FILING THIS DOCUMENT

Diana Daunheimer  
RR#1 Site 12 Box 35  
Didsbury, AB  
T0M 0W0  
Phone: 403-335-4615  
Email: dianadaun@gmail.com

**NOTICE TO DEFENDANT(S)**  
You are being sued. You are a defendant.  
Go to the end of this document to see what you can do and when you must do it.

**I: Parties**  
1. The Plaintiff, Diana Daunheimer, herein referred to as the "Plaintiff" and her family reside near Didsbury, Alberta. Diana Daunheimer, along with her husband Derek Daunheimer are the owners and reside on the land legally known as: Lot 1 Plan 9211428 in N/W-15-031-R2-W5 in Mountain View County, herein referred to as the "Daunheimer Residence" or "Property," which they purchased in 2002. Derek and Diana have 2 dependent children, their daughter is 10 and their son is 6. They will be referred to herein as the "Daunheimer Family". The Property is supplied with fresh water by a private well owned by the Daunheimer's and drawing resource from an unidentified aquifer within the Paskapoo formation. The Daunheimers deeply value their Property and all the life they naturally foster within its boundaries. The Plaintiff cherishes her

# Our Lawsuit

Negligence by the company operating near our home and the inadequacy of the Regulator lead us to the only avenue available to address issues of personal harm, loss of use/enjoyment of property and suspected water contamination



Questions? Comments and Thanks!