

The Right to a Healthy Environment

Documenting the need for
environmental rights in Canada

Case Study 1

Individual impacts of intensive
hydraulic fracturing activity in
rural Alberta

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April 2017

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The Pembina Foundation is a federally registered charitable organization. We seek to increase understanding of the way society produces and consumes energy, the impact of these choices on the environment and on communities, and options for the more sustainable use of natural energy resources. We support science-based environmental research and education initiatives primarily focused on energy related issues, and we equip thought leaders with reliable and relevant information.

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Case Study 1: Individual impacts of intensive hydraulic fracturing activity in rural Alberta

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Right to a healthy environment

Do Canadians have a right to a healthy environment, or to be protected from environmental harms? Such rights are recognized in more than 110 countries around the world, but not, however, in Canada.¹

The idea of recognizing a right to a healthy environment in the Canadian Charter of Rights and Freedoms has been promoted by a number of groups.² Recognizing this right in the Charter would enshrine environmental protection under Canada's highest law, which would help ensure that laws across the country are consistent in protecting the health of citizens; that a standard of environmental quality is set for all groups; and that environmental laws are protected from further degradation.^{3 4}

Currently, there is no provision in the Canadian Charter of Rights and Freedoms to explicitly protect the environment. Instead, environmental issues or concerns are often considered but one of many "interests" in front of the courts. However, it is possible that current provisions under the Charter regarding individual rights can be interpreted to include more broad protection for the environment, without amending the document.⁵

Section 7 of the Charter is often considered to be a likely provision that can be read to include environmental protections. S. 7 guarantees the "right to life, liberty, and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice."⁶ How s. 7 or other sections of the Charter can be

¹ Ecojustice, "Right to a Healthy Environment". <http://www.ecojustice.ca/case/right-to-a-healthy-environment/>

² David Suzuki Foundation, "Blue Dot." <http://bluedot.ca>

³ Ecojustice, *The Right to a Healthy Environment: Canada's Time to Act* (2015) 6. https://www.ecojustice.ca/wp-content/uploads/2015/04/Right_to_a_healthy_environment_FINAL.pdf

⁴ David R. Boyd, *The Constitutional Right to a Healthy Environment*, (July 2012). http://www.environmentmagazine.org/Archives/Back_Issues/2012/July-August_2012/constitutional-rights-full.html

⁵ Lynda M. Collins, "An Ecologically Literate Reading of the Canadian Charter of Rights and Freedoms," *Windsor Review of Legal and Social Issues* 26 (2009), 8.

⁶ Canadian Charter of Rights and Freedoms, s 7, Part I of the Constitution Act, 1982, being Schedule B to the Canada Act 1982 (UK), 1982, c 11.

interpreted to include environmental protections is outside the scope of this work and has been discussed at great length by other scholars.⁷

The argument has been persuasively made by other organizations and experts that a right to a healthy environment is possible and can be practically implemented;⁸ and it can be effective at improving environmental outcomes and better fulfilling other human rights. As existing rights are violated by environmental harms, placing environmental protection on a greater footing as a right instead of an interest will achieve greater fulfillment of those rights.

Documenting the need for a right to a healthy environment

To illustrate the need for these laws, it is important to document examples where existing rights have been impacted by the insufficient footing of environmental protection. We have compiled three case studies highlighting the adverse impact on people when environmental rights are lacking and regulatory systems failed to prevent harm through the environment. All three case studies look back to previous energy development in Alberta. Each focuses on a different governing body and aspect of its regulatory system, examining the impacts from the level of the individual, the community, and the region. Although in some instances the regulatory systems have shifted partly in response to some of these issues, the pattern of rights impacts across different regulatory bodies, systems, and industries highlights the need for broader environmental protections to prevent these from repeating.

Our three case studies are:

1. Individual impacts of intensive hydraulic fracturing activity in rural Alberta

Looking to a region northwest of Calgary known as the Lochend, this case study examines the negative cumulative impacts from numerous hydraulic fracturing operations on individuals residing nearby. It explores the failure of a regulatory system that often denied individuals a say in initial project decisions that may impact them, and the failure of the former Alberta Environment, Energy Resource

⁷ “An Ecologically Literate Reading of the Canadian Charter of Rights and Freedoms,” 21.

⁸ Avnish Nanda, “Constitutionalizing Environmental Protections Under the Charter: Part 1-4,” *The Court*, March 2014. <https://www.thecourt.ca/constitutionalizing-environmental-protections-under-the-charter-part-i/>

Conservation Board and the later established Alberta Energy Regulator to monitor and manage the cumulative effects of multiple projects.

2. Community impacts of air pollution in urban central Alberta

The second case study examines the negative impacts on air quality on communities in central Alberta when coal-fired power plants were approved despite predicted exceedances of provincial air quality standards and inadequate cumulative effects modelling. Additionally, it examines the regulatory process that excludes parties with an interest in the matter who can provide important information to aid in reducing the impacts of these approvals on communities downwind.

3. Regional impacts of oilsands development in northern Alberta

The third case study examines the implementation of regional planning in the Lower Athabasca Region which began in 2012. This case study primarily focuses on the impacts on First Nation's treaty and aboriginal rights; however, the identified impacts also demonstrate potential violations of human rights under human rights legislation and the Charter. Despite the objectives of regional planning, after four years Alberta's first regional plan does not have the means to prevent cumulative environmental impacts to traditional land, land use, and Indigenous livelihoods and cultural practices.

Our objective was to contribute to discussion for the need for a right to a healthy environment (through either a "reading in" under existing Charter rights or potential Charter amendments), by documenting the human impacts of energy development that are mediated through the environment. Examining both the status quo and more recent efforts of the Alberta government to consider cumulative effects, these case studies demonstrate that processes in place are inadequate to prevent environmental impacts that infringe on currently protected human rights, and that the right to be protected from these impacts needs to be strengthened.

1. Nature and context of industrial activity

1.1 Community and context

The Lochend region is located in Rocky View County, northwest of Calgary, northeast of Cochrane, and west of Airdrie, Alberta. The area is primarily semi-urban with scattered farmland of various sizes, both large farms and small acreages. The region is growing in population, like other centres in the area.⁹ The Alberta Energy Regulator (AER) defines the Lochend as an area of 491 km², approximately the area of five townships.¹⁰ The Greater Lochend area immediately to the north and northwest of the AER's defined area also contains considerable development that may contribute to the concerns of landowners discussed in this case study; the Greater Lochend area is therefore also included in this discussion.¹¹

The Lochend was one of three areas in the province that had considerable ongoing and repeated concerns; the AER has initiated several processes that may begin to uncover and potentially address cumulative effects issues. Some of the processes have begun while others are still not in place. The Lochend region faced an accumulation of unresolved issues and ongoing and recurrent complaints related to new development from 2009 through 2014. The AER examined complaints related to impact on human health from oil and gas development activity in the Lochend and other hot spot areas by initiating the Recurring Human Health Complaints Technical Information Synthesis process. For the purposes of this report, the Lochend analysis is herein referred to as the Complaints Synthesis Report. Accompanying the Complaints Synthesis Report, the AER has also initiated a study to understand potential human health impacts from flowback, one product of hydraulic fracturing that is poorly understood. These processes and

⁹ Rocky View County, "Population by Division"

<http://www.rockyview.ca/Portals/0/Files/Government/Census/2013-09-23-RVC-Population-by-Division.png>

¹⁰ Alberta Energy Regulator, *Recurring Human Health Complaints Technical Information Synthesis*. 2. http://www.aer.ca/documents/reports/LochendSynthesis_July2015.pdf

¹¹ When data is available, we have included townships 028-04W5 and 028-03W5 in our analysis, which are in addition to the 491-km² area defined by the AER. We did not have additional data for facilities and batteries however, so in some cases we have relied on the data reported in the Complaints Synthesis Report.

studies, still ongoing, have begun to examine some of the specific impacts from hydraulic fracturing development found in the Lochend.

The Lochend example is only an example of continued development's impact on nearby people in absence of a legal right to a healthy environment. There are issues highlighted in the Lochend example below that have not yet been completely addressed and remain relevant outside the scope of the AER's above mentioned health study. These include managing rapid oil and gas development in very specific locales, the lack of baseline environmental data to monitor changes, inadequate regulations to properly manage cumulative environmental effects, and a need for more fulsome public engagement. After the period of intensive development that this case study examines, the AER initiated a pilot and draft cumulative effects framework to understand and manage cumulative effects, and has begun to examine how it manages public participation in environmental decision-making.

To ensure the protection of a healthy environment, there is an urgent need for these pilot and tentative approaches to be more broadly applied and expanded as the root causes and conditions found in the Lochend example still exist throughout the province.

1.2 Extractive activity: Hydraulic fracturing for oil production

Historically, there has been a moderate amount of oil and gas development in the region starting in 1954. Approximately 105 wells targeting oil reserves using primarily conventional vertical drilling techniques were constructed over the next five decades. Development in the region slowed down significantly throughout the 1990s and early 2000s as production in these older oilfields declined.¹² As Figure 1 shows, development picked up again in 2009, related to the use of the newer technique known as hydraulic fracturing.¹³ Within the immediate region there are now 46 active facilities,¹⁴ while more

¹² Available as a .csv file on the AER website. Alberta Energy Regulator, *ST 37: List of Wells in Alberta Monthly Updates*, spreadsheet, December 2015.

¹³ For this report, hydraulic fracturing refers to horizontally drilled wells that use pressurized liquid to fracture the formation.

¹⁴ *Complaints Synthesis Report, 2*

than 161 applications for well drilling (primarily hydraulic fracturing wells)¹⁵ were submitted between 2009 and mid 2015.

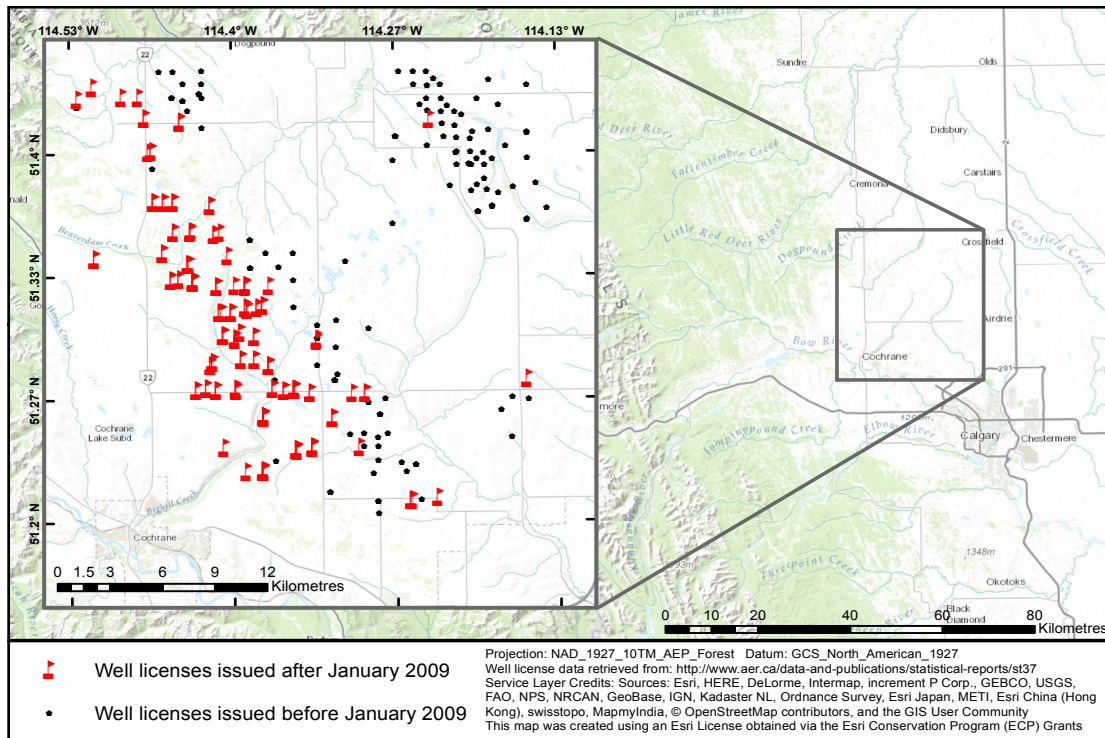


Figure 1. Historical development in the Lochend region, northeast of Cochrane.

Historic wells include the Crossfield play (development in the upper right hand corner), which is added for context but for the most part has seen little development in the last two decades.

Calculated using data from the Alberta Energy Regulator.¹⁶

Most of the current activity in the Lochend region targets the Cardium formation. The Cardium, as a “tight oil” formation, was previously inaccessible because oil wouldn’t flow using conventional drilling techniques. Hydraulic fracturing has now made this oil accessible as a high-pressure mixture of fracturing fluids is injected under pressure to fracture the tight, oil-containing rock formations and facilitate the movement of oil for production.¹⁷

¹⁵ The AER Complaints Synthesis Report cites 135 wells drilling notices from 2010-2014 within their defined area of the Lochend. We have included an additional 26 wells from ST 37 that were drilled between 2009-2010 in townships 028-04W5 and 028-03W5 immediately north or northwest of the AER’s defined area.

¹⁶ ST 37: *List of Wells in Alberta Monthly Updates*.

¹⁷ Bruce Peachey, *Mapping Unconventional Resource industry in the Cardium Play Region: Cardium Tight Oil Play Background Report*. Prepared by New Paradigm Engineering for PTAC Petroleum Technology Alliance Canada (2014), 6

Hydraulic fracturing can be used for both oil and natural gas production, but in the Lochend it has been exclusively used to extract oil. The fracturing process requires the injection of fluid containing water, a number of chemical additives, and proppant. Proppant, typically sand, holds the fractures open to facilitate production. The chemical additives serve a number of different purposes, including separating water and oil, reducing fluid viscosity, reducing friction, managing pH, managing temperature, killing bacteria, and preventing clay swelling. These additives typically make up around 1% of the fracturing fluid,¹⁸ but due to the amount of fracturing fluid used in the process, can amount to a large quantity across several wells. Water contamination from fracturing fluid has been the centre of concern for some landowners in the region, due to a general lack of understanding about the potential pathways for fracturing fluids to enter water sources, such as surface contamination,¹⁹ and groundwater contamination in the deeper intermediate groundwater zone through faulty well casing. However, groundwater contamination issues can take decades to recognize because groundwater flow is slow and monitoring and analytical techniques are usually not in place to adequately measure impacts.²⁰

Fracturing fluid is injected in cycles to promote the fracture. After each pressurization and fracture, the pressure is dropped and the injection fluids (along with some reservoir fluids and gas) flow back to the surface. These fluids, known as “flowback,” are separated from the gas and stored in tanks on the surface, and may be reused in subsequent fracturing stages. Separated gas, known as “solution gas,” is typically vented, flared or incinerated if it is not economical to conserve.²¹ Flaring was heavily used in the first few years in the Lochend, until incineration, and eventually conservation practices were adopted by most of the producers in the region. Incineration, when operated properly, provides more complete combustion of the produced gases compared to flaring, and generally minimizes the resultant air pollutants that are released. However, conservation of the solution gas is the best way to minimize air pollutants.

Overall, unconventional oil operations using hydraulic fracturing tend to produce more solution gas than conventional oil operations do, therefore these wells flare and

¹⁸ *Mapping Unconventional Resource industry in the Cardium Play Region*, 9.

¹⁹ The Expert Panel on Harnessing Science and Technology to Understand the Environmental Impacts of Shale Gas Extraction, *Environmental Impacts of Shale Gas Extraction In Canada* (Council of Canadian Academies), 65.

²⁰ *Environmental Impacts of Shale Gas Extraction In Canada*, 64.

²¹ Conservation is the recovery of the gas for sale, fuel for production facilities, or injection.

incinerate much higher quantities of solution gas during fracturing and well testing.²² If multiple operations in a region are fracturing simultaneously, the cumulative production of air pollutants may result in nuisance or health issues in the surrounding population.

Because of its larger output, hydraulic fracturing can make production and recovery of oil (and other petroleum products) economic. This has made the Cardium formation underneath the Lochend region attractive to producers. The increasing number of hydraulic fracturing developments has raised concerns amongst landowners in this region beginning in late 2009.

In accordance with the AER's directives,²³ it appears that many of the wells in the area may have been authorized for routine flaring.²⁴ However, due to high numbers of complaints, several producers formed the Lochend Industry Producers Group (LIPG) to address concerns from the community. The group moved to construct a central pipeline that enabled producers to capture excess gas instead of flaring it. Many of the operators capturing and feeding the gas into this pipeline have exceeded their obligations under the Regulator's directives. Although the AER issued more licenses for the area in 2013 and 2014, this gas capture led to a dramatic reduction in the reported flaring and venting volumes over these years.²⁵

Activity has since dramatically reduced relative to previous years of activity. Due to the oil price crash that began in 2015, only seven new wells in the Lochend were drilled throughout 2015, and none in 2016.

²² Well testing follows after the fracturing process, and is undertaken to determine the potential production rates from the well.

²³ Directive 60 outlines a decision tree for methane capture, or "gas conservation". This Directive does not require operators to routinely flare or incinerate solution gas in quantities larger than 900 m³/day per site if, along with meeting other criteria, the company can show it is not economical to conserve excess natural gas from the oil producing well or oil battery. However, if the wellsite or battery is within 500 metres of a residence and produces more than 900 m³/day per site, the operator must conserve. Alberta Energy Regulator, Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting, Section 2.3 and 2.4.

²⁴ Figures 8 – 10 in the AER's Complaints Synthesis Report outline the gas production, flare, vent and conservation efficiency for wells in years 2010 through 2014. Figure 10 suggests that although many operators met the conservation efficiency target, some operators flared excessively, and had very low conservation efficiencies, suggesting routine flaring.

²⁵ *Complaints Synthesis Report*, Figure 7-12.

2. Human impacts of the industrial activity

Multiple health and environmental concerns are associated with hydraulic fracturing. The Council of Canadian Academies (CCA) completed an extensive report in 2014 that recognized several potential impacts on nearby communities as a result of hydraulic fracturing.²⁶ The CCA report affirmed that potential human health and environmental impacts are poorly understood due to a significant lack of commitment to monitoring and research in jurisdictions with hydraulic fracturing activity.²⁷ The CCA recognized that, despite claims otherwise, it would be inaccurate to state there are no proven or verified impacts of groundwater contamination from hydraulic fracturing, as the “extent of the risk... cannot be assessed because of a lack of scientific data and understanding”.²⁸

For example, the panel highlighted knowledge gaps about the use of carcinogenic chemicals in the fracturing fluids (as the contents of fracturing fluids traditionally did not have to be disclosed in jurisdictions with fracturing activity) and the risk associated with mixing fracturing chemicals.²⁹ This was in addition to gaps in understanding for potential human health risks associated with exposure to these fracturing fluids and drilling wastes; contamination of surface water and groundwater by flowback fluids; exposure to higher quantities of air pollution from well pad construction, completion, and increased truck traffic; and, psychosocial impacts from proximity to extensive development, including increased anxiety leading to physical symptoms.^{30,31}

In 2016, Concerned Health Professionals of New York & Physicians for Social Responsibility released a compendium of scientific, medical and media findings

²⁶ The Expert Panel on Harnessing Science and Technology to Understand the Environmental Impacts of Shale Gas Extraction, *Environmental Impacts of Shale Gas Extraction In Canada* (Council of Canadian Academies), 135.

²⁷ *Ibid.*, 146.

²⁸ *Ibid.*, 96.

²⁹ *Ibid.*, 139.

³⁰ *Ibid.* See 138, 141, 141, and 142, respectively.

³¹ The CCA report also recognized risks associated with seismic activity induced or triggered by fracturing, but this is outside the purview of our case study.

demonstrating risks and harms of hydraulic fracturing.³² This compendium highlights documented cases and peer-reviewed research of contaminated water sources, higher elevated levels of toxic air pollution and smog, and public health effects. The reports of human health impacts mediated through the environment by residents in the Lochend are consistent with these emerging findings of risks and harms of hydraulic fracturing.³³

2.1 Impacts to water

In the Lochend, many residents rely on groundwater for drinking water, bathing and washing for their families; for tending to livestock; and for producing food crops. Potential risks to potable groundwater associated with hydraulic fracturing come from “upward migration of natural gas and saline waters from leaky well casings, and possibly natural fractures in the rock, old abandoned wells, and permeable faults”.³⁴ There are also water contamination risks associated with fluid flowback, which may contain hazardous waste such as fracturing fluids, hydrocarbons including benzene and other aromatics, and leached constituents from the shale.³⁵ Reports by landowners in the Lochend of water well contamination and unusual surface springs were recognized in the Complaints Synthesis report. In both cases the AER or AEP concluded that these problems were unrelated to nearby activity.³⁶ However neither case included a pre-development baseline or water-monitoring program in the area that could help prove or disprove causal connection. This highlights the need for baseline testing in areas slated for development that is shared with or conducted with the Regulator, and thorough testing when potential issues are raised.

2.2 Impacts to air quality

Perhaps the most frequently raised issue in the Lochend is the impact of dense hydraulic fracturing development on air quality. Many operators in the region were exempt from capturing the natural gas (a by-product of the efforts of the oil production)

³² Concerned Health Professionals of New York & Physicians for Social Responsibility. *Compendium of scientific, medical, and media findings demonstrating risks and harms of fracking (unconventional gas and oil extraction)* 4th ed. (2016). <http://concernedhealthny.org/compendium/>

³³ *Ibid.*, 12

³⁴ *Environmental Impacts of Shale Gas Extraction In Canada*, xiii.

³⁵ *Ibid.*, xiv.

³⁶ *Complaints Synthesis Report*, 6.

due to the anticipated volumes of flaring and the economic costs of building the infrastructure to capture, store and transport the gas. The flaring of the mixture in the solution gas (including fracture fluids, benzene and other aromatics) presents additional concerns. There is very little public information about the health impacts of flaring or incinerating this mixture; of the chemical constitution of the fracturing fluids; and of the underground, geological chemical reactions and resulting products.³⁷ In the Lochend, residents were concerned that the contents of the fracturing fluid were not made public by any of the companies until significant public pressure was mounted for the companies to share on the chemical disclosure registry FracFocus.^{38,39} Residents were concerned that they weren't informed of chemicals that could pose additional risks to their health when flared or leaked.

During the first two years of rapid development in the Lochend field, enormous quantities of gas were vented and flared. According to residents, single drilling operations would sometimes flare for weeks on end during multiple fracs. As many operators were drilling in the same time period, this resulted in the flaring or venting of over 34 million m³ of gas in the Lochend in 2012 alone,⁴⁰ approximately 3% of all flaring in Alberta in this relatively small region and more than all the gas batteries in the province together.⁴¹ Figure 2 shows the intensity of flaring (excluding venting) in the Lochend region in 2012. The Lochend contains two of only 20 townships in the province where 5 million m³ or more of gas was flared annually.

³⁷ Environmental Impacts of Shale Gas Extraction In Canada, 146.

³⁸ Beginning in 2013, members of the LIPG post composition of hydraulic fracturing fluid on FracFocus. However, the contents of the fluids are only posted after the fracturing process is finished, so landowners are still unable to conduct their own baseline testing in line with what will be used B.C. Oil and Gas Commission, "FracFocus". <http://fracfocus.ca>

³⁹ Confidential verbal communication with landowners in the region.

⁴⁰ This number was calculated by the AER using the rough parameters of the Complaint Synthesis Report, and does not include townships north or west, which additionally flared large quantities of solution gas in 2012 according to the AER Annual Flaring Report, 2013. *Complaints Synthesis Report*, Figure 7, 26.

⁴¹ Alberta Energy Regulator, *ST 60B: Upstream Petroleum Industry Flaring and Venting Report for 2012* (2013). <http://www.aer.ca/documents/sts/ST60B-2013.pdf>

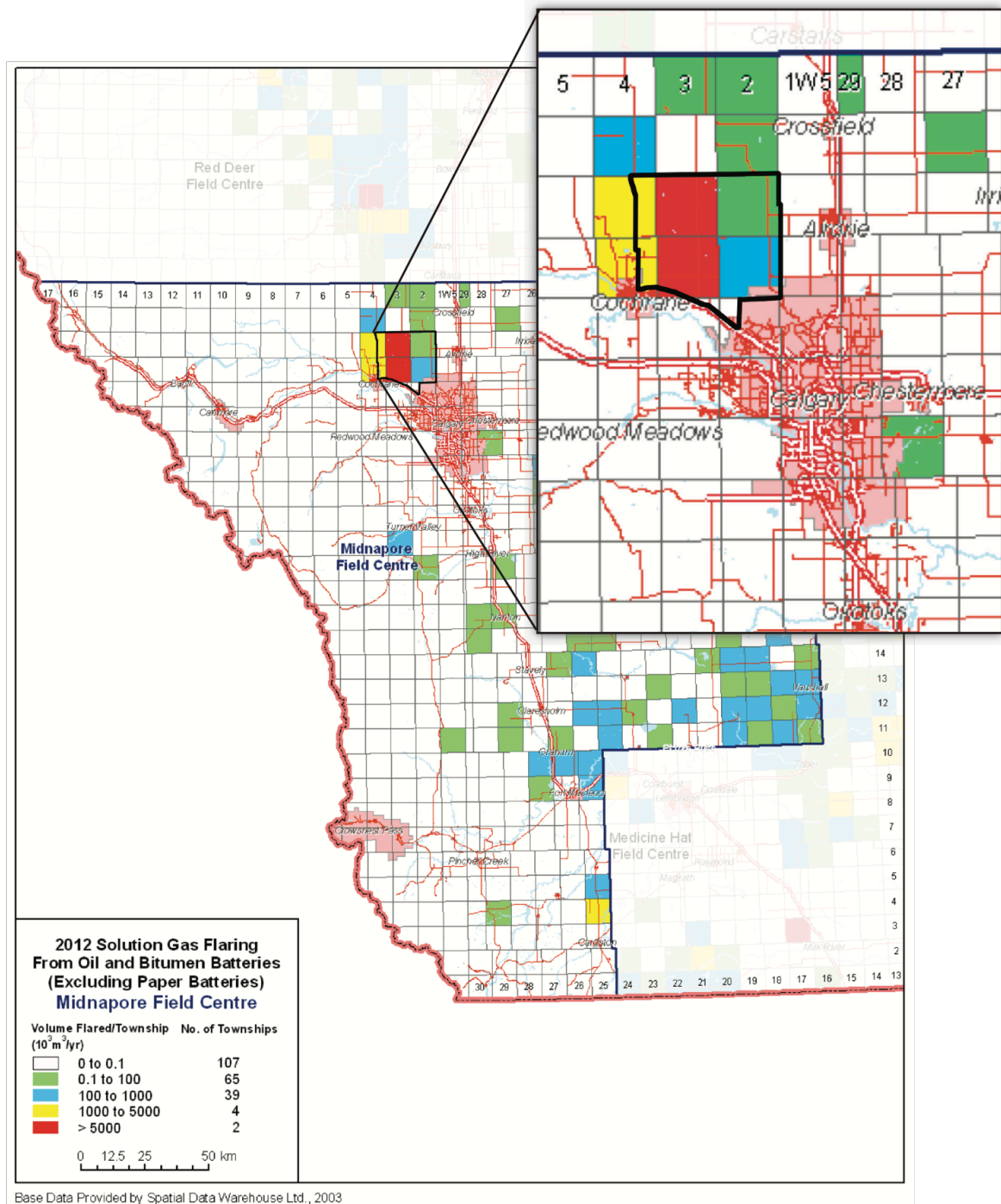


Figure 2. Flaring in the Lochend region

In 2012, the Lochend region contained two townships that flared between 1 and 5 million m³, and two that flared more than 5 million m³. Only twenty townships in the province flared more than 5 million m³ in 2012.

Source: Adapted from Alberta Energy Regulator⁴²

⁴² ST 60B: Upstream Petroleum Industry Flaring and Venting Report for 2012, 24.

In 2013, companies participating in the LIPG took voluntary actions to build a gas collection pipeline and replace flare stacks with incinerators, reducing the impact of development on local residents. The reduction in impacts was achieved as the collection pipeline enabled producers to capture much of the solution gas, while the incinerator lowered air emissions (relative to flaring) for gas that could not be captured. Compared to 2012, 2013 saw a dramatic reduction of approximately 15 million m³ in the amount of flaring and venting in the area.

2.3 Documented and reported impacts to human health

Reported symptoms resemble claims in other areas with dense hydraulic fracturing activity. While hydraulic fracturing activity has accelerated very quickly in Canada since 2009, rigorous scientific analysis around air and water contamination — and in turn health impacts — did not keep pace.⁴³ Only more recently have researchers begun to document reported symptoms in humans and animals living in settlements near hydraulic fracturing activity. These studies are not conclusive on the causal connection between hydraulic fracturing and health impacts, as they were intended to capture the potential or claimed impacts in order to direct further scientific study. They nevertheless demonstrate some consistency between communities around reported health effect experiences.

One study, looking at companion animals as sentinels for human exposure, conducted interviews in six different U.S. jurisdictions with hydraulic fracturing activity and documented a variety of symptoms exhibited in animals that were exposed to fracturing activity. In these companion animals, the most commonly documented symptoms related to reproduction (problems breeding, abortions and stillbirths), neurologic (seizures, incoordination, loss of body control), gastrointestinal (vomiting, diarrhea), and dermatological (hair loss, rashes). Additional to the symptoms of the companion animals, the authors also documented symptoms in the respiratory, gastrointestinal, dermatological, and vascular systems of some owners.⁴⁴

⁴³ *Environmental Impacts of Shale Gas Extraction In Canada*, xvii.

⁴⁴ Companion animals are defined as animals that were kept as pets, such as horses, dogs, cats, llamas, goats and koi. The authors summarized reported symptoms after exposures to ingested affected water from a well, spring, creek or pond. M. Bamberger and R. Oswald, “Impacts of Gas Drilling on Human and Animal Health,” *New Solutions*, 22 (2012), 61.

In the Lochend region, landowners have expressed major concerns about the type and quantity of development in their area, and the resulting impact this activity may have had on their health. Without adequate research and ongoing monitoring, concerned residents find it hard to substantiate their claims or identify correlations with nearby activity. Despite this, several families have been outspoken about the physical symptoms that began to appear as development intensified in the region without their knowledge or approval.

One family alleges that major nosebleeds, substantial hair loss, and respiratory problems began in 2010, approximately the time where hydraulic fracturing began to rapidly expand upwind from their property. They have had several blood and urine tests completed, and say they have tested positive for high levels of uranium.⁴⁵ They noticed that their symptoms were worse in the summer, when they spent most of their time outdoors tending to their property and animals.⁴⁶ This family also alleges their cattle have shown signs of sickness and distress during longer flaring events, and have aborted fetuses at a higher rate than years previous to development. Several cattle exhibited unusual signs of distress, sickness and eventual death; autopsies performed on these animals found abnormal results such as the presence of a gelatinous substance suggesting induced starvation that the owners attributed to contaminated drinking water.⁴⁷

Another family claimed to have suffered major symptoms after nine wells were drilled on the property across the road from their home. Within a month, several family members began to report debilitating effects including a chronic cough, short-term memory loss, ulcers, and fatigue. Their child suddenly became increasingly ill, missing significant amounts of school. The problems would disappear when the family left the area for extended periods of time, and appear again within a few days of being home. As their health diminished, the family proactively left the area for an entire season due to their concerns around health. One family member stated: “People thought I was exaggerating. But at times, I thought I would die.”⁴⁸

⁴⁵ The alleged traces of uranium may be associated with naturally occurring radioactive material (NORM), which may be a product of hydraulic fracturing when constituents are leached from the shale and are brought to the surface through flowback waste, according to the CCA report, which notes that risk associated with flowback is poorly understood. *Environmental Impacts of Shale Gas Extraction In Canada*, 49

⁴⁶ Confidential verbal communication with landowners in the region.

⁴⁷ The veterinarian for this family suggested this was caused by an imbalance of chlorides in the cattle’s drinking water, suggesting this induces starvation regardless of the diet of the animal.

⁴⁸ Confidential verbal communication with residents in the region.

These stories aren't unique. Multiple people in the area have complained of their hair falling out in clumps, chronic cough and nosebleeds, and unexplained rashes and skin lesions. Residents also point to instances of rare cancers amongst some of their neighbours, suspecting that these are related to development upwind.⁴⁹ They claim that many neighbours have mentioned experiencing their own health problems, but haven't been able or willing to speak out.⁵⁰

By 2015, according to residents, many symptoms that residents experienced have decreased or disappeared altogether. This timeline corresponds with far less development in the Lochend due to the falling global price of oil, and practices now implemented by Lochend producers for solution gas conservation. Only two new wells were completed and six wells were pending completion in 2015, relative to the 31 completed in 2012 when solution gas flaring was the highest.⁵¹

What is clear is that there are many in the Lochend who feel that their health has been compromised, and there is very little information in place to confirm if resident health is being negatively impacted by the rush of development in the area. In 2015, after several years of residents expressing concerns, the AER initiated an investigation in the Lochend to try and understand the cause of health complaints and their relationship to hydraulic fracturing flowback, a process that is still ongoing at time of writing. Since activity has slowed in the Lochend, the AER has begun to test the composition of hydraulic fracturing flowback in an area geologically similar to the Lochend. Potential health impacts are hard to understand when little about the composition of flowback is understood, specifically when flowback is then vented, flared or incinerated and subsequently becomes air emissions that residents may be exposed to. Residents have expressed concerns, however, that this testing has come well after potential impacts have been felt.

⁴⁹ According to residents in the Lochend, Alberta Health Services has been involved and has catalogued the amount of clinical visits from residents. Pembina reached out to Alberta Health Services for this report, but did not receive a reply.

⁵⁰ Confidential verbal communication with residents in the region.

⁵¹ As of November 2015. *ST 37: List of Wells in Alberta Monthly Updates*, spreadsheet, December 2015.

3. Failures in respecting, protecting and fulfilling human rights

The former Energy Resource Conservation Board, Alberta Environment, and the later established AER lack an effective framework to recognize or manage any risks associated with intensive and rapid development of hydraulic fracturing and newer technologies. As clearly demonstrated through the Lochend, historically and under the current regulatory framework there has not been enough baseline environmental data collected in much of the province to understand the impacts of rapid and intensive development on human health and environmental quality. This leaves the AER with little ability to assess and predict potential environmental issues before they arise, requiring a reactive management response when hot spots like the Lochend emerge and human and environmental health have already been compromised. Even if these impacts could be assessed in advance, the current approval system favours expediency over managing projects to prevent these harms from occurring.

3.1 Procedural history

Although there has been development in the Lochend as early as the 1950s, there is little indication that previous development in the area was of as great concern to landowners. Only ten complaints were made to the ERCB in the Lochend region from 2005 until the end of 2009.⁵² Of all documented ERCB hearings prior to 2009, only two involved the Lochend region.⁵³ There was notable opposition to a sour well licence in 1998, which resulted in a hearing and modification to the company's Emergency Planning Zone procedures and calculations.⁵⁴ Additionally, in 2007 there was a failed

⁵² Julia Fulford, AER, personal communication, January 15, 2016.

⁵³ Alberta Energy Regulator, "Decisions" (Applications and Notices). <http://www.aer.ca/applications-and-notice/decisions>

⁵⁴ Alberta Energy and Utilities Board, *Canadian 88 Energy Corp. Application to Drill a Level 4 Critical Sour Gas Well in the Lochend Field*, Decision 99-16, decision summary. <http://www.aer.ca/documents/decisions/1999/d99-16.pdf>

attempt to trigger a hearing for an expansion of the Cochrane Extraction Plant.⁵⁵ Many residents in the area indicated that they were not concerned about new developments when they began to appear, as the conventional wells in the area had not negatively impacted them in the past.⁵⁶ The first unconventional wells were drilled in 2009 and more were drilled in 2010,⁵⁷ and many residents at the time didn't think to be concerned.⁵⁸

Under the former ERCB and the current AER notification process, if a project is not on their property, residents are only notified about a project if they are within the area required for consultation and non-objection, or for notification. For example, before an application is submitted to the Regulator to drill a well, project proponents are only required to consult and receive a non-objection from people who are residents in a dwelling within 200 m of the well (or 300 m if the well is approved for continuous flaring), and notify landowners who have property within 100 m.⁵⁹ If the project contains an oil battery for the multiwell facilities, then residents within 500 m would be consulted and would have to confirm their non-objection to the project, and landowners within 1.5 km would be given notification.⁶⁰ Aside from these direct notifications, after projects are submitted to the Regulator, project applications are posted on the AER website, and may be circulated in a local paper in the area.⁶¹ Therefore according to the requirements set out by the Regulator,⁶² many of the residents who were outside of the narrow notification areas, but who were downwind of these wells, would have to know to look for these application notices. Otherwise, they would not know until they saw stakes in the ground or found out from neighbours.

Since 2010, a number of formal processes have been initiated by residents in this region. After a project is submitted to the Regulator but before it is approved, a resident can

⁵⁵ Alberta Energy and Utilities Board, *Inter Pipeline Extraction Ltd: Application to Amend Straddle Plant Licence No. 20329 Cochrane*, Decision 2007 -044. <http://www.aer.ca/documents/decisions/2007/2007-044.pdf>

⁵⁶ Confidential verbal communication with landowners in the region.

⁵⁷ *ST 37: List of Wells in Alberta Monthly Updates*, spreadsheet, December 2015

⁵⁸ Confidential verbal communication with landowners in the region.

⁵⁹ This includes single and multiwell pads, with no sour gas (H₂S) emissions. Alberta Energy Regulator. Directive 056: Energy Development Applications and Schedules (2014), Table 7.1.

⁶⁰ *Ibid.*, Table 5.1.

⁶¹ *Ibid.*, Section 2.

⁶² These are the only mandatory requirements according to Directive 056, but the Directive suggests for companies to complete more notification for projects that may be deemed more controversial.

submit a formal statement of concern (SOC). It is unclear how many SOCs were submitted in the Lochend,⁶³ but the Complaints Synthesis Report cites that the number received was higher than the provincial average during the period of 2009-2013.⁶⁴ If the resident has standing (i.e., they may be directly and adversely affected), and if the Regulator accepts the SOC (there are a number of provisions that allow the Regulator to dismiss the SOC or a concern within the SOC), hearings may be recommended at the discretion of the Regulator.⁶⁵ There have been two hearings related to development in the southern part of the area, resulting in well applications being denied.^{66,67} In the second hearing, concerns around the impact of flaring was discussed, with suggestions from the former ERCB that gas conservation should be considered over flaring.⁶⁸ Additionally, at least one legal proceeding was initiated by a resident in the area regarding the impacts of development on the health of the plaintiff and his wife.⁶⁹

As an alternative to hearings, the AER strongly encourages issues to be resolved through its Alternative Dispute Resolution (ADR) process. The ADR process can be initiated before an application is submitted to the Regulator, or any time after approval. It typically takes the form of private conversations between the resident and the company, facilitated by the AER. The process may be useful to resolve some private matters, but unlike a hearing, there are no formal requirements to trigger an ADR process, and it requires the cooperation of both parties to initiate and proceed. Additionally, it may prove problematic for issues that require discussing the acceptability of environmental effects and impacts on broader stakeholders who are not included in the dispute resolution process. Since this process typically remains

⁶³ The Regulator began publishing Statement of Concerns publicly in fall 2015, but previous records were not made public.

⁶⁴ *Complaints Synthesis Report*. 15

⁶⁵ Section 6(1) defines standing as available to someone who can adequately demonstrate they may be “directly and adversely affected” by an application. Section 6.2(1) and 6.2(1) defines circumstances where the Regulator cannot consider or disregard a statement of concern, including “any other reason the Regulator considers that the statement of concern is not properly before it.” Alberta Energy Regulator, *Rules of Practice* (2014).

⁶⁶ Energy Resource Conservation Board, *Application for a Well Licence Cochrane Area*. Decision 2011 ABERCB 033. (November 16, 2011).

⁶⁷ Energy Resource Conservation Board, *Review of Decisions to Rescind Pool Order 0593 106001 2009-09-01 and Issue Pool Order 0593 106001 2012-05-01*. Decision 2013 ABERCB 004. (April 4, 2013).

⁶⁸ These hearings were initiated by the same landowners and involving the same operator (the operator was not involved in the LIPG), and was not the subject of many of the issues identified by the landowners we spoke with,

⁶⁹ *Goodhart v Alberta Energy Regulator*, 2016 ABQB 469

confidential, little information is available regarding how the ADR process was used in the Lochend region, or who was involved. The AER has indicated that it (and its predecessor, the ERCB) has facilitated the process approximately seven times in the Lochend between 2010 and 2015.⁷⁰ Other affected landowners not in immediate proximity to development suggested that this process was not offered to them.⁷¹

After a project is approved, the only formal routes left for residents in the area is the aforementioned ADR process, or a formal complaint issued against a specific project. When development began to rapidly grow in the area, many residents felt they were not made aware about the number of slated developments; indeed, even if they were notified about one project, companies were not required to notify residents about other projects.⁷² Residents also felt they weren't made aware of the differences between conventional development, which had been occurring in their community for decades, and newer multistage horizontal fracturing development.⁷³ Having learned about both the pace and type of development only after development was underway, residents had very few formal routes to raise their concerns. This corresponds with the higher-than-normal number of complaints registered by the AER (and its predecessor the ERCB). According to the Regulator's Complaints Synthesis Report, 30 members of the public reported a total of 56 complaints to the AER in the Lochend region between January 2010 and early 2015.⁷⁴

Most complaints focused on air quality (such as emissions from flaring and odours from well sites), water contamination, and hydraulic fracturing concerns. Many of the complaints were described by the AER as 'general in nature', not referring to specific wells or operators in the region.⁷⁵ These included residents' concerns regarding human health impacts and cumulative impacts of being downwind of several extended flaring projects, impacts of hydraulic fracturing on neighbouring water wells, and impacts to

⁷⁰ Fulford, personal communication. January 2016.

⁷¹ Confidential verbal communication with landowners in the region.

⁷² In fall 2014, LIPG began issuing community update newsletters, which outlined the number of proposed developments in the area.

⁷³ Confidential verbal communication with landowners in the region.

⁷⁴ This total number only includes complaints registered by the former ERCB and the AER, and does not include additional complaints made to the former Alberta Environment and Sustainable Resource Development ministry. There are indications of at least an additional seven water well complaints not included in this count.

⁷⁵ *Complaints Synthesis Report*, 3.

livestock.⁷⁶ However, due to the fact that many of these concerns arose from being impacted by multiple projects instead of a site-specific project, they couldn't be attributed to specific incidents of non-compliance, and no immediate mechanism for action to address these issues was available.

The AER published its Complaints Synthesis Report in July 2015 as a response to the higher-than-normal number of complaints from residents in the Lochend. In this report, the AER acknowledged a gap in understanding regarding impacts from flaring events in the initial stages of hydraulic fracturing activity. The Regulator is in the middle of reevaluating its complaint process.⁷⁷

3.2 Failure to recognize and measure risks and harm

With little environmental baseline data and monitoring of the biodiversity, air quality, or groundwater in the Lochend prior to 2009, an understanding of the environmental quality in the area was not established, which compromised the regulator's ability to monitor any relative changes with the rapid development. As development ramped up and concerns began to mount, there is little evidence that the ERCB, Alberta Environment and later the AER conducted ongoing environmental monitoring to assess when ambient environmental standards were exceeded, or to monitor trends that could have had negative effects over the long term.⁷⁸ Without baseline data and ongoing monitoring, there is little mechanism to track correlations between air quality, health issues and industry activity.

This shifts the burden of monitoring, evidence and causation of environmental changes from industry, government and the Regulator onto landowners and nearby residents. Residents could pay for groundwater testing themselves, but a comprehensive analysis could cost hundreds or thousands per test, and would still not necessarily detect the presence of fracturing fluid components.⁷⁹ It is practically impossible for residents to

⁷⁶ It is unclear whether all concerns of a general nature were recorded in the Field Inspection System and included in this report, as some may not trigger an investigation.

⁷⁷ *Complaints Synthesis Report*, iii.

⁷⁸ Since most recent developments in the Lochend are licensed as non-H₂S wells, these licensees do not require ongoing air monitoring or testing on well sites. *Complaints Synthesis Report*, iii.

⁷⁹ Operators are not required by the Regulator to disclose the chemicals additives or other substances in their fracturing fluids. Operators in the Lochend eventually began to voluntarily disclose this information

firmly establish that there is a problem with the quality of their environment, and that it is related to the development in their area without baseline environmental data and an understanding of complex environmental problems. Their symptoms and health problems, although seemingly found across many hydraulic fracturing areas,⁸⁰ are reduced to anecdotal stories.

After several years of complaints from landowners about air quality, Alberta Environment and Sustainable Resource Development (now Alberta Environment and Parks) investigated air quality for two days in August 2013. The AER reported in their Complaints Synthesis Report that although in two instances hydrocarbon levels were above the provincial average, they did not exceed ambient air quality objectives.⁸¹ However, flaring and venting events in 2013 were approximately half as frequent as they had been in 2012.⁸² As a result, air quality results from 2013 would not be representative of the air quality conditions that residents were exposed to for the previous three years.⁸³ Air quality analysis should instead have been conducted in earlier years when the majority of operators were permitted to flare for extended periods at a time, and should have been conducted on frequent basis.

3.3 Failure to recognize and address cumulative impacts

Landowners expressed frustration over the disconnect between their concerns and symptoms, and the Regulator's findings after reviewing complaints in the area. They felt that their complaints about air quality could not trigger action to address the problems caused by multiple operations, because the AER's directives are project

in 2013, after numerous complaints from residents and after many years of hydraulic fracturing in the area. However, residents complain that this data is only available on the Frac Focus website after drilling operations are complete, which won't allow any preemptive baseline testing to occur as residents would not know what to test for. BC Oil and Gas Commission. "Frac Focus: Chemical Disclosure Registry." <http://fracfocus.ca/>

⁸⁰ *Compendium of scientific, medical, and media findings demonstrating risks and harms of fracking (unconventional gas and oil extraction)*, 14.

⁸¹ The Pembina Institute contacted AEP for the data associated with the testing, but it was not available at the time.

⁸² This data does not include additional flaring in townships north of the AER's defined area of the Lochend. *Complaints Synthesis Report*, Figure 7, 26.

⁸³ Beginning in 2013, flaring and venting was reduced through a few industry efforts to invest in a shared gas collection system.

specific and the regulator had no regulatory mechanism to categorize the cumulative effects. Consequently, the majority of the complaints that triggered some form of an investigation were those that could point to a specific concern regarding a specific operator. In approximately 36 inspections in 2011,⁸⁴ the former ERCB found no instances of non-compliance.⁸⁵ Moreover, over five years, the Regulator recorded only six instances of non-compliance, but the findings of non-compliance were not in line with the concerns of the community that triggered these inspections. Two notices of non-compliance were issued by the ERCB and AER relating to air quality, but one identified administrative errors while the other cited an exposed flame from an incinerator.⁸⁶ The other four issues of non-compliance were unrelated to air quality concerns, even if the complaint that triggered the inspection was.⁸⁷

This highlights a major gap in the AER's ability to quantify impacts across multiple projects. The AER's directives acknowledge that flaring and venting by a single operator for any significant time or amount can have negative impacts on both to human health and to the environment. Because of this, the AER often requires individual projects to reduce or eliminate routine flaring when operations are near residents.⁸⁸ However, there is no mechanism in place to measure the cumulative impacts across many licences. This leaves the Regulator in the dark as to how these cumulative impacts may affect the health of nearby landowners. Under current regulations and practice, all operators in an area could be compliant, yet major negative impacts could still be felt by nearby residents. The regulations are blind to what should matter the most: protection of nearby citizens and the local environment.

3.4 Failures of procedural rights

Without an effective framework to measure the impacts of this development on their health, residents may decide to take action. However, major procedural issues have hampered Lochend residents' ability to protect their health: every process available to landowners to have their concerns heard has proven ineffective in triggering an

⁸⁴ This number was at least three times the number of inspections conducted in any other year in the Lochend, as a response to a high number of complaints in the region. *Complaints Synthesis Report*, Figure 4.

⁸⁵ *Complaints Synthesis Report*, 8.

⁸⁶ An exposed flame above an incinerator suggests an incomplete burn of solution gas, which could potentially result in odour and air quality issues.

⁸⁷ *Complaints Synthesis Report*, 8.

⁸⁸ Alberta Energy Regulator, Directive 060 (October 2015). Section 2.6.

appropriate response. These procedural issues remain, and since the creation of the AER, in some cases procedural processes have become more restrictive for residents' concerns than in the former environmental regime under the ERCB and Alberta Environment.⁸⁹

Notification for a proposed project

It is hard for residents to find out about a proposed project that may impact them if they do not reside within the notification distance.⁹⁰ Actively concerned residents who were aware of development in the Lochend had trouble finding out when projects were being approved upwind from them as they were not within the notification distance required by the Regulator.⁹¹ One resident of the Lochend stated: "I only know a project is underway when I see the stakes in the ground. I don't even have the right to know if my health could be impacted." Although information is posted on the AER website, this information portal is generally hard to navigate which may make relevant application information relatively inaccessible to the public, especially for rural residents with slow internet access. The AER website lacks any form of automatic notification process, so unless informed in person or by word of mouth, a resident must actively check the AER's notice of application webpage after the project has been submitted to the AER for approval.

Project proponents are only required to notify residents within certain distances of the project, depending on the parameters of the project.⁹² In some cases this may only include landowners within 100 m.⁹³ Although the company is required to contact those outside this range whom it knows may have concerns, residents are unlikely to know about a project in advance in order to express their concerns. Figure 3 shows the complaints registered in the Lochend from 2009 until 2015, relative to the 200 m

⁸⁹ Nikki Way, Adam Driedzic, Duncan Kenyon, *Standing at Energy Regulators in Alberta* (Pembina Institute, 2017). <https://www.pembina.org/pub/examining-standing-alberta-s-energy-development>

⁹⁰ For example, the operator may only be obligated to publish a notice in one local newspaper, or on the AER website. Alberta Energy Regulator, *Rules of Practice* (2014) s. 5.1.

⁹¹ For many of the non-H₂S designated multi-well pads, residents within 200 m would be consulted, and landowners within 100 m would be notified. For a multi-well oil battery, residents within 500 m would be consulted, while occupants within 1500 m would be notified. However, most of the emissions that would be a concern for Lochend residents would be a result of the well testing phase, when batteries and facilities would likely not be constructed yet. See Table 7.1, Table 5.1, respectively. Alberta Energy Regulator, Directive 056: Energy Development Applications and Schedules. Table 7.1, Table 5.1.

⁹² Directive 056: Energy Development Applications and Schedules (2011). Tables 5.1, 5.4, 6.1, and 7.1.

⁹³ For example, a project proponent is required to notify landowners of property within 100 m of a proposed non-sour single or multiwell pad, although a resident within 200 m must be consulted. See table 7.1. *ibid.*

notification and consultation requirement for non-sour single or multi-well pads. In many cases, there are multiple complaints up to 5 km away, with even a few complaints up to 7.5 km away. This suggests that the notification ranges may not adequately capture residents who may be negatively impacted by these projects.

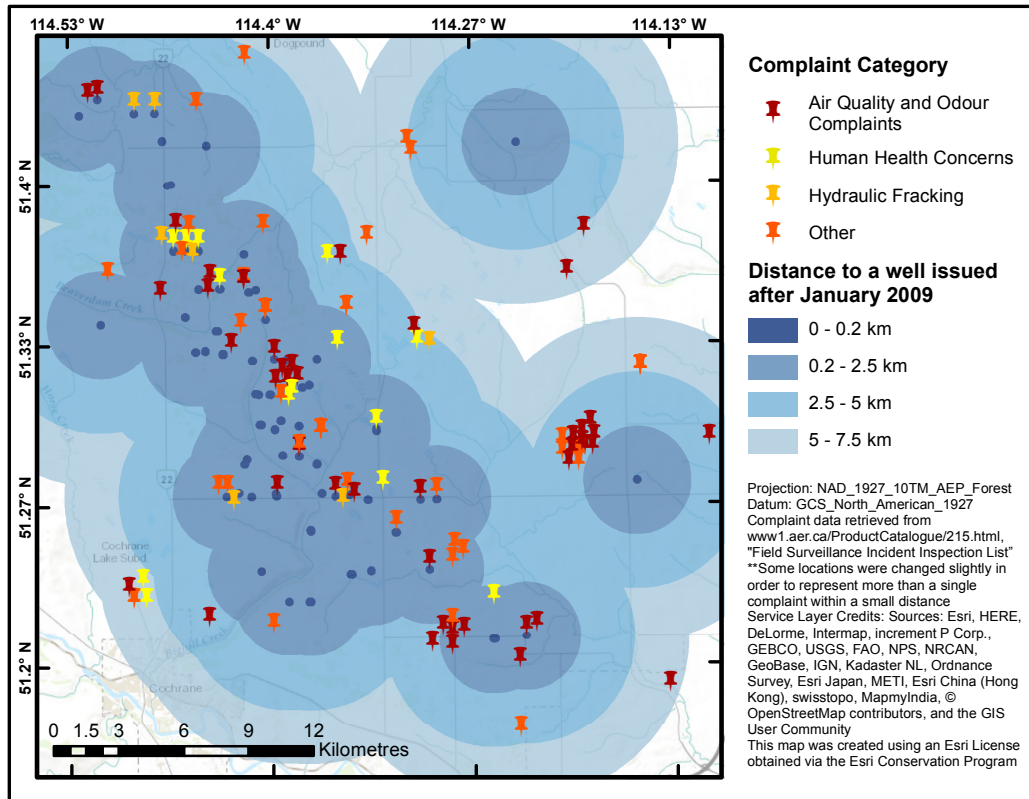


Figure 3. Spatial correlation between complaints and the location of well sites.

Dark blue dots represent the well location and a 200 m buffer from the well site boundaries, the distance operators are required to notify landowners or residents about an well application. Many residents and landowners fall outside this 200 m consultation distance. Clusters of pins are distributed to represent multiple complaints from the same location. Calculated using data from the Alberta Energy Regulator⁹⁴

Regulatory process

Traditionally, residents can formally object to a license or approval near to them through a hearing process. If they submit a Statement of Concern (SOC) within the time designated by the Regulator, they can trigger a regulatory hearing involving themselves and the licensee. This can result in a lengthy and costly process for all parties, with the possibility but not certainty of intervener funding to cover costs.

⁹⁴ Data provided by the Alberta Energy Regulator, February 2016.

After an application is submitted to the Regulator for approval, a decision can't be made on the application until the filing deadline for a statement of concern has passed, sometimes thirty days after the notice of application is publicized.⁹⁵ However, the AER's Rules of Practice outline exceptions that expedite a project approval, such as when a project is deemed "routine".⁹⁶ Among other things, if a project applicant has fulfilled all the requirements for its participant involvement program and it doesn't believe that there are outstanding concerns, it may be allowed to submit a routine application.⁹⁷ This could result in a decision by the Regulator within a few days (instead of the usual timeline for filing a statement of concern) and the SOC may be dismissed. Although this was outside the scope of this analysis, it is likely that a number of projects within the Lochend may have been expedited, providing little opportunity for residents in the area to file a statement of concern.

If a person files an SOC before the filing deadline, and a decision hasn't already been made, the Regulator will typically only accept an SOC if the AER finds that they "*may be directly and adversely affected*". This is a vague test for participation and one that the AER interprets narrowly, potentially excluding people who are adversely affected but who cannot establish a direct link by the AER's standards. Decisions that apply this standard for participation frequently cite distance from proposed projects as relevant — perhaps determinative — of participation. In the Lochend, residents who considered themselves adversely affected by every new project, but who did not live immediately within the vicinity of a project, were not allowed to participate in hearings. Additionally, the AER's "directly and adversely affected" test does not traditionally provide grounds to consider cumulative impacts, as decisions are to consider the impacts of the project alone.⁹⁸ Therefore, concerns about the marginal effects of each new project approval and their contribution to a larger cumulative problem still provided residents with no grounds for objection as each individual project was assessed to be compliant.

Two other regulatory mechanisms for a person to raise their concerns are even more inaccessible than filing an SOC. If a project has been expedited and a decision has

⁹⁵ Government of Alberta, *Alberta Energy Regulator Rules of Practice*, Alta Reg 99/2013, s. 5.2(1)

⁹⁶ *Alberta Energy Regulator Rules of Practice*, s. 5.2(2)(a)

⁹⁷ In order to be submitted as routine, the application must meet all participant involvement program criteria (such as no outstanding issues or concerns), not require regulatory or technical relaxation, or be designated by the AER as non-routine. Alberta Energy Regulator, Directive 056: Energy Development Applications and Schedules, 2011. s. 3.8.1

⁹⁸ Environmental Law Centre, *Standing in Environmental Matters* (December 2014), 55.

already been made by the AER, a person’s most accessible method of raising a concern is to file a regulatory appeal. The standard for an appeal, however, is that a person “*is directly and adversely affected*”. As “*may be*” directly and adversely affected has a lower standard of evidence, the higher standard of “*is*” directly and adversely affected further narrows a person’s ability to have their concerns considered, as they have higher evidentiary burdens to overcome. Applying for a reconsideration is another regulatory mechanism that may be used if it becomes apparent that an approved project is having effects. However, the legislation enabling it is vague, allowing for a highly discretionary process that is inaccessible and rarely applied.

The Alternative Dispute Resolution (ADR) process, as outlined in Section 3.1, is perhaps the most accessible avenue for individuals to negotiate with companies directly, and perhaps negotiate compensation for potential or proven damages. Often it is encouraged by the AER as an alternative to a regulatory hearing, as it can result in lower costs and shorter timeframes. No other parties are included in the process, such as interveners who traditionally play a role informing regulatory hearings. As the ADR process is not a formal regulatory route, it is unclear who is eligible to trigger the process. Landowners interviewed from the area indicated that although they were aware of this process, it was never made available to them, or they were not willing to participate due to the confidentiality requirements associated with the process.

Additionally, it is the AER’s practice to keep all ADR records confidential, including any disclosure in following regulatory hearings.⁹⁹ Since there is no public record of damages or concerns, it fails to create precedent or inform other residents about problems their neighbours have experienced with development. Many landowners interviewed for this case study expressed that they suspected there were additional contaminated wells beyond those publicly acknowledged in the Complaints Synthesis Report, but these were not on the public record due to confidentiality clauses in the ADR process.

Complaints process

The complaints process has failed residents of the Lochend. It is clear that the AER is capable of addressing issues of non-compliance when they are project specific and related to particular instances of non-compliance. However, the AER lacks directives and regulations to recognize and respond to concerns about regional, cumulative impacts. Over the years, the LIPG responded with voluntary actions to reduce their impact, and the AER was involved in brokering some of these initiatives, but these

⁹⁹ Alberta Energy Regulator, *Rules of Practice* (2014) s. 7.7.

actions are not required by the Regulator and have not been adopted by every operator in the area. Specifically, due to weak directives on this front, there are regulatory gaps that leave residents vulnerable to potential health impacts, with no mechanism to trigger timely action to mitigate these impacts.

The AER's Complaints Synthesis Report acknowledged a gap in its complaint process, and has indicated it is developing a new system for handling multi-stakeholder, multi-year concerns.

4. Conclusion

In the absence of a system of meaningful procedural fairness and with inadequate systems to measure and mitigate risks, rapid development of hydraulic fracturing activity in the Lochend has very likely negatively impacted residents and led to an infringement of currently held charter rights.

The AER's mandate is to “provide for the efficient, safe, orderly and environmentally responsible development of energy resources in Alberta”.¹⁰⁰ Although the AER is not the health regulator of the province, its jurisdiction is to manage the development of the energy industry. As the AER is not a health expert, it is not expected that it should diagnose health issues. Instead, the Regulator should be proactive in assuring that energy development does not compromise the health and environment of Albertan's. This would require baseline data about the communities that could potentially be impacted, ongoing environmental monitoring to measure impacts, and a regulatory ability to mitigate impacts. Additionally, to be aligned with the principles of fundamental justice, it would require more procedural fairness such as providing the opportunity to influence decisions that may impact them.

Since the Complaints Synthesis Report was completed for the Lochend, a few processes have been initiated that have the potential to begin to address some of these concerns highlighted above, if implemented effectively and efficiently. In response to some of the questions raised in the Lochend, the AER has begun to assess the impacts of hydraulic fracturing flowback on human health, initiating a process in mid-2016. In addition to the conclusions of their findings, what remains to be seen is how the AER will learn from the the Lochend to be proactive when there remains much uncertainty about potential human health impacts.

The AER has begun to assess how cumulative effects may be managed and addressed, but until this process is implemented and assessments are integrated back into decision-making on approvals, the regulatory process will still continue to contribute to impacts on currently held charter rights.

The AER is also testing new “enhanced” public engagement processes that would be more inclusive; these would enable stakeholders who materially assist the AER in its

¹⁰⁰ Government of Alberta, *Responsible Energy Development Act, SA 2012 c R-17.3. s2*

review to participate even if they would not meet the strict application of the “directly and adversely affected” test.

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