

# City of Lethbridge Community Issues

## Committee Meeting, February 24, 2014

### Questions & Answers

#### Questions sent to the AER from the City of Lethbridge

**Q1. What kind of impact does urban drilling have on property values in areas around drilling sites?**

A1. The AER acknowledges that there are concerns regarding property values that resonate with landowners in other areas of the province. The AER considers property values a matter of compensation, and as such is not within the regulator's jurisdiction. The Surface Rights Board is able to assist landowners with issues related to compensation.

**Q2. How is waste water from drilling handled?**

A2. The AER has multiple rules in place to ensure that drilling waste is managed in a safe and responsible manner. The AER promotes reduction of waste and the principles reuse, recycle, reduce, and recover through a combination of requirements and site-specific approvals. Drilling fluids are subject to *Directive 050: Drilling Waste Management*, and fracture fluid flowback is considered oilfield waste, subject to *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry*.

Companies must assess their waste prior to disposal to ensure that the selected disposal method is appropriate. In addition, companies must submit information related to drilling waste to the AER to ensure compliance with its rules. This includes the volume and types of waste, as well as management method used. Monitoring and reporting are key components of oilfield waste management in Alberta.

**Q3. Can oil and gas deposits within urban areas be accessed by drilling operations outside of the urban area?**

A3. Advancements in drilling technology offer more opportunities to reduce surface impacts. There are technical and economic considerations that may limit the horizontal reach, depending upon the geography of a certain location. Drilling options and other mitigation measures should be part of any preapplication discussion. Please refer to the EnerFAQs *Proposed Oil and Gas Wells, Pipelines, and Facilities: A Landowner's Guide*, available at [www.aer.ca](http://www.aer.ca).

**Q4. How is the AER funded, how is the AER board appointed, and to whom is the AER accountable?**

A4. In its 2013 budget, the Government of Alberta announced that the AER would be funded entirely by industry, a model used by other regulatory agencies throughout North America, such as the Alberta Utilities Commission and the BC Oil & Gas Commission. The AER's budget is established through a formal process between the Government of Alberta and the AER. Once the AER's budget is approved by the Government of Alberta, the amount is collected by the AER through an administrative fee.

The AER is responsible for policy assurance, meaning setting rules and requirements for conducting activities related to developing upstream petroleum resources, based on legislation developed by the Alberta Government. As such, the AER is accountable to the Government of Alberta to uphold these rules and requirements.

**Q5. What is the probability of urban residents being exposed to hydrogen sulphide, sulphur dioxide, or other emissions from urban oil or gas wells?**

A5. There is no evidence that would suggest elevated H<sub>2</sub>S levels; however, all applications to the AER to drill oil or gas wells must take into account the possibility of encountering sour gas. If the AER's first evaluation shows that there may be H<sub>2</sub>S, then the application is examined further.

The AER considers the following two major criteria to determine if a sour well is to be classified as critical: the distance of the well from an urban centre or public facility, such as a major recreational facility, and the potential H<sub>2</sub>S release rate during the drilling stage.

The potential H<sub>2</sub>S release rate is determined by both the percentage of H<sub>2</sub>S in the gas and the rate at which H<sub>2</sub>S can be delivered to the surface. This is measured in cubic metres per second at standard pressure and temperature.

For example, a well may have both a weak flow of gas with only 1 per cent H<sub>2</sub>S content but still be critical if it is close to a town. But a gas well with 10 per cent H<sub>2</sub>S content that is located in a remote location without people nearby might not be classified as critical.

Setback distances, or how far a well must be from a residence or urban centre, are determined by H<sub>2</sub>S release rates. If necessary, setback distances may be increased due to the type of development. Please refer to the EnerFAQs *Explaining AER Setbacks* for more detail.

**Q6. What are the main criteria that the AER considers when deciding whether to approve drilling applications in urban areas? What status or representation, if any, is granted to municipal governments and city residents in these decision processes?**

A6. There are a number of criteria that would be considered in the processing of an application located within an urban boundary. One such consideration is the setback for the well and associated pipelines and surface equipment, or how far it must be from a populated area to ensure public safety. This is based on a number of factors, including release rate from the well and H<sub>2</sub>S content. How densely populated the area around the well is also a factor in determining the setback. Please refer to the EnerFAQs *Explaining AER Setbacks* for more detail.

Anyone who believes they may be directly and adversely affected by an energy resource application can submit a statement of concern to the AER. This includes municipal governments and city residents. The AER will review your concerns and the relevant application to decide whether a hearing or other AER process is needed. Please refer to the EnerFAQs *Expressing Your Concerns – How to File a Statement of Concern About an Energy Resource Project* for more detail.

**Q7. When considering applications, what is the range of conditions that can be imposed? How are those conditions determined, and how are they ultimately monitored?**

A7. When submitting an application, the information a company gives must include details about how and why it chose proposed locations for any wells, pipelines, facilities, or access roads and what to expect in terms of equipment use and operations during the production phase. Public notices of application will be posted on the AER website, and landowners may file a statement of concern to an application.

A condition is a requirement of the AER that it includes in a licence, approval, or permit. A condition adds to or expands upon existing AER guidelines or requirements. Generally, conditions are imposed by hearing panels and listed in the related decision report.

An example of a condition is requiring an operator of a pipeline on private property to mark the pipeline locations at each existing fence line and provide the landowner with an accurate drawing showing all pipeline rights-of-way on the property and the location of the pipeline within the rights-of-way.

Since conditions typically form part of an AER approval and are an extension of the powers granted to the AER by government acts and regulations, the AER has the authority to enforce a breach of a condition. A company must comply with conditions or it will be in breach of its licence, approval, or permit and be subject to enforcement action

by the AER. Enforcement of a licence, approval, or permit includes enforcement of the conditions of that approval.

The AER lists additional conditions in decision reports to ensure that the decision and the reason why it made its decision are clear. If the AER decides to attach conditions to a licence, approval, or permit, the decision report will explain the circumstances that led the AER to include these conditions. Similarly, if the commitments made by a party have influenced the AER's decision, it will record these commitments in the decision report.

**Q8. How close does the AER allow drilling operations to be located to homes?**

A8. A setback is the absolute minimum distance that must be maintained between any energy facility (e.g., a drilling or producing well, a pipeline, or a gas plant) and a dwelling, rural housing development, urban centre, or public facility. Setbacks vary according to the type of development and whether the well, facility, or pipeline contains sour gas. Minimum distances are risk based and would vary from a minimum of 100 metres for a level-one sweet gas well to 1.5 kilometres for a level-3 sour gas well.

(Refer to EnerFAQs *Explaining AER Setbacks*.)

**Q9. Under AER regulations, what are an exploration company's responsibilities regarding emergency response plans (ERPs)?**

A9. Licensees have a responsibility to ensure that they are fully prepared and capable of responding to any level of emergency. Emergency preparedness and response includes all activities done prior to an emergency so that designated personnel are ready and able to respond quickly and appropriately, as well as those activities that take place during the incident. This includes activities such as

- identifying hazards,
- preparing and maintaining ERPs and response procedures,
- ensuring that ERPs identify sufficient resources and equipment for use by response personnel during an emergency, and
- designating response personnel and ensuring that they are suitably equipped to carry out their duties through training, drills, and exercises.

**Q10. In the event of an emergency at an urban well site, who is responsible for issuing an evacuation order for nearby residents?**

A10. If an incident occurs, an operator must be prepared to respond quickly and effectively to protect the health, safety, and welfare of people and limit damage to property and the environment. Should an operator be inadequately prepared or incapable of handling an

incident, the AER has staff trained in emergency response, environmental protection, air quality, and investigation who are able to assume control of response activities.

(See *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry* for more information on public protection measures.)

### Questions asked of the AER at the event

**Q11. You claim no liability for groundwater contamination due to fracturing; “No duty of care” is your wording. Do you claim duty of care for us? For crops? For our river?**

A11. In Alberta, most horizontal multistage fractured wellbores are hundreds or thousands of metres below usable groundwater aquifers. Any vertical fractures that occur as a result of hydraulic fracturing are generally in the range of tens of metres and rarely up to 200 metres, making it extremely unlikely for fractures to impact groundwater.

The AER’s regulatory requirements are designed to prevent any fluids used in drilling or completion operations, including hydraulic fracturing fluid, from mixing or entering groundwater or surface water regardless of whether or not it contains toxic chemicals.

The AER has very strict requirements for cemented casing in wells (wellbore construction includes the use of steel casing that is cemented into the wellbore) to provide a barrier between the wellbore and any nearby water sources.

With the proclamation of phase 3 of the *Responsible Energy Development Act* on March 29, 2014, the AER also became responsible for preventing and mitigating the environmental impact of development related to oil and gas, as stated in *Environmental Protection and Enhancement Act*.

**Q12. Are there not places left to drill in Alberta other than urban centres? It seems a risky practice that will allow zero errors.**

A12. If an energy company holds the mineral rights, the company has the right to explore subject to the rules and regulations of the regulator. Public safety is the primary aim of these requirements, which must be followed regardless of a drilling operation’s location or proximity to an urban centre. Early engagement with landowners and residents help to identify local considerations that must be addressed in project design and evaluation of potential impacts. In addition, the AER has stringent rules on where a well can be drilled with respect to populated areas. Alberta Energy is responsible for the tenure of mineral rights in Alberta.

**Q13. As I understand it, these will be oil wells with gas in solution. What are the prospects for dangers of flaring, bad smells, and other kinds of air pollution as compared to natural gas wells? If there are potential for these things, what safeguards will be put in place to prevent and mitigate them?**

A13. Currently, there has been no application submitted to the AER. The AER does not allow any off-lease odours as per *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*. The company is expected to put measures in place to prevent this from occurring. In the event this does occur, the company could be found in noncompliance, and enforcement action could be taken.

**Q14. We know about the potential risks and dangers for horizontal drilling and multistage fracturing. How does this compare to the type of drilling and fracturing that will be done in Lethbridge? Should we have the same kind of concerns about groundwater protection and earthquakes? Why or why not?**

A14. The size of hydraulic fracturing operations can have a wide range. Potential impact depends on the type of fracture and varies with rock properties. As such, it depends on where potential development is located in Lethbridge. *Directive 083: Hydraulic Fracturing – Subsurface Integrity* strengthens existing regulations to ensure wellbore integrity during hydraulic fracturing operations.

The information provided by the company in open houses shows a conventional well type drilling and completion with a single fracture. All wells must ensure wellbore integrity, and the AER has strict rules, developed over several decades, to ensure this. The AER's regulatory requirements are designed to prevent any hydraulic fracturing fluid from mixing or entering groundwater or surface water regardless of whether or not it contains toxic chemicals. The AER has very strict requirements for cemented casing in wells (wellbore construction includes the use of steel casing that is cemented into the wellbore) to provide a barrier between the wellbore and any nearby water sources.

In Alberta, the risk of a major geological fault or seismic event is extremely low. The Alberta Geological Survey (AGS) is currently surveying and tracking all microseismic events that occur. The natural risk of earthquakes along natural faults in Alberta is relatively low due to the geology, but small earthquakes occur naturally and regularly in Alberta; they are just too small to be noticed. Hydraulic fracturing in areas of natural prestressed faults can trigger earthquakes, but so far the AER has observed they fall within the range of expected magnitudes that cause no damage and cannot be felt. Despite this, the AER is tracking this activity to see if anything would cause us to think differently as fracturing increases over time and in different areas of the province. Groundwater is protected by proper wellbore completion techniques and is not put at more risk by whether a well is fractured or not when done in compliance with regulations and good drilling practice.

**Q15. Is the city council inclined to have the city provide the water for these operations? Where will the water come from if the city does not provide it? What will be done with the wastewater afterwards?**

A15. The company has several choices. It may access nonsaline water resources or other alternatives if feasible. It may access nonsaline water through holders of existing water diversion licences. The company may also obtain access to nonsaline water through temporary water diversion licences. Environment and Sustainable Resource Development (ESRD) will continue to set policy on water allocation in the province.

Drilling fluids from are subject to *Directive 050: Drilling Waste Management*, and fracture fluid flowback is considered oilfield waste subject to *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry*. Companies must assess their waste prior to disposal to ensure that the selected disposal method is appropriate. In addition, companies must submit information related to drilling waste to the AER to ensure compliance with its rules. This includes the volume and types of waste, as well as management method used. Monitoring and reporting are key components of oilfield waste management in Alberta.

**Q16. What happens in the event of an emergency? A pipeline leak? A spill? Will there be any potential for necessary evacuation of homes and businesses?**

A16. The AER is committed to protecting the public and the environment and it monitors and responds to energy-related incidents 24 hours a day, 7 days a week. AER staff assist, coordinate, and support the activities of the operator, as well as the local municipal authority and other provincial and federal responders, to ensure a coordinated, effective response and to ensure AER requirements are followed. If an incident occurs, an operator must be prepared to respond quickly and effectively to protect the health, safety, and welfare of people and limit damage to property and the environment. Should an operator be inadequately prepared or incapable of handling an incident, the AER has staff trained in emergency response, environmental protection, air quality, and investigation who are able to assume control of response activities. Refer to *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry* for more information on public protection measures.

**Q17. After fracturing, does the land above the fractures heave or sink short term? Long term, as the water and liquids migrate and recede, is there any subsidence at surface level?**

A17. Fracturing at depth would not be expected to have any impact on surface heave or sink. The AER has not seen surface heave or subsidence around fracturing at depth in hydraulic fracturing operations. The volume change associated with fracturing and subsequent fluid withdrawal is not enough to be seen at surface. This is because the rock framework is hard and relatively incompressible (which is why it fractures), so it doesn't

compress much with fluid withdrawal. The same physics applies to water production wells and injection wells.

In contrast, there is heave and subsidence seen around cyclic steam stimulation (CSS) operations in northeast Alberta, which involves high-pressure fracturing plus steam injection; the steam injection is responsible for some of the heave in this case. Likewise, we see subsidence around steam-assisted gravity drainage (SAGD) projects, but that is due to fluid withdrawal in areas of relatively soft and compressible rock materials.

For information on the process of hydraulic fracturing, visit the AER's website, [www.aer.ca](http://www.aer.ca), About AER > Spotlight On... > Unconventional Regulatory Framework > What is Hydraulic Fracturing.

**Q18. In case of a sour gas leak at night, during a windy blizzard, describe how sheltering in place is an effective survival strategy.**

A18. The AER has not received any information that would suggest the wells would encounter H<sub>2</sub>S in sufficient volumes or concentration to pose a public safety issue.

The Alberta Emergency Management Agency describes “shelter in place” as the practice of going or remaining indoors during a sudden outdoor release of a hazardous substance. It has been demonstrated to be the most effective response during the first few hours of a substance release. Sheltering indoors creates a buffer between you and any toxic hazard that may be in the outside air.

The goal of “shelter in place” is to reduce the movement of air into and out of the building until the hazard has passed. It is based on using a building that is constructed tightly enough to withstand typical Canadian winter weather conditions. For additional information on sheltering in place, please refer to *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry*.

**Q19. Describe the effect of sulphur dioxide exposure in large concentrations. Would the gas pool in valleys?**

A19. According to Alberta Health services, sulphur dioxide exposure symptoms can range from transient bronchoconstriction at low doses to danger to life at concentrations greater than 100 parts per million (ppm).

Companies are required to have emergency response plans (ERPs) in place to protect public safety. When companies are developing their ERPs, the AER requires licensees to use the ERCBH2S computer software to calculate emergency planning zones (EPZs). ERCBH2S calculates site-specific EPZs using thermodynamics, fluid dynamics, atmospheric dispersion modelling, and toxicology. The EPZ for wells, pipelines, or facilities is not arbitrarily chosen but determined through the dispersion modelling and

calculations in ERCBH2S using worst-case scenarios with average dispersion conditions for a major release of sour gas.

The AER also has two high-tech air monitoring units (AMUs) that monitor for SO<sub>2</sub> and H<sub>2</sub>S and maintain high-quality communications with head office and field centres. These mobile offices are deployed in response to incidents to monitor the air, detect leaks, and assist in routine and nonroutine facility inspections. One AMU covers southern Alberta, and the other unit covers northern Alberta.

**Q20. The energy minister mentioned existing fractured oil wells. Where are the current active oil wells in Lethbridge located? When were they drilled? What routes do the oil trucks take?**

A20. Currently there are 36 wells within the City of Lethbridge and 1614 wells in Lethbridge County. Of the 36 within the City of Lethbridge, 19 are flowing and pumping, 4 are suspended, 1 has a “not applicable” status, and 12 are abandoned or abandoned and re-entered.

The existing producing oil wells are located in the far southwest portion of the city and are part of the larger “A” pool. The city noted they are well separated from areas of active residential growth. The AER’s Information Product Services Section can provide you with either a list or a map of the active wells in the Lethbridge area. They can be reached by e-mail at [infoservices@aer.ca](mailto:infoservices@ aer.ca) or by phone at 403-297-8311.

**Q21. How many urban drilling licences have been granted in total? How many urban drilling licences have been rejected?**

A21. There are 650 active oil and gas wells in Alberta’s urban centres, and they have recorded few problems. If you were to trace a ring 1.6 kilometres wide around those cities, you would find another 3300 wells.

**Q22. Does the AER have jurisdiction over water quality, air quality, land contamination, or radon gas amounts in houses? If so, for any of these, does the AER have a database of benchmarks for each to compare with data after drilling?**

A22. ESRD is responsible for setting policy and environmental standards in areas such as water quality, air quality, and land contamination. ESRD also monitors air sheds and groundwater in Alberta. The regulatory aspects of allocating water and conserving water, managing public lands, and protecting the environment as it relates to energy development are part of the new responsibilities for the AER. Responsibility has been moved to the AER in phases. Visit Health Canada at [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca) for frequently asked questions on radon.

**Q23. Currently, our water supplies are 100% safe for human, animal, and flora consumption. Can GoldenKey, the AER, the premier, MLAs, and bureaucrats**

**guarantee the same after fracturing? Is it not an Albertan's right to have guaranteed drinkable water forever? Does GoldenKey, the AER, the premier, or government have even 1% right to destroy that which we have the right to for the sake of the "almighty dollar"? Is there any life if there is no cool, clean, clear water to drink, bathe in, cook with, irrigate flora? No water, no life?**

A23. The AER's regulatory requirements are designed to prevent any hydraulic fracturing fluid from mixing or entering groundwater or surface water regardless of whether or not it contains toxic chemicals. For more information on hydraulic fracturing, please see *Directive 083: Hydraulic Fracturing – Subsurface Integrity* or the visit the AER's website, [www.aer.ca](http://www.aer.ca), About AER > Spotlight On... > Unconventional Regulatory Framework > What is Hydraulic Fracturing.

**Q24. Please have someone on the panel explain how an appointed body like the AER, which is wholly funded by the energy sector, is allowed to approve or disapprove drilling licences on privately owned property, and why no one has challenged them on constitutional grounds.**

A24. The Alberta Energy Regulator has been given jurisdiction over upstream energy development in the province under the *Responsible Energy Development Act*.

Operating expenses of the AER are 100 per cent funded through an industry levy. This is effectively a tax on industry that is mandatory and reflects a principle of user pay. It does not impinge on the AER's impartiality or ability to enforce. On an annual basis (September/October), the AER requests funding approval from the Government of Alberta to carry out its mandate. Once they approve the AER funding request, the amount is collected from industry through administrative fees. The AER's governance structure is specifically designed to ensure impartiality.

**Q25. Little consideration has been given to the mining origins of our community in relationship to present urban buildings and proposed urban drilling and fracturing. Many of our neighbourhoods close to the river valley are constructed above old mine shafts. In the downtown core, these buildings include businesses, municipal buildings, and condo residences. If the underground vibration involved in fracturing causes any of those old shafts to collapse, how much settling and damage to buildings on the surface would result? Who would bear the cost of such damage?**

A25. In Alberta, the risk of a major geological fault or seismic event is extremely low. The Alberta Geological Survey (AGS) is currently surveying and tracking all microseismic events that occur. For more information on hydraulic fracturing please see *Directive 083: Hydraulic Fracturing – Subsurface Integrity* or the visit the AER's website, [www.aer.ca](http://www.aer.ca), About AER > Spotlight On... > Unconventional Regulatory Framework > What is Hydraulic Fracturing.

**Q26. What are the Alberta Energy Regulator's criteria for calling a hearing?**

A26. The AER has discretion to determine when to conduct a hearing on an application. Once the AER has decided to hold a hearing, the hearing commissioners have discretion to determine what specific procedures will apply. Many matters that could result in a hearing can be settled through an alternative dispute resolution (ADR) process. ADR can take many forms and is strongly encouraged by the AER as an effective means to resolve concerns and disputes.

**Q27. When considering if a sour gas well should be considered critical, the AER takes into account the distance of the well from an urban centre or public facility. How many critical sour gas wells are there near public facilities and urban centres in Alberta?**

A27. A critical well requires a detailed drilling plan that addresses all aspects of a proposed operation. The plan must be reviewed and approved by the AER before a critical well is licensed. Once a well is classified as critical, drilling preparations must meet all operational and safety-related requirements set out by the AER. A drilling plan for a critical well includes well design, equipment, drilling procedures, training and supervision, inspections, and emergency response planning. Please refer to the EnerFAQs *All About Critical Sour Wells* for more detail.

For a list of critical sour gas wells in Alberta, contact the AER Information Product Services Section by e-mail at [infoservices@aer.ca](mailto:infoservices@aer.ca) or by phone at 403-297-8311. The AER has received no evidence that would suggest any well near Lethbridge would be a critical sour gas well.

**Q28. We have heard repeatedly that fracturing has been ongoing for over 70 years. That's a lot of water. That's must amount to a lake of toxic, radioactive fluids. Are all fracturing fluid disposal sites near towns like Pincher Creek? How many are there in Alberta? During those 70 years, have these sites been monitored for leaks, leaching, or breaks in containment walls? Are fracturing liquids still land dispersed? Is there farming being carried out on this land?**

A28. Please refer to *Directive 050: Drilling Waste Management* and *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry*. Fracturing techniques vary considerably across Alberta and depend upon the properties of the formation being fractured. Water use varies by technique and again the properties of the formation being fractured. Backflow of fracture fluid is classed as oilfield waste under *Directive 058* with strict rules on where the waste can go for disposal.

**Q29. Have you personally traversed the Lethbridge dangerous goods routes? Have you visited the proposed drilling sites? Have you visited the other possible drilling sites near the canyons?**

A29. It is important to note that the Alberta Energy Regulator has not received an application for energy development from any company wishing to drill within the City of Lethbridge boundaries. Should the AER receive an application, all aspects of the application, including siting of wells, pipelines, batteries, access roads, and operating practices and any statements of concern will be taken into account when the AER makes a decision on the application.

**Q30. The community of Sunridge has prided itself on being built as a green community with solar panels, a series of runoff water purification lakes, and thermal heating. Proposed well sites are very close to Sunridge. Is the energy industry that pays you prepared for the worldwide environmental negative publicity that will affect your bottom line? Is this a sound economic decision?**

A30. It is important to note that the Alberta Energy Regulator has not received an application for energy development from any company wishing to drill within the City of Lethbridge boundaries. Should the AER receive an application, all aspects of the application, including siting and operations and any statements of concern, will be taken into account when the AER makes a decision on the application.

The AER is authorized under the *Responsible Energy Development Act* to make decisions on applications for energy development and all other aspects of energy resource activities. These activities must have an approval under one of the six provincial energy statutes. This authority extends to approvals under the public lands and environment statutes that relate to energy resource activities. The AER is responsible for policy assurance, to make ensure that industry is adhering to the rules that fall under the acts and statutes set out by provincial legislation.

Operating expenses of the AER are 100 per cent funded through an industry levy. This is effectively a tax on industry, and payment is mandatory. On an annual basis (September/October), the AER requests funding approval from the Government of Alberta to carry out its mandate. Once they approve the AER funding request, the amount is collected from industry through administrative fees. The AER's governance structure is specifically designed to ensure strong corporate oversight and impartiality and reflect the principal of user pay. This does not impinge on AER impartiality or effectiveness in any way.

**Q31. Does the AER consider the worst-case scenario when planning? Assuming the worst case, will contamination of our river water impinge in any way on our agricultural irrigation system?**

A31. The AER has a wide range of risk-based requirements to ensure that drilling programs are designed properly, that the equipment used meets appropriate specifications and safety standards, and that the personnel involved are properly trained. *AER Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry* also requires companies to have an emergency response plan in place prior to beginning any drilling operation. The desired outcome of the AER requirements is for duty holders to identify the hazards and risks and plan accordingly. These plans must be representative, pragmatic, and exercised.

**Q32. The Honourable Diana McQueen, minister of energy, has announced that urban drilling rules will be announced in weeks. What impact will this have on applications to drill within municipal boundaries submitted prior to rules coming into force?**

A32. The minister of energy is currently reviewing the issue of urban drilling; therefore, any questions regarding the policy should be directed to Alberta Energy.

**Q33. My question is very simple "who owns the resources of this province and if we, the people, do, should we not have a say in where drilling takes place"?**

A33. Anyone who is concerned about a proposed energy resource application or project may file a statement of concern. However, sending a statement of concern to the AER does not mean that a hearing of the application will be held. The AER will review your concerns and the relevant application to decide whether a hearing or other AER process is needed.

**Q34. The AER unilaterally issues drilling rights/licences to industry anywhere in the province. Why does the AER not conduct stakeholder consultations prior to issuing industry drilling rights within city boundaries?**

A34. *Directive 056: Energy Development Applications and Schedules* sets out the consultation and notification requirements with which an energy company must comply. It is the company's responsibility to uphold these requirements in relation to a proposed development. It must be able to provide records of consultation and notification activities if requested by the regulator. Stakeholders such as landowners, local authorities, and residents are notified or consulted in an area reflective of risk.

*Directive 056* provides industry with a starting point for developing a participant involvement program and should be viewed as the minimum. It is the company's responsibility to assess the area beyond the specified distance to determine if the radius

recommended by *Directive 056* should be expanded. In some cases, it may be necessary to increase the radius to include public interest groups or others who have expressed an interest in development in the area. The purpose is to disclose proposed development, provide opportunities for potentially affected parties to ask questions, and to have the applicants and landowners or residents with opportunities to address concerns and review mitigation measures. In many cases this results in agreements and even redesigns of initial plans. Anyone who feels they may be directly and adversely affected by a proposed energy resource application or project may file a statement of concern to the AER.

**Q35. Within Alberta, what other cities have had drilling in their communities and what issues and benefits have they seen?**

A35. There are 650 active oil and gas wells in Alberta's urban centres, and they have recorded few problems. If you were to trace a ring 1.6 kilometres wide around those cities, you would find another 3300 wells. The Lethbridge council can ask through the Alberta Urban Municipalities Association (AUMA) for feedback from other communities. I understand that there would not be consensus on the relative merits, so each case needs to be examined. For a list of active wells in the province, contact AER Information Product Services Section by e-mail at [infoservices@aer.ca](mailto:infoservices@aer.ca) or by phone at 403-297-8311.

**Q36. What kind of slope stability studies does the AER require to ensure that soil above the shale layer does not become unstable during the fracturing process? Is there any requirement for baseline measurement of the aquifer before fracturing begins? In the event of a major blowout or a grass fire, can the city guarantee the safety of its Westside citizens? Are we at risk for sour gas leaks?**

A36. AER hydraulic fracturing requirements are laid out in *Directive 083: Hydraulic Fracturing – Subsurface Integrity*. Additionally, energy companies are required to plan for all types of emergencies, including blowouts and fires as outlined in *AER Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry*. *Directive 071* requires the company to work with local emergency services. Both directives are available at [www.aer.ca](http://www.aer.ca).

**Q37. In recent days, Rex Tillerson (CEO of ExxonMobil) has filed a law suit in order to prevent the building of infrastructure that will be used in fracturing near his ranch. His reasoning is that fracturing near his ranch will reduce the value of his property, as well as create excessive noise and traffic in that area. How will the value of our properties (houses) be affected? What levels of noise pollution will we experience and where? What kind of traffic increase will we experience? Most importantly, in case of a successful exploration result, there will be more infrastructure built, so how will the building of that new infrastructure affect the property value of our homes?**

A37. Oil and natural gas development occurs in many instances by drilling multiple horizontal wells from a single surface location. After drilling, these wells will often be stimulated by hydraulic fracturing, which can involve around-the-clock operations for extended periods of time with increased truck traffic, dust, noise, and industrial lighting. Some aspects of this activity can be managed by the company to reduce the impact on the local area. For concerns such as increased truck traffic, the AER will work with counties and municipalities by providing information about potential developments to support their preparation for increasing activity. For further information on the hydraulic fracturing process, visit the AER's website, [www.aer.ca](http://www.aer.ca), About AER > Spotlight On... > Unconventional Regulatory Framework > What is Hydraulic Fracturing.

The AER considers property values a matter of compensation, and as such is not within the regulator's jurisdiction. The Surface Rights Board is able to assist landowners with issues related to compensation.

**Q38. How is the urban drilling in Lethbridge going to impact my family's health and safety living in Riverstone? We are raising a 2 year old and this is a major concern for us. Also what is the drilling going to do to our property value?**

A38. The AER mandate speaks to safe, efficient, orderly, and environmentally responsible development of hydrocarbon resources over their entire life cycle. Drilling in urban or nonurban areas are subject to very strict rules developed over many years. AER rules require full disclosure of proposed energy development and engagement with local landowners and communities.

The AER is authorized under the *Responsible Energy Development Act* to make decisions on applications for energy development and all other aspects of energy resource activities. These activities must have an approval under one of the six provincial energy statutes. This authority extends to approvals under the public lands and environment statutes that relate to energy resource activities. The AER is responsible for policy assurance—that is, to ensure that industry is adhering to the rules that fall under the acts and statutes set out by provincial legislation.

- Q39. Bob Sandford, chair of the United Nations International Decade "Water of life" initiative and author of the books "Water Weather and the Mountain West" & "Ethical Water" states, "The Province of Alberta has run out of water in its Southern rivers," and, "every river in Alberta from the Montana border to the Red Deer is fully, if not over-allocated." My Question: How does knowing this not align with decreasing further licensing of runaway oil exploration and extraction, in light of the millions of litres of water used and fowled in each drilling operation? Every piece of literature available on this indicates emphatically that this plunder must not and cannot continue. So why does it continue unabated?**
- A39. ESRD has a strong water-management policy, and the AER works closely with ESRD on implementing good water-management practices for exploration, pilot, and full development phases. These practices maximize water reuse (or recycling) and the use of saline, wastewater, or alternatives for operations. The AER is responsible for the allocation of fresh water for energy development. Fresh water use will be minimized to the greatest possible extent. It is noted that isolated or limited number of wells may not have the same opportunities to access alternative water sources.
- Q40. We are concerned about the level of power the AER seems to have. What qualifications do the members have to have to be on the board? How are they selected and who appoints them? What is the length of their term on the board and how are they removed from the board?**
- A40. The AER is headed by a board of directors, led by the chair. They are appointed by the Lieutenant Governor in Council. The chair and the board of directors are not involved in the AER's day-to-day operations and decisions. Rather, the directors set the general direction of the regulator's business affairs and are charged with approving regulatory change and setting performance expectations for the AER and its chief executive officer. For additional information on the AER board of directors and the organization's governance structure, see the AER website, [www.aer.ca](http://www.aer.ca), About AER > Governance.
- Q41. "Hydrogen sulphide (H<sub>2</sub>S) is a highly toxic gas and among the most common contaminants in crude oil and natural gas." How dangerous is H<sub>2</sub>S (long -term & short-term) exposure? How can we feel our homes and schools are safe with this substance in our neighbourhood? What kind of monitoring will be done for this dangerous gas? What good does monitoring do when little children exposed to unclean air caused by oil companies fracturing close to schools, homes, and green recreation areas have to suffer a lifetime of respiratory, immune, and neurological conditions? Do atmospheric conditions, especially wind direction and velocity, the proximity of the leak to the detectors, and obstructions affect detection efficiency? If so how can we feel safe here in Lethbridge with our frequently changing weather patterns and high velocity winds? We have been told there are many wells, including abandoned wells, in Lethbridge. Where are the abandoned wells? Where**

**are the unregistered coal mines? If gases can travel along perilous pathways, how can the AER even think about allowing drilling in areas in close proximity to houses which are built on top of coal mines? Is there another area in Canada or the USA which has 1800 miles of tunneling under its populated area and is being fractured currently? What are the health consequences of being exposed to chronic low levels of combined gases that are flared? We obviously must have a high level of methane under us if we have had mine explosions in the area in the past. How much H<sub>2</sub>S is produced underground by the oil companies themselves injecting the chemical cocktails which dissolve the rock? How many holes can the earth be pin cushioned with before H<sub>2</sub>S starts emitting itself on its own? Are you aware that in the past one of the greatest extinctions was caused by H<sub>2</sub>S? Can you guarantee that the deep injection wells in our province are not dissolving the rock beneath us only to cause more earthquakes under our feet? Where currently are the oil companies in southern Alberta disposing of fracturing fluid? Are they dumping it on grazing land, agricultural land, or roadways? What are the dangers of flaring? What chemicals are released along with the fracturing compounds? With all of the fracturing upstream on the reserve, who is testing our water for chemical cocktails? Are there currently reliable detectors for chemical contamination? How about the nanoparticles and radioactivity?**

A41. Monitoring would be considered as part of an application if one is filed.

The fractured zone is much deeper than coal mines in your area. Concerns about drilling through coal mines are addressed as part of common drilling practices. Deep fracturing would not present additional or unique risks with shallow coal mines.

Please refer to the following references that are located on the AER website, [www.aer.ca](http://www.aer.ca):

- *Directive 055: Storage Requirements for the Upstream Petroleum Industry*
- *Directive 056: Energy Development Applications and Schedules*
- *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*
- *EnerFAQs All About Critical Sour Wells*
- *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry*

**Q42. Why do companies that use fracturing methods of extraction claim that all the toxic ingredients they add to the water are "proprietary" in nature and they will not tell the residents of Lethbridge what pollutants we are going to deal with ultimately as they leach into our groundwater? Do we know what mix of chemicals will be used in the fracturing process?**

A42. Companies are required to submit information on the component ingredients used for hydraulic fracturing, including maximum concentration of each ingredient, to the AER. AER *Directive 059* and [fracfocus.ca](http://fracfocus.ca) do provide limited trade secret recognition, but many wells in your area have very complete records accessible to the public. On [fracfocus.ca](http://fracfocus.ca) you may search your local area by well location, county, or company and see what chemicals have been used in recent wells. In the absence of an application, the AER would not have specific information. If you have questions during the preapplication stage, please direct them to the company who is required to try to address them.

For information on fracturing components, refer to [fracfocus.ca](http://fracfocus.ca). For additional information on the hydraulic fracturing process, visit the AER website, [www.aer.ca](http://www.aer.ca), About AER > Spotlight On... > Unconventional Regulatory Framework > What is Hydraulic Fracturing.

**Q43. Where will any company who wants to do fracturing get their water from because there no water licences available in southern Alberta?**

A43. Alberta Environment and Sustainable Resource Development (ESRD) will retain the responsibility for the allocation of fresh water for energy development until the full transition to the AER is complete (expected in spring 2014). ESRD has comprehensive requirements governing the use of fresh water, and the AER will work with ESRD on implementing good water-management practices. These practices will be designed to maximize water reuse (or recycling) and the use of saline, wastewater, or alternatives for operations. Fresh water use will be minimized to the greatest possible extent.

The South Saskatchewan Watershed is closed to new permanent water licences. A company could obtain water through an existing licence. Temporary access to nonsaline water for purposes of drilling a well and completing or fracturing a well is available through a temporary water diversion licence. Companies would still be required to practice good water management under such licences.