

Appendices

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Appendix A. Negotiation Checklists

A.1 Before you negotiate

Read the resources below before starting negotiations with the company to know what to expect from the process.

All developments		
☐	The AER information package provided by the land agent	This package includes a letter from the CEO of the Alberta Energy Regulator (AER) and the AER publications <i>Understanding Oil and Gas Development in Alberta</i> and <i>Proposed Oil and Gas Wells, Pipelines, and Facilities – EnerFAQ</i> .
☐	<i>Negotiating Surface Rights</i>	This publication is available online. ¹
☐	Section 9 of this guide	This section covers compensation negotiations and surface rights access.
Specialty wells		
☐	For sour gas wells, read section 4.1.1	
☐	For a hydraulic fracturing well, read section 4.1.2	
Pipelines		
☐	<i>Pipelines in Alberta — What Landowners Need to Know</i>	This publication from the Farmers’ Advocate Office is available online ² or by calling their office.
☐	<i>Environmental Protection Guidelines for Pipelines</i>	This publication is available online through the Alberta Open Government portal. ³

¹ Alberta Agriculture and Rural Development, *Negotiating Surface Rights* (2009).
<https://open.alberta.ca/publications/4390211>

² Farmers’ Advocate Office, *What Landowners Need to Know* (2018).
<https://open.alberta.ca/publications/agdex-878-4>

³ Alberta, *Environmental protection guidelines for pipelines* (1994).
<https://open.alberta.ca/publications/environmental-protection-guidelines-for-pipelines>

It is also important to reflect on your specific concerns relating to your family, land, and livelihood so you can make informed requests during negotiations.

General	
Do you want to request a right-of-entry order from the Land and Property Rights Tribunal rather than signing a lease?	Some landowners prefer to request a right-of-entry order rather than sign a lease agreement, even if they have reached agreement with the company on all issues, including compensation. See section 9.3.
Are you satisfied with the location of the well and access road?	Are the well and access road located to minimize inconvenience to you or your neighbours while still ensuring the company's ability to protect the environment? Is the well at least the minimum distance from buildings, water wells, bodies of water, etc.?
Is the proposed compensation adequate to cover the loss of land and inconvenience the well and access road will cause?	Make sure you have considered crop loss, adverse effects, inconvenience and nuisance when estimating the appropriate level of compensation. This might include the time you have spent working on the lease agreement.
Do you need to check with a lawyer/consultant before signing the lease agreement to ensure that it meets your needs?	A lawyer or consultant who is knowledgeable about surface rights issues may help in negotiations. It can also be useful to discuss issues with an experienced neighbour or landowner group.
Sour wells	
Do you or any of your family members have health concerns that warrant early warning of potential releases?	If so, identify these individuals as being in the "special need" category when the company is compiling an emergency response plan.
Pipelines	
Does the pipeline location account for surface water drainage, water wells, high wildlife value, and other environmental considerations?	You also need to consider whether the location of the line will affect future plans for farm expansion or the creation of a subdivision. The setback for new development might be wider than the right-of-way, which could constrain your future options. Even if the proposed pipeline carries sweet gas, it may be later approved to carry sour gas, which could result in greater setback distances for buildings.

The following tables contain questions to ask the company to ensure you have the necessary information before negotiations begin. Table 7 is relevant to all types of development. Table 8 contains questions about all types of well developments, and Table 9 looks at specific well types. Table 10 contains questions regarding pipelines, and Table 11 contains other development types like gas batteries and compressors.

Table 7. Pre-negotiation questions for all development types

All development	
How will surface water be managed on the lease site?	The company should ensure that off-site surface waters will not enter the drilling area. On-site waters should be captured in a containment pond and disposed of with the drilling muds or tested prior to release off-site. You may want to include a clause in the lease agreement that notes the direction of drainage and requires the company to maintain natural drainage and install culverts or other works to ensure this.
How will topsoil be protected?	Find out how the topsoil will be conserved and where it will be stored so that it can be used for reclaiming the site when the well is shut down. Ask if the subsoil will also be stripped and stored for use in reclamation (called two-lift salvage). Make sure that the company is not allowed to use coarse gravel or rock on the leased land unless this can be removed when the land is reclaimed.
How will weeds be controlled?	Decide if you want equipment to be steam-cleaned to remove weed seeds before entering your property, and if you want weeds on the site to be controlled by mowing rather than with herbicides. You may want to ask the company to obtain consent before using any soil sterilants, pesticides, herbicides, or other chemicals on your land.
How will leaks and spills be cleaned up?	Under AER regulations, the agreement must require the company to immediately notify you of leaks and spills. The company should also tell you how potential leaks and spills will be contained and cleaned up.

Table 8. Pre-negotiation questions for all well developments

All wells	
Does the company plan to drill a water well to supply operations?	A water well must be drilled according to AER requirements and be properly abandoned when no longer required.
How will drilling wastes be managed?	Drilling can produce different types of wastes with varying risks. Clarify whether the company will remove wastes from your land or manage them in a specific way.
How long will the well be tested?	Understand the duration of testing to assess potential impacts on land, air quality, and noise.

Does the company intend to apply for a higher well density beyond the standard drilling spacing unit?	Standard spacing: 1 gas well per section (256 hectares) or 4 oil wells per section. ⁴ If special spacing is proposed, you can submit a statement of concern (section 2.5). Objections may need to be addressed through negotiation, alternative dispute resolution (section 2.4.1), or a public hearing (section 10).
Will the company flare the gas or can they test inline?	Ask the company to evaluate the alternatives to test flaring, as it may be possible for them to test a well without flaring (section 7.2.1). Determine if a high-efficiency incinerator would be preferable to a flare in your location. If flare testing is necessary, find out how long the test will last and negotiate under what conditions it will be carried out. This might include air quality monitoring during the flare test or a collection system to capture any excess gas.
Will there be any long-term effects on air quality?	You should try to ensure that there will be no routine flaring. Ask whether solution gas from oil wells will be released to the air, flared or piped away. Find out if the company can pipe gas to an existing gas plant or install a microturbine instead of flaring to the air. If you and your family are sensitive to emissions, ask to be notified before the company undertakes routine flaring.
How much noise will be created by the wellhead equipment and by company staff visiting the site to service it?	Ask if there will be a compressor at the well site and how noise will be minimized (sections 4.3.2 and 7.5). Find out if oil will be trucked or piped out. You may want to ask the company to avoid trucking at night.
Where will the pipeline be located?	If the well is successful, a pipeline will be needed. Its location can affect how you use the land (section 5.3), so should be negotiated when discussing the well lease. You may want to arrange the right-of-way easement for the pipeline and compression facilities at the same time as the lease agreement.
Will the company conduct a pre-construction assessment report?	This report provides a baseline against which to measure future reclamation work. It is not mandatory, but it is encouraged by the AER and the industry. ⁵
Is the company planning on drilling any additional wells or placing other facilities such as a compressor or dehydrator on your land or nearby?	If the company plans to put a battery, compressor, or other facility on your land or nearby, see section 4.3.

⁴ AER, *Directive 056: Energy Development Applications and Schedules* (2025), 141. <https://www.aer.ca/regulations-and-compliance-enforcement/rules-and-regulations/directives/directive-056/>

⁵ Alberta Environment, *Pre-construction Assessment Report for Wellsites*, C&R/IL/00-8 (2000). <https://open.alberta.ca/publications/pre-construction-assessment-report-for-wellsites>

Table 9. Pre-negotiation questions for specific well types

Sour wells	
Does the company have a site-specific emergency response plan (ERP), and if so, how large is the evacuation zone?	An ERP is required for sour gas facilities (section 6.2). Make sure you are familiar with the ERP. Even with a sweet gas well or an oil well it is important to know what plans are in place to deal with an emergency.
How high will the hydrogen sulphide content be?	
Coalbed methane wells	
For coalbed methane wells that need dewatering, how long will flaring last?	Ask about the following: • If the company can install a pilot light on the flare stack, which will allow the gas to be collected in small amounts and burned intermittently instead of being vented. • If a high-efficiency incinerator would result in lower air pollution at your residence than a flare. • How soon the well might be tied into a pipeline. AER Directive 060 includes requirements to eliminate or reduce the potential and observed impacts of flaring, incinerating, or venting and to ensure that public safety concerns and environmental impacts are addressed before beginning.⁶
Hydraulic fracturing	
What equipment will the company use to store and manage flowback fluids?	There are a few different ways of storing fluids on site. Double-walled tanks provide the best containment, while single-walled tanks with a berm or simple lined pits provide less protection. Storage also must be the proper size to contain all fluids produced.
What is the expected level of vehicle traffic to and from the fracturing site?	Moving additional equipment and materials to the production site compared to conventional development results in more truck traffic. This can be a nuisance and can cause safety concerns and damage to roads not designed for heavy truck traffic.
Is seismic activity possible due to the company's operations?	Fracturing has resulted in seismic activity in Alberta, and there are operational methods to avoid or reduce the frequency and severity of these events.
How will the company's flaring or incineration affect air quality in combination with other fracturing operations in the area?	Fracturing operations tend to produce larger volumes of air pollution than conventional operations. When fracturing operations are concentrated together, the cumulative air pollution can reach levels that cause odours, are a nuisance, or have potential health impacts.

⁶ AER, *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting* (2025).

<https://www.aer.ca/regulations-and-compliance-enforcement/rules-and-regulations/directives/directive-060>

What is the water source for the fracturing operations?	If water is to be sourced from a groundwater aquifer that serves your domestic or agricultural needs, request that the company demonstrate that the aquifer will not be depleted from the additional use.
Does the company plan to bring water to the well site using a pipeline?	A water pipeline can reduce tanker truck traffic on your land.
What chemical additives will be used in the fracturing fluid?	A wide variety of different additives are used in fracturing, all with different toxicity. You should review these chemicals to determine what you might be exposed to. (See fracfocus.ca).

Table 10. Pre-negotiation questions for pipeline development

Pipelines	
What is the size of the proposed pipeline, and at what pressure will it operate?	The company must tell you the type and size of the pipeline and its operating pressure.
Where will the shut-off valves, tie-ins, compressor stations and/or pumping stations be located?	It is a good idea to ask about the proximity and spacing of shut-off valves, and the location of tie-ins, compressor stations or pumping stations. ⁷
What is the plan for the pipeline if more oil or gas is developed upstream?	Ask whether the company might increase the pressure in the line by putting in more compressors, or lay a new pipeline parallel to the initial line.
How will the company monitor for corrosion?	Corrosion can cause leaks or other pipeline failures. Find out whether the pipeline route will be inspected by land or air, and how often the pipeline will be inspected internally. You should ask if the pipeline will be cathodically protected (which means that a low-voltage current is passed through it) to reduce the risk of corrosion. If the substance being transported in the pipeline changes, corrosion control needs to be re-evaluated by the company.
Will the pipeline be left in the ground after abandonment? How will the company reclaim the land when the pipeline is no longer in use?	If you want the pipeline removed, you should inquire if this can be included in the initial agreement. (The AER does not recommend line removal where it causes significant additional disturbances.) You should also ensure that all liens that the company may have registered are removed when the pipeline is abandoned.
What will be transported through the pipeline (oil, diluted bitumen, natural gas, condensate, other)?	Depending on the material to be transported, there may be particular construction materials or operational requirements that reduce the risk of leaks or other accidents.

⁷ Valve spacing is in accordance with CSA standards and takes into account pipeline profile and water crossings, among other factors. If the valve is some distance away, it will take longer to stop the flow. Additional guidance on spacing and pipeline safety is available in the *Landowner's Guide to Pipelines* (Pipeline Safety Trust, 2016). <https://pstrust.org/landowners-guide-to-pipelines/>

Will the temperature of the material in the pipeline affect the temperature of the surface soil?	Warmer soil above the pipeline can cause crops to ripen at different times than the rest of the field, which makes harvesting difficult.
If the pipeline will contain sour gas, has the company worked with other companies in the area to minimize the amount of sour gas infrastructure in your area?	The AER takes proliferation concerns into account, and encourages operators to limit additional sour gas pipelines in areas where development is already concentrated, although there are no requirements regarding the proliferation of pipelines. ⁸
Is any above-ground installation required on the right-of-way?	If yes, you should ensure that it will be in an area that causes the minimum inconvenience and will be clearly marked and that a surface lease is negotiated.
How will the company manage soil during the construction process?	The company are required to follow environmental guidelines for clearing the pipeline right-of-way and salvaging topsoil, which is to be replaced when backfilling the pipeline with minimal loss. This backfill must be adequately compacted to avoid slumping and erosion. When grading, the results must not cause increased erosion, slope instability and sedimentation. ⁹

Table 11. Pre-negotiation questions for oil batteries and compressor facilities

Oil batteries	
Will there be any flares and, if so, how will flaring be minimized?	While this applies to other types of development as well, it is especially important for oil battery sites.
What type of fugitive emission detection/control system will the company use?	Tank vapours and small leaks at pipe connections and valves can be sources of fugitive emissions. These types of releases can start and worsen gradually — requiring companies to do regular preventive maintenance or periodic checks.
How will groundwater and surface water be monitored and protected?	Groundwater monitoring is sometimes required. This may depend on whether there are storage tanks on the site, and how they are constructed and contained. For protection, there may be dikes around storage tanks or berms around the entire site to control surface water runoff.
Compressors	
What noise mitigation measures will be used?	This is relevant to other facilities, but it is especially important for compressor stations. It is advisable to obtain a copy of the noise impact assessment, which the company should have prepared for their application to the AER.

⁸ AER, *Directive 056*, section 6.2.⁹ AER, *Specified Enactment Direction 004*, section 3.3.2.

Gas plants	
What would occur in the event of a problem at the gas plant?	Ask what flaring minimization requirements would be in effect at the gas plant and whether it would be completely shut down in the event of a problem.
If a glycol dehydrator is planned near your residence or pasture, what are the expected benzene emissions and how will they be managed?	You may wish to ask for monitoring of benzene emissions around the site (as well as other volatile organic compounds such as toluene, ethylbenzene, and xylene) and request the results.

A.2 Negotiation topics

The following tables highlight additional issues related to development type, especially with respect to environmental impacts, that you may want to discuss with the land agent before signing a lease agreement. If you negotiate any special conditions that the company must meet, ensure that they are added in writing to the lease agreement before signing the agreement.

Table 12. Negotiation topics for all types of development

All development	
Agree on how any future issues will be settled.	Decide if you want to stipulate that the alternative dispute resolution process should be used as a first step. Ensure the agreement contains an arbitration clause that enables unresolved disputes to be settled under the Alberta Arbitration Act without going to court.
Negotiate compensation for damage to special livestock.	If you have valuable purebred animals or breeding stock, you may want to negotiate a replacement value that is greater than the commercial value of ordinary livestock.
Discuss tree protection.	Tell the company what they should do with any trees that are cut down and if you want the merchantable timber, logs and firewood. If there are any trees you want protected, identify them. You may want to include a penalty for trees that are cut or damaged without your permission.
Ensure the lease's fencing clause is satisfactory.	You may want to add an addendum to the lease agreement to ensure that the fences and gates are complete before construction starts on the infrastructure. You may also want to make the company responsible for locking gates. If you want to use the company access road to reach your own land, you need to ensure the responsibilities are clear. You may also ask to be compensated for managing fences yourself, and for moving and feeding livestock at a separate location.

Discuss water supply testing measures.	Ask the company to test all water wells near the lease for depth, volume, and water quality both before and after drilling. Ensure the water samples are analyzed by a laboratory accredited for those specific tests by the Canadian Association of Environmental Analytical Laboratories and that you receive a copy of the results.
Discuss reclamation requirements.	You may want to specify how the land is reclaimed and the specific seed type to use for reseeding. You may want to indicate the date by which this is to be completed. Depending on how the land has been disturbed, the company could be required to redistribute and level the topsoil, cultivate (to remediate compaction), prepare an adequate seedbed, and reseed the land. ¹⁰ Specify if you want the site to be planted with native species or a certified seed to prevent erosion during use of the site or upon reclamation. For wells, discuss how soon reclamation will be carried out if no oil or gas is found at the site. Any special requests cannot breach regulations. See also section 7.6.

Table 13. Negotiation questions for well development

All wells	
Decide on compensation in the event of damage to your water well.	This should be covered in the lease agreement.
Decide in a separate agreement how drilling wastes will be managed.	It is advisable to have a separate agreement that covers drilling waste, specifying access to the land and payment for access, and establishing clauses on damages and methods to solve disagreements. Request that the company use tanks instead of a sump to store drilling waste. If the company will store the waste on your property, negotiate the location so that any potential spills are less likely to affect you or your water sources. (See section 7.3 for more information on environmental issues with drilling waste.)
Discuss notification and compensation requirements in case of a leak, spill, or accidental release from the well.	The AER sets standards for dealing with leaks and spills; however, you may wish to negotiate additional provisions. Compensation terms for evacuation should also be included in the lease agreement. If you are in an emergency planning zone but are not a party to an agreement, evacuation costs, including hotel costs and loss of business, may be your responsibility.
If you or someone in your family is sensitive to air pollution, discuss how to mitigate the impacts.	If you or your family are very sensitive, you may want to move out or ask for flaring to be done only when the wind is from a direction that will blow any gases away from your residence. You can also request additional notification for any planned flaring or venting, so that you can arrange to avoid the area when you may be most affected. Clarify whether the company will compensate you for the expenses incurred during this time.

¹⁰ Alberta, *Specified Enactment Direction 002*, section 7.4.

Discuss the company's future expansion plans and decide how those should be handled.	Unless it is already specified in the lease agreement, you may want to ask the company to obtain separate permission to: • drill more than one well or expand operations beyond the initial well • drill a water well on the lease • construct a pipeline or above-ground powerline • dispose of any sump fluids, toxic chemicals or other hazardous substances on the lease site • cross your land or store any materials on land that is not included in the lease agreement
Review the agreement's arbitration clause.	You may want to negotiate that the company pay the costs of any arbitration.
Hydraulic fracturing	
Negotiate how frequently wells and associated infrastructure will be inspected for leaks.	Methane leaks from fracturing can negatively impact local air quality. Leaks can also contain other hazardous air pollutants. It may be worth negotiating in your lease agreement that the operator will follow the best practices on leak detection and repair from the EO100 Standard for Responsible Energy Development: "Operator ensures that all equipment on the well pad is equipped for minimizing methane and other air emissions, and conducts quarterly checks of this equipment to ensure it is working properly as part of a systematic Leak Detection and Repair Program."¹¹
Negotiate water testing procedures.	The company must take all measures to protect groundwater resources, especially when those resources are currently being used. You should require in the lease that the company provide: 1. Baseline monitoring for your water well to ensure that any changes in water quality from the operations are recorded. 2. Annual measurement of your well's water level. Dramatic changes in your water well level can indicate issues due to fracturing. It may be worth negotiating in your lease agreement that the operator will follow the best practices on water testing from the EO100 Standard: "Operator conducts baseline and post-completion sampling of individual wells and surface water within a minimum radius of 2,500 feet, or regulator limit, whichever is greater, prior to drilling of wells and installs monitoring wells to monitor the quality of water in aquifers in productive use that are being drilled through. Testing includes levels of hydrocarbons, arsenic, mercury and total dissolved solids in aquifers and surface streams."¹²

¹¹ Equitable Origin, *EO100™ Standard Technical Addendum: EO100.1: Shale Oil & Gas Operations*, 13.

¹² *EO100™ Standard Technical Addendum: EO100.1: Shale Oil & Gas Operations*, 14.

Table 14. Negotiation questions for pipeline development

Pipelines	
Define a working area surrounding the pipeline that the company can access.	The company will always need access to its pipeline when flowing. This working area must be defined through negotiations with the company. You may want to include specific requirements in the pipeline agreement or create a separate agreement.
Agree on the location of any above-ground structures associated with the pipeline.	These should be within the working area defined above.
Discuss the possibility of additional pipelines in the future.	If you wish to prevent additional pipelines along the right-of-way in the future, you should ask for a clause limiting the right-of-way agreement to one pipeline.
Agree on how to resolve future issues such as poor vegetation establishment and reduced crop yield due to soil compaction, a sinking trench, or damage to surface drainage.	You may want to stipulate that the alternative dispute resolution process be used as the first step, before escalating the matter through the legal process. The agreement should contain an arbitration clause that enables disputes to be settled under the Alberta Arbitration Act without going to court.
Decide on a minimum depth for the pipeline to be buried.	Determine the minimum depth for the pipeline to prevent interference with farm operations such as deep ploughing.
Determine if the company needs any temporary workspace outside the right-of-way while the pipeline is being constructed.	If so, include this in the agreement, or sign a separate agreement for workspace use. Compensation for workspace should be valued similarly to the right-of-way. You might want to include a penalty if the company's activities extend outside the right-of-way without your prior approval.
Agree on how the land will be reseeded after construction.	Proper reseeding is needed to ensure weed management.
Determine adequate compensation for crop loss, adverse effect, nuisance and inconvenience that will occur while the pipeline is being constructed.	If there is any above-ground installation on the pipeline, you should arrange for annual compensation for loss of use and adverse effect, with the rental being reviewed every five years.
Ensure that the company agrees to cover the costs of accidental damage.	Accidental damage may arise due to the location of the pipeline or above-ground installations. You do not want to be liable for this.
Specify cleanup expectations.	The right-of-way agreement should require the company to quickly clean up the right-of-way, including removing all stumps, rocks, roots and other debris. Also, clarify with the company how it will dispose of waste (e.g., hauling or burning).

Appendix B. Contacts

This appendix provides contact information for lawyers, laboratories, industrial associations and community groups. Within each main section, the individual organizations are listed in alphabetical order. While engaging effectively with industry and the regulators can appear to be a daunting challenge, accessing the experience and expertise of others who have professional training or have dealt with similar issues can be an invaluable source of advice and support.

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B.1 Lawyers, expert witnesses and technical assistance

B.1.1 Lawyers or landowner representatives

In many cases a landowner negotiates directly with a company, but sometimes it can be helpful to engage a lawyer or landowner representative who is familiar with surface rights issues.

Landowner representatives may be certified land agents, or other professionals with experience negotiating on these issues. Several years ago, the provincial government changed land agent legislation to allow farmers and ranchers to hire professionals who were not land agents.

If a situation is complex or if negotiations break down and you plan to present at a hearing, you may wish to engage a lawyer and/or expert witnesses. This is especially common for cases brought before the AER, and some interveners also like to have a lawyer represent them at a Land and Property Rights Tribunal hearing.

It is best to find a lawyer and/or expert witnesses who are experienced in energy issues and in the hearing process. Unfortunately, there is no central resource to find experts and lawyers, so you may have to ask your personal networks, contact a local surface rights group or synergy group, and search online. There are several law firms in Alberta that practice environmental or surface rights law.

You could also read some of the AER hearing decision documents and see which lawyers and expert witnesses were involved. These are listed in Appendix 1 of each decision. All recent decisions are published on the AER's website.¹

While the highest priority in selecting professional assistance is to choose someone with experience in energy hearings, hiring professionals who are located near you can help to reduce costs and facilitate communication.

¹ AER, "Hearing Decisions." <https://www.aer.ca/applications-and-notice/application-status-and-notice/decisions/hearing-decisions>

B.1.2 Mediation and arbitration

If companies or individuals would like a third-party mediator instead of the AER staff mediator, you may wish to contact the ADR Institute of Alberta, which maintains a searchable directory of ADR specialists in Alberta. Their website also provides information on the basics of mediation.

ADR Institute of Alberta

Toll-free: 1-800-232-7214

Edmonton: 780-433-4881

Fax: 780-433-9024

info@adrAlberta.com

www.adrAlberta.com

B.1.3 Laboratories

If you want to have your air or water tested, be sure to engage an accredited laboratory. The Canadian Association for Laboratory Accreditation delivers laboratory accreditation for environmental and petroleum testing, along with other testing services. Each laboratory is separately evaluated and accredited for specific tests. Thus, the tests that a laboratory is accredited to perform will vary from one lab to another, even within the same company. The website includes a list of accredited laboratories.

The Canadian Association for Laboratory Accreditation

Phone: 613-233-5300

Fax: 613-233-5501

www.cala.ca

Accredited laboratories are also listed at:

The Standards Council of Canada

www.scc.ca/en/search/palcan

B.1.4 Technical consultants

You may also need other environmental consulting services or technical expertise. The Environmental Services Association of Alberta is an industrial association of the major companies that provide environmental services in Alberta. The list and profiles of association members on the website may help identify companies that can provide consultants or expert advice.

Environmental Services Association of Alberta

#102, 2528 Ellwood Drive SW

Edmonton, AB - T6X 0A9

Phone: 780-429-6363

info@esaa.org

www.esaa.org

B.2 Professional organizations representing the energy sector

B.2.1 Alberta Association of Surface Land Agents

Land agents in Alberta are licensed under the Land Agents Licensing Act. It is important to distinguish between licensed land agents and other professionals, such as permit agents, emergency response planning personnel and pipeline inspectors, who are trained to perform other tasks, but are not in fact licensed land agents.

The Alberta Association of Surface Land Agents is a professional association of people involved in all aspects of surface land acquisition in various industries, including the oil and gas sector.

Alberta Association of Surface Land Agents
www.aasla.com

B.2.2 Alberta Land Surveyors' Association

This professional association regulates the practice of land surveying. A section on their website explains their work to the public. They also publish free helpful brochures, such as *Understanding Easements and Rights-of-Way*.²

Alberta Land Surveyors' Association
 Phone: 780-429-8805, 800-665-2572
info@alsa.ab.ca
www.alsa.ab.ca

B.2.3 Canadian Association of Geophysical Contractors

One of the functions of the association is to act as the communication link to promote understanding between government, industry, other groups and the geophysical industry.

Canadian Association of Geophysical Contractors
 Phone: 403-265-0045
info@cagc.ca
www.cagc.ca

B.2.4 Canadian Association of Energy Contractors

This is a trade association that develops standard procedures for its member companies and represents this branch of the industry in dealing with different levels of government and others.

² Available at <https://www.alsa.ab.ca/Surveys-in-Alberta/Easements-and-Rights-of-Way>.

Canadian Association of Energy Contractors

Phone: 403-264-4311

info@caoec.cawww.caoec.ca

B.2.5 Canadian Association of Land and Energy Professionals

Oil and gas companies hire professional land agents, or landmen, to deal with surface landowners and land administration. Landmen are involved in negotiations with landowners from the initial request to explore land to the time when a well or pipeline is abandoned and reclaimed. The Canadian Association of Land and Energy Professionals is a non-profit voluntary professional association for landmen, as well as energy professionals, in Canada. It provides education and training in land management, engages with the public and government sectors, and promotes professional and ethical standards among its members.

Canadian Association of Land and Energy Professionals

Phone: 403-237-6635

reception@calep.cawww.calep.ca

B.2.6 Canadian Association of Petroleum Producers

The Canadian Association of Petroleum Producers (CAPP) is an industry group representing companies involved in the exploration, development and production of crude oil and natural gas in Canada. CAPP member companies account for 85% of the nation's total production of petroleum.

CAPP often represents the industry in discussions with government, the AER and environmental groups. Over the years, CAPP has worked with members and stakeholders to develop industry best practices and comprehensive operating guidelines on topics such as emergency response planning and flaring. The AER has used these evolving guidelines as minimum standards.

CAPP's website contains many resources primarily written for their members but covering a variety of topics such as health and safety, emergency response, sour gas, flaring and venting. Additionally, CAPP produces their *Crude Oil Forecast, Markets and Transportation* report annually.

Canadian Association of Petroleum Producers

Phone: 403-267-1100

communication@capp.cawww.capp.ca

B.2.7 Orphan Well Association

The Orphan Well Association is a non-profit organization tasked with managing the abandonment of upstream oil and gas orphan wells, pipelines and facilities, and the remediation and reclamation of their associated sites. The organization works under the delegated authority of the AER. Funds for the program are collected by the AER through the Orphan Fund levy on the upstream oil and gas industry. This levy is based on the abandonment and reclamation liabilities held by each company, and it is collected annually by the AER and remitted to the OWA. The association's activities are described in their annual report, available on their website. The organization also publishes a list of wells, sites, and pipelines that are to be abandoned or undergo reclamation.

Orphan Well Association

Phone: 403-297-6416, or toll-free 310-0000, ask for AER switchboard 403-297-8311, then ask for the OWA
www.orphanwell.ca

B.2.8 Explorers and Producers Association of Canada

The Explorers and Producers Association of Canada (EPAC) represents independent oil and gas companies, including start-ups, junior, and mid-sized producers operating in Canada and abroad. EPAC has close to 200 member companies, and represents their interests to government and regulatory bodies and to other sectors of the oil and gas industry.

Explorers and Producers Association of Canada

Phone: 403-269-3454
 Fax: 403-269-3636
info@explorersandproducers.ca
explorersandproducers.ca

B.2.9 Strathcona Industrial Association

Several oil and gas companies operating in the eastern part of Edmonton and the adjacent portion of the County of Strathcona are members of the Strathcona Industrial Association (SIA). Other companies involved are mostly in the petrochemical industry. SIA has seven continuous air quality monitoring stations and 21 static monitoring stations in the region.

The association also supports health promotion and safety initiatives in the community. It operates the Strathcona District Mutual Assistance Program to plan and test emergency response readiness.

Strathcona Industrial Association

Phone: 780-990-4742
info@sia.ab.ca
www.sia.ab.ca

B.3 Province-wide non-profit organizations

B.3.1 Alberta Environmental Network

The Alberta Environmental Network (AEN) is an affiliation of environmental non-profit, non-governmental organizations and individuals working toward a healthier environment in Alberta. The AEN aims to build the capacity of its members by providing resources, information and networking opportunities, and maintains a directory of members on its website.

One of the main activities of the AEN is to facilitate the participation of environmental non-governmental organizations in environmental engagements, such as on committees or in discussions with the AER or the Clean Air Strategic Alliance (section B.3.5).

Alberta Environmental Network

Phone: 780-439-1916

admin@aenweb.ca

www.aenweb.ca

B.3.2 Environmental Law Centre

The Environmental Law Centre (ELC) is a leading environmental public policy and law reform charity that provides objective information and advice on environmental legislation and regulations. The centre carries out its work through public programs and contract services.

The Environmental Law Centre

Phone: 780-424-5099, 800-661-4238

Fax: 780-424-5133

www.elc.ab.ca

Publications

The ELC has published many useful books and reports relating to environmental issues in Alberta, which are available on its website. Some examples are:

Buyer Beware: Where and how to find environmental information about a property in Alberta (2015). This short helpful resource outlines where you can look for environmental information when you are buying property in Alberta.

What Lies Beneath? Access to Environmental Information in Alberta (2014). This comprehensive guidebook is intended to help anyone obtain environmental information about a specific property or location. This location-based approach is focused on the real estate buyer but can also be helpful for community groups, environmental organizations and the general public.

B.3.3 Alberta Native Plant Council

The Alberta Native Plant Council promotes knowledge and conservation of the native plants and vegetation in Alberta. The council can provide information to those wanting land to be reclaimed using native plants.

Alberta Native Plant Council

info@anpc.ab.ca

www.anpc.ab.ca/

B.3.4 Action Surface Rights

Action Surface Rights is an Alberta-based group that is dedicated to helping fellow landowners understand and navigate the maze of government and industry processes when dealing with the energy sectors, whether it be oil/ gas, transmission lines, or wind power. They provide resources, support and information for landowners to help them make an informed decision when dealing with energy development.

Action Surface Rights

contact@actionsurfacerights.ca

actionsurfacerights.ca/

B.3.5 Clean Air Strategic Alliance

The Clean Air Strategic Alliance (CASA) is a multi-stakeholder partnership of industry, government and non-governmental organizations that assists the Government of Alberta in developing strategic policy on many air quality issues. CASA deals with environmental, economic and health issues. While there are representatives from various government departments on the CASA board and on various CASA teams, CASA reaches decisions through a consensus process.

One of its key roles is to prioritize air quality problems and, through its project teamwork, develop effective action plans to resolve these concerns.

Recognizing that air quality issues are often best dealt with on a regional basis, several regional airshed monitoring bodies have been endorsed under the CASA umbrella, using approved airshed zone guidelines. As with CASA, these multi-stakeholder bodies make decisions by consensus and consist of representatives from government, industry and non-governmental organizations (see below). They do not provide comprehensive coverage of the province, but are active in many areas with more intensive oil and gas activity.

Clean Air Strategic Alliance

Phone: 780-427-9793

casa@casahome.org

www.casahome.org

B.3.6 Alberta Airsheds Council and airshed groups

In 2006, the Alberta Airsheds Council (AAC) was formed to coordinate the efforts and operations of Alberta's airsheds. It is a council of the 10 airsheds currently in Alberta and is a place where airshed zones can discuss common issues.

Alberta Airsheds Council

administrator@albertaairshedsCouncil.ca

www.albertaairshedsCouncil.ca/

You can get more information about Alberta's airsheds from the Clean Air Strategic Alliance,³ or you can contact the groups directly using the information below.

Heartland Air Monitoring Partnership <i>Fort Saskatchewan and region</i> Phone: 1-800-718-0471 info@heartlandair.org www.heartlandairmonitoring.org/	Parkland Airshed Management Zone <i>Red Deer, Rocky Mountain House, Sundre, Banff and surrounding region</i> Phone: 403-862-7046 info@pamz.org www.pamz.org
Palliser Airshed Society <i>Medicine Hat and Redcliffe</i> Phone: 403-512-0085 admin@palliserairshed.com palliserairshed.com/	Peace Airshed Zone Association <i>Grande Prairie and region</i> Phone: 780-882-4589 www.paza.ca/
West Central Airshed Society <i>Jasper, Hinton, Edson, Lake Wabamun, Drayton Valley, Pigeon Lake and surrounding regions</i> Phone: 587-499-4900 info@wcas.ca www.wcas.ca	Wood Buffalo Environmental Association <i>Fort McMurray and the Wood Buffalo region</i> Phone: 780-799-4420 info@wbea.org www.wbea.org/
Alberta Capital Airshed (ACA) <i>Edmonton region</i> Phone: 587-520-7935 info@capitalairshed.ca capitalairshed.ca	Calgary Region Airshed Zone (CRAZ) <i>Calgary region</i> Phone: 403-968-5522 craz.ca/

³ CASA, "Alberta Airshed Zones." <https://www.casahome.org/partners-links/alberta-airshed-zones/>

Lakeland Industry and Community Association Environmental Stewards <i>Bonnyville, Cold Lake, St. Paul and region</i> Phone: 780-812-2182 lica2@lica.ca lica.ca/	Peace River Air Monitoring Program <i>Peace River area</i> Phone: 780-625-2900 prampairshed.ca/
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B.3.7 Freehold Owners Association

The Freehold Owners Association is an organization for those who own subsurface rights. It was set up to level the playing field between Freeholders and the oil and gas companies that lease their oil and gas interests.

Freehold Owners Association

Phone: 587-407-1381

fhoa.ca/

B.3.8 Alberta Trappers' Compensation Program

The Alberta Trappers' Compensation Program is administered by the Alberta Trappers' Association to help trappers when they are negatively affected by the activities of other resource users on Crown lands. The Trapper Compensation Board has been appointed to review claims that cannot be resolved through direct negotiations. This may be useful for those who have trapping leases near oil and gas development in the area.

Alberta Trappers' Association

Phone: 780-349-6626

info@albertatrappers.com

www.albertatrappers.com

B.3.9 Alberta Land Institute

The Alberta Land Institute (ALI) is an independent, non-partisan research institute based at the University of Alberta that connects research and policy for better land management. ALI conducts and funds interdisciplinary academic research on land-use challenges in Alberta and Canada to develop and evaluate alternative policy options that consider social, economic and environmental perspectives.

ALI has also published a guide and accompanying website to property rights in Alberta, outlining the basics of property and subsurface rights, which may be useful to read.⁴

Alberta Land Institute

Phone: 780-492-3469

albertalandinstitute@ualberta.ca

www.albertalandinstitute.ca

B.3.10 Grassroots Alberta Landowners Association

Grassroots Alberta Landowners Association was established to advance the interests of landowners by working to ensure that legislators, members of the media, and the general public come to a better understanding of the impact that industrial development has upon the lives and operations of farmers and ranchers. Grassroots Alberta is available to work with groups of landowners when their property is affected by pipeline and powerline projects.

Grassroots Alberta Landowners Association

Phone: 403-823-0429

grassrootsalbertaci@outlook.com

grassrootsalberta.org/landowners-association

B.4 Synergy, mutual aid and surface rights groups

There are a number of groups dealing with oil and gas issues at the local level. Some are multi-stakeholder groups; others may be formed by one particular group, such as members of the public, who work together to bring their common interests to the attention of industry. Sometimes they are “one-issue” groups set up to deal with a particular application or problem. Such groups may later become inactive once the issue has been addressed. Other groups act on a more regional basis to deal with a variety of issues.

Some multi-stakeholder groups include industry, community and government representatives working together to try to resolve issues. Such groups may be referred to as “synergy” groups since the groups aim to achieve greater effectiveness through cooperation or combined action. They may focus on a variety of issues, including health, safety and emergency response; environmental issues; and community relations and communications. Such synergy groups are encouraged by the AER, and the AER is often an active participant in these groups.

⁴ Alberta Land Institute, *A Guide to Property Rights in Alberta* (2014). <https://www.ualberta.ca/en/alberta-land-institute/media-library/documents/research/a-guide-to-property-rights-in-alberta1.pdf>

B.4.1 Alberta Surface Rights Federation

The Alberta Surface Rights Federation works to improve the operation of all aspects of the energy industry as it affects landowners. The federation can provide names of local surface rights organizations and of experienced individuals who may be able to provide advice. They lobby government and the AER, and engage in multi-stakeholder processes.

B.4.2 Alberta Water Council

Established in 2004, the Alberta Water Council is a multi-stakeholder partnership, with representatives from governments, industry, and non-government organizations. Its primary task is to monitor and steward implementation of Alberta's Water for Life strategy and to champion achievement of the strategy's three goals.⁵

Alberta Water Council

Phone: 780-644-7380

info@awc-casa.ca

www.awchome.ca/

B.4.3 Watershed planning and advisory councils

Under Alberta's Water for Life strategy, watershed planning and advisory councils (WPACs) are multi-stakeholder, non-profit organizations that assess the conditions of specific watersheds and develop plans and activities to address watershed issues. There are 11 WPACs in Alberta.

Athabasca Watershed Council Phone: 780-213-4389 athabascawatershed.ca/	Battle River Watershed Alliance Phone: 780-672-0276 www.battleriverwatershed.ca
Lakeland Industry & Community Association Phone: 780-812-2182 / 1-877-737-2182 lica.ca/	Bow River Basin Council www.brbc.ab.ca
Lesser Slave Watershed Council Phone: 780-523-9800 www.lswc.ca	Mighty Peace Watershed Alliance www.mightypeacewatershedalliance.org

⁵ Alberta, *Water for Life: Alberta's Strategy for sustainability* (2003).
<https://open.alberta.ca/publications/0778530582>

Milk River Watershed Council Canada Phone: 403-647-3808 mrwcc.ca/	North Saskatchewan Watershed Alliance Phone: 825-901-7676 www.nswa.ab.ca
Oldman Watershed Council Phone: 403-330-1346 oldmanwatershed.ca/	Red Deer River Watershed Alliance Phone: 403-340-RDRW (340-7379) www.rdrwa.ca
South East Alberta Watershed Alliance Phone: 403-580-8980 www.seawa.ca	

B.5 Other relevant local groups and committees

The following is a non-exhaustive list of other multi-stakeholder groups in Alberta.

B.5.1 Turner Valley Oil and Gas Group

The Turner Valley Oil and Gas Group (TVOGG) is a committee of representatives from the oil and gas industries, municipal and provincial governments, regulatory agencies, and emergency/disaster services that have interests within the towns of Diamond Valley and Longview and the MD of Foothills.

TVOGG aims to promote cooperation and communication between industry, government, regulatory agencies and developers with respect to development near oil and gas facilities; coordinated responses to public concerns about energy and oil and gas activities; and education and awareness of oil and gas industry safety concerns such as underground facilities.

B.5.2 Lakeland Industry Community Association

Lakeland Industry Community Association (LICA) was formed in 2000 to focus on issues in the Bonnyville, Cold Lake and St. Paul region. The association focuses on air, soil, and water monitoring, and operates the LICA airshed zone and the Beaver River Watershed Alliance as independent standing committees.

It has members from industry and the community, including the Indigenous community. Representatives from the AER also attend meetings. Although it functions as a synergy group, it also serves other functions.

Lakeland Industry Community Association

Phone: 780-812-2182

lica2@lica.calica.ca/

B.5.3 Sundre Petroleum Operators Group

Sundre Petroleum Operators Group (SPOG) was set up in 1992 to facilitate understanding between the community and the oil and gas companies in the Sundre/Caroline area. Its mission is to facilitate communication and cooperation among primarily petroleum industry partners, regulatory agencies and the community. While it is an industry-funded group, it includes representatives from 25 community groups in the Sundre/Caroline area and from the AER, in addition to 20 oil and gas and service companies. SPOG has working groups and committees that deal with a variety of issues, outlined on their website. Although it functions as a synergy group, it also serves other roles in the community.

Sundre Petroleum Operators Group

Phone: 403-638-5117

admin@spog.ab.cawww.spogab.com/

B.5.4 Southwest Alberta Sustainable Community Initiative

SASCI aims to provide information and education and to facilitate public cooperation through a multi-stakeholder group for a sustainable economic, environmental and social future of southwestern Alberta. The group's goal is to facilitate mutual understanding rather than to advocate for or against development.

Southwest Alberta Sustainable Community Initiativesasci@telus.netwww.sasci.ca

B.5.5 Life in the Heartland

Life in the Heartland is a collaborative initiative that began in 2009 by five different groups operating in Alberta's industrial heartland, including Lamont County, Sturgeon County, Strathcona County, City of Fort Saskatchewan and City of Edmonton (specifically Horsehill Industrial area). It primarily provides information, contacts and resources to residents in and around the heartland. Based on resident feedback, it focuses on cumulative effects, risk management, air quality, traffic, noise, water quality and education.

The website lists the contact information for each of the partners of the organization and phone numbers for specific inquiries.

Life in the Heartland

info@lifeintheheartland.com

lifeintheheartland.com

Appendix C. Documenting Costs

C.1 Determining compensation

As a landowner who may sign or has signed a surface lease agreement, you should track any time or expense that occurs as a result of having a well, pipeline or facility on your land. You should start logging this as soon as the seismic equipment shows up, and finish when you have a reclamation certificate in hand that you are happy with.

A landowner's compensation offer for a surface lease considers five main criteria:

- the entry fee (fixed to \$500 per acre)
- land value
- general disturbance such as initial nuisance, inconvenience, and noise (for the first year of the lease)
- loss of use of the land
- adverse effect

Although there may be other considerations specific to your situation, these are the criteria outlined in the Surface Rights Act.¹ For more information about compensation, refer to section 9.

C.1.1 Negotiation expenses

Compensation should be negotiated early in your discussions in order to ensure that you and the company can agree on the reasonable reimbursement for your time. Keep track of all your time and expenses while negotiating with the company, including activities like phone calls, researching, dealing with the company's representatives and surveyors, negotiations, preparing documentation, and reaching out to third parties, lawyers, and government representatives.

If you begin as early as the project conception, you can include your records as evidence toward the reimbursement of your costs. If you provide a reasonable and detailed outline of time and expenses, the company may be persuaded to reimburse you; if they do not, the Land and Property Rights Tribunal might award your costs. The Surface Rights Board (predecessor to the tribunal) has determined in the past that even if compensation was negotiated outside their process, lessors should be granted reasonable costs incurred while negotiating.

¹ Alberta, *Surface Rights Act*, RSA 2000, c. S-24, s. 25.

Table 15 provides an example of cost tracking for activities during negotiations that you can adapt for your own use. You should number each item for ease of reference.

Table 15. Example cost tracker for negotiations

Ref. #	Date	Description	Expense	Time
1	05-02-2025	Meeting with land agent about seismic testing		1 hr
2	06-27-2025	Land agent kitchen table talks, discuss surface lease access		1.5 hr
3	06-28-2025	Research on company, phone call with AER		1 hr
4	06-29-2025	Research on company history, reclamation, enforcement orders	\$75	4 hr
5	06-30-2025	Cost of landowner consultant (preliminary investigation) (\$250/hr)	\$250	1 hr
6	07-05-2025	Land agent kitchen table talks, cont. discussing concerns on well placement		1 hr
7	07-05-2025	Cost of landowner consultant (additional investigation) (\$250/hr)	\$500	2 hr
8	07-02-2025	Printing costs of application and relevant documentation	\$25	
9	07-15-2025	Land agent kitchen table talks, cont. discussing concerns on flaring		1 hr
10	07-15-2025	Cost of landowner consultant (kitchen table talks, preparation) (\$250/hr)	\$500	2 hr
11	07-17-2025	Cost of landowner consultant (follow-up to discussions) (\$250/hr)	\$375	1.5 hr
12	08-07-2025	Travel to and from ADR process (\$0.505/km)	\$25.25 (50 km)	1 hr
13	08-08-2025	ADR process negotiations		2.5 hr
14	08-09-2025	Surface lease agreement signed		1 hr

C.1.2 Adverse effect costs

Adverse effects are calculated at the time of signing for a surface agreement and should consider probable effects in a future five-year period. You may want to look at past Land and Property Rights Tribunal decisions to get an idea about likely effects and compensation.²

Adverse effect could include:

- Extra time to farm around the operation
- Production losses (outside the lease) due to compaction, or extra turning of the combine to navigate around the lease site
- Impact and change for on-farm management decisions
 - Impact to GPS operations
- Added strain on machinery
- Effort and cost for effective weed control
- Inconvenience to normal field operations
 - Extra care when in the vicinity of the obstruction, extra time
 - Time to supervise and inspect lands
 - Added stress on operator to not hit any structures
- Impact of exposure to non-lethal hydrogen sulphide for landowner, livestock
- General payment for a forced business relationship
- Other items unique to this lease

As these are probable future effects, anticipated costs and expenses may be hard to justify if they are speculative. However, every surface lease can be renegotiated every five years. In order to demonstrate additional adverse effects not covered in your initial lease agreement, diligent documentation can help ensure you are compensated in the next surface lease agreement for all costs and time spent dealing with the lease on your land. The Land and Property Rights Tribunal may consider a reasonable hourly rate for your time.

Table 16 provides an example of cost tracking for adverse effects that you can adapt for your own use. You should number each item for ease of reference.

² Alberta, “LPRT – Find a decision.” <https://www.alberta.ca/lprt-find-a-decision>

Table 16. Example cost tracker for adverse effects

Ref. #	Date	Description	Expense	Time
36	09-04-2024	Fence damaged by truck crews; repaired fence (include photos)	\$50 (barbed wire)	0.5 hr
37	09-10-2024	Cattle gate left open; rounded up escaped cattle (include photos)		1 hr
38	09 -17-2024	Weekly rounds to check fencing, gate closing		0.25 hr
39	09 -24-2024	Weekly rounds to check fencing, gate closing		0.25 hr
40	09 -30-2024	Weekly rounds to check fencing, gate closing		0.25 hr
41	10-07-2024	Weekly rounds to check fencing, gate closing		0.25 hr
42	10-14-2024	Weekly rounds to check fencing, gate closing		0.25 hr
43	10-20-2024	Pump-valve failure – uncontrolled release; moved cattle upwind, closed gates, contacted company and AER		2.5 hr
44	10-21-2024	Company trucks responding to release caused ruts in field; repaired ruts		4 hr
45	10-28-2024	Weekly rounds to check fencing, gate closing		0.25 hr
65	06 -01-2025	Controlled weeds on lands adjacent to lease road – scentless chamomile removal and disposal (include photos)		1.5
66	06-10-2025	Cattle gate left open; rounded up escaped cattle (include photos)		1 hr
67	06-11-2025	Phone call with AER and company staff re: fencing		0.5 hr

Appendix D. Glossary

abandonment (abandoned well or facility)

The permanent deactivation of a well, pipeline or seismic hole. In an abandoned well (cased or uncased), porous and permeable hydrocarbon and/or water-bearing formations are effectively isolated through the placement of cement caps. Well abandonment also includes removing the wellhead, cutting the casing off at a depth of one metre below ground surface and welding a steel plate across the opening. Abandonment should ensure that there is no potential for damage to the oil and gas remaining in the ground or for the oil or gas to contaminate groundwater. See also *orphan well* and *suspended well*.

In the case of a pipeline, abandonment means the permanent deactivation of a pipeline or part of a pipeline, whether or not it has been removed. For seismic holes, abandonment involves ensuring that the hole is capped in such a way that there is no chance of damage to groundwater.

acid gas

A gas that results from treating or “sweetening” sour gas; it contains predominantly hydrogen sulphide and carbon dioxide.

adverse effect

One condition considered by the Land and Property Rights Tribunal to determine compensation for a surface lease. The definition typically includes probable impacts within the next five years and includes extra inconvenience, nuisance and extra costs on the rest of the quarter section where the well site is located. In addition to the fixed entry fee, compensation is also determined by land value, general disturbance in the first year of the lease, loss of use of that land, and other relevant factors.

adversely affected

One of the conditions (besides being directly affected) that you must prove is probable in a statement of concern in order to have your concerns about an energy application considered by the AER when it reviews the application. (In a regulatory appeal, you must prove this as a fact, not a probability.) Adverse effects are generally understood to be more than moderate adverse consequences. Not to be confused with *adverse effect*, which is one condition used by the Land and Property Rights Tribunal to determine compensation for a surface lease.

Alberta Ambient Air Quality Objectives and Guidelines

A set of objectives and guidelines for air quality in Alberta; they are intended to provide protection of the environment and human health to an extent scientifically, technically, economically, and socially feasible. Air quality objectives are generally averaged over one-hour, 24-hour, and annual periods. They are used to assess compliance of major industrial emission sources, determine the adequacy of facility designs, and track and present information on air quality throughout the province. Guidelines and objectives are reviewed as needed; currently the province has air quality objectives for over 50 substances that could be released to the atmosphere.

alternative dispute resolution (ADR)

The AER offers an alternative dispute resolution process for disputes related to energy development in Alberta, as an alternative to the hearing process. The ADR process may involve facilitation, mediation, negotiation, arbitration or a combination of these strategies. The ADR process isn't limited to issues within the jurisdiction of the AER, so in some cases this process may enable a broader range of issues and resolution than what the AER can typically regulate, such as compensation. The process can be used at any point in the project life cycle, from the project planning phase until after the project is complete. Typically, the ADR program is voluntary, unless required by hearing commissioners after an application has been recommended for a hearing. The Canada Energy Regulator also has an ADR process for projects under its jurisdiction.

arbitration

In arbitration, a neutral third party assesses evidence in a dispute around an agreement; the decision they make is legally binding on both sides. The process is governed by the Alberta Arbitration Act.

backfill

To refill a hole, often with material that was originally excavated.

base of groundwater protection (BGWP)

As used by the AER, the approximate depth where non-saline groundwater changes to saline groundwater.

battery

A system or arrangement of tanks or other surface equipment receiving the production from one or more wells prior to delivery to market or other disposition, and may include equipment or devices for separating the product into oil, gas or water.

blowout

The uncontrolled release of crude oil or natural gas from a well during drilling or operations.

BTEX

A group of volatile aromatic hydrocarbons — benzene, toluene, ethylbenzene, and xylenes — often found together.

carbon capture and storage

The process of collecting carbon dioxide from an industrial application and storing it underground in order to reduce emissions.

cased-hole abandonment

The abandonment of a completed well when it is no longer required for production. A bridge plug is put into the well, inside the casing, to prevent upward movement of hydrocarbons.

casing

The lining put into a well. Usually several casings are installed as a well is drilled and put into production. The production casing is a tubular steel pipe threaded on each end and connected with couplings. It extends the total length of the wellbore to ensure safe control of production, prevent water from entering the wellbore and keep rock formations from slumping into the wellbore.

Class I pipeline

A pipeline's class, for regulatory purposes, is defined by an index that is based on a product of its size and length. A Class I pipeline has an index of 2690 or greater and must be approved by the AER.

Class II pipeline

A pipeline's class, for regulatory purposes, is defined by an index that is based on a product of its size and length. Class II pipelines have an index less than 2690 and are generally small and/or short pipelines; they are not approved by the AER, but they follow the same environmental protection guidelines as Class I pipelines. Class II pipelines also include any pipeline regulated by the Canada Energy Regulator.

coalbed methane (CBM)

Methane that is trapped in a coalbed. The methane gas comes to the surface at lower pressure and may need to be compressed before it is transported. If coalbed methane contains water, the gas must be dewatered and the wastewater disposed of.

completion

A well is completed when drilling is finished and the resources can begin to be extracted: the casing is complete, the well site is finished and the production infrastructure has been installed.

compressor

A device, driven by large gas or electric engines, used to create and maintain pressure in a gas pipeline so that the gas will flow through process units and pipelines. Compressors may be located at a wellhead, battery, gas plant or along a pipeline. Long pipelines may require a series of compressor stations along the pipeline to boost pressure.

conservation

In the context of energy resources, the planning, management and implementation of an activity to prevent the waste of energy resources. An example is the conservation of natural gas as a byproduct of oil production.

critical sour well

A well that could release sour gas, potentially affecting nearby residents. The designation reflects the well's proximity to an urban centre and its maximum potential release rate of hydrogen sulphide during the drilling stage. The operator must prepare a detailed drilling plan that addresses all aspects of a proposed operation. A critical well is classified according to the Alberta Energy Regulator's Directive 056: Energy Development Applications and Schedules.

Crown land

Lands owned by either provincial or federal governments. The provincial government uses the term public land to refer to land administered under the Public Lands Act to avoid confusion with other provincial and federal land.

dewatering

The separation of water from hydrocarbons, especially in coalbed methane operations.

directly affected

One of the conditions (besides being adversely affected) that you must prove is probable in a statement of concern in order to have your concerns about an energy application considered by the AER when it reviews the application. (In a regulatory appeal, you must prove this as a fact, not a probability.) In general, to be directly affected a person must prove that the effects on them are greater than the average Albertan. Whether or not a person is directly affected will vary from case to case.

down-hole abandonment

A stage in well abandonment that includes installing cement caps in the wellbore and cutting off the casing. It does not include the surface abandonment or reclamation of the lease site.

drilling

The first stage in well construction, when the initial hole is bored into the surface of the earth. Seismic holes may also be drilled for seismic testing in the exploratory stages of development.

drilling mud

Fluid circulated down the drill pipe during drilling to remove cuttings, cool and lubricate the drill bit, and maintain the desired pressure in the well.

dehydrator

A facility that removes the water present in some natural gas to prevent the corrosion and freezing of gas pipelines.

easement

The right to use a specific portion of another's land for a specific purpose. Easements are very similar to rights-of-way and are usually registered on the title of the property.

effluent

Liquid waste from an oil operation, usually containing oil products, chemicals used in production and wastewater.

emergency planning zone (EPZ)

An area surrounding a well where *residents* or other members of the public may be at risk in the event of an uncontrolled release of hydrogen sulphide. The company must be prepared to respond immediately to any event in the EPZ and to inform the public and assist them to evacuate in case of an emergency in the zone.

energy resource enactments

Laws governing the extraction and management of energy resources, including oil, natural gas and coal. This includes the Coal Conservation Act, Gas Resources Preservation Act, Oil and Gas Conservation Act, Oil Sands Conservation Act, Pipeline Act, the Turner Valley Unit Operations Act, and all associated rules and regulations.

enhanced oil recovery

Using water or carbon dioxide to maintain the pressure in an almost-depleted oil reservoir in order to extract more oil.

equivalent land capability

The ability of land that has been conserved or reclaimed to support various land uses that are similar, but not necessarily identical, to those that existed prior to an activity being conducted on the land.

expedited application

A project application may be expedited (a routine application) when an application is submitted to the AER with no outstanding concerns or objections, a landowner agrees to a surface lease or to proceed to the Land and Property Rights Tribunal, the company is compliant with all technical and participant involvement requirements, and the company is not requesting exceptions. An expedited application allows the regulator to make a decision immediately without waiting for a statement of concern filing deadline to pass.

facilitation

An informal process for resolving problems that involves a third party who helps to guide discussions between the other parties in a dispute about an issue. Such a facilitator encourages all those involved to participate actively in the discussion and work together to find an effective solution. The primary responsibility for resolving the issue rests with the two parties in dispute.

flaring

The burning of unwanted gases from a well or processing facility. It may be routine or occur due to an upset. The two common types of flaring are well test flaring and solution gas flaring. Well test flaring is carried out when a new well is drilled to burn off gases while the chemical content of the gases is being tested. Solution gas flaring occurs at batteries or wells where oil from one or more wells is processed and stored. Flaring is sometimes necessary at temporary stacks, as part of pipeline maintenance operations. Gas processing plants also use flares to burn off by-products for which there is no market and to burn off gas during emergency conditions.

flowback fluids

A mixture of injection fluids, reservoir fluids and gases that flows back up the wellbore and to the surface after each pressurization cycle in hydraulic fracturing. Flowback fluids must be captured, contained, and disposed of to avoid surface contamination. Pits can be used to

store the flowback fluid; however, above-ground storage tanks should be used to minimize risk of contamination from leaks and spills.

fracturing, fracking

See *hydraulic fracturing*.

Freehold mineral rights

The ownership of and legal right to recover specific minerals from a specified piece of land is known as mineral rights ownership. The Alberta government holds mineral rights for the majority (81%) of land in Alberta, the federal government approximately 9%, while companies and a few individuals have Freehold mineral rights over the remaining 10% of the land. An owner of surface land does not typically own the mineral rights beneath the land.

gas processing plant

Gas processing plants remove unwanted substances from the gas before it is transported and sold as marketable natural gas. Some substances are separated out for sale, such as methane, ethane, propane, butane and pentanes. There are also contaminants in the raw gas that must be removed to meet quality specifications, such as water, hydrogen sulphide (H₂S), carbon dioxide, nitrogen and other trace gases. There are almost 800 gas processing plants in Alberta.

Sulphur may be recovered for sale, but any excess H₂S is flared or incinerated, with combustion converting most of the H₂S to sulphur dioxide. The sulphur dioxide is released to the atmosphere.

groundwater

Water that collects or flows under the surface of the ground. Groundwater can either be saline (total dissolved solids in excess of 4,000 mg/L) or non-saline. Non-saline groundwater is not necessarily potable, but may be used for other purposes. See also *surface water*.

hearing

A process used by the Alberta Energy Regulator, the Land and Property Right Tribunal, and other similar regulatory bodies to listen to arguments and evidence before deciding on an issue. The AER can decide to hold a hearing on an energy application if concerns about the application have not been dealt with and the landowner and company have not come to an agreement. The AER will consider all accepted statements of concern before deciding on whether to hold a hearing.

horizontal drilling (directional drilling)

Traditionally, most wells were drilled vertically, but with new technology wells are more commonly drilled horizontally along underground formations to access resources that would otherwise be unreachable or unprofitable to develop. Typically horizontal drilling can reduce costs by using one well pad for multiple horizontal wells, which may result in less surface disturbance. Horizontal drilling is often also combined with hydraulic fracturing.

hydraulic fracturing (fracturing, fracking, multi-stage hydraulic fracturing)

Hydraulic fracturing or fracking involves pumping special fluids (fracturing fluids) into a well at high pressure to crack or fracture the formation, accessing oil or gas contained in small pores in the rock, and enabling the oil or gas to more easily flow into the wellbore. Hydraulic fracturing is typically combined with horizontal drilling.

hydrogen sulphide (H₂S)

A poisonous gas that occurs naturally and comes to the surface in sour gas wells. It also occurs in sewer gas. The rotten egg smell associated with H₂S can be detected when concentrations are as low as 0.001 to 0.13 ppm. Concentrations as low as 1–5 ppm may lead to nausea or headaches with prolonged exposure. Concentrations of 20–50 ppm may cause irritation of the nose, throat, and lung, digestive upset and a loss of appetite; as well, one's sense of smell may become fatigued so odour can't be relied on as a warning of exposure. Sense of smell temporarily disappears at concentrations of 100–200 ppm and is accompanied by severe nose, throat and lung irritation. At 250–500 ppm, exposure can lead to pulmonary edema, a potentially fatal buildup of fluid in the lungs. Concentrations above 500 ppm could lead to respiratory paralysis, irregular heartbeat, collapse, and death. While these acute effects of H₂S are of greatest concern, there are indications that cumulative low-level exposure can also affect health, even though it is not known what levels constitute a health risk to the general public or sensitive individuals. Pure H₂S is slightly heavier than air, so it does not disperse rapidly in enclosed spaces and may collect in low-lying areas such as valleys. The average H₂S content of sour gas produced in Alberta is 10%, although the concentration can range from trace amounts to more than 80%.

incineration

Combustion of waste gases at a well site. Unlike flaring, where gas is simply ignited at the stack, in incineration gases are combusted under controlled conditions in a closed chamber. When properly done, incineration provides a more complete combustion of the produced gases and generally minimizes the air pollutants released.

land agent (landman)

A person whom the energy company employs to negotiate with landowners and occupants, and secure and administer oil and gas leases and other agreements. Land agents are also referred to as landmen. In Alberta, landmen are licensed and regulated under the Land Agents Licensing Act.

landowner

The person whose name is on the certificate of title to the land issued under the Land Titles Act. This term is used generally to describe the person who owns the land.

lessee

The person or company that leases land from the lessor. (A person who has agricultural rights on public lands is referred to as an agricultural disposition holder or an agricultural leaseholder.)

lessor

The person who leases lands to the lessee.

mediation

A situation that is too difficult or controversial to be resolved by facilitation may move to mediation. A neutral and impartial third party, the mediator, works with those involved in a dispute to minimize conflict and help the parties make their own mutually acceptable decisions. A mediator may clarify the issues, identify the specific concerns and needs of each party and suggest different ways the issues could be resolved. For mediation to be successful, the parties must agree to seek a common solution.

negotiation

Negotiation is the process of reaching an agreement in a dispute as each party works for their preferred outcome. It can occur directly by principals or indirectly through agents such as lawyers.

non-expedited application

See *non-routine application*.

non-objection

If landowners, occupants or residents have no outstanding concerns about an application for a project, they may confirm this in a statement of non-objection to the company. Depending on the type of application, this is necessary for a company to confirm from landowner, occupants, and/or residents in order to submit an expedited or routine application.

non-routine application

If there are any outstanding objections to an application or the company was not able to secure a confirmation of non-objection (or there are other technical or administrative circumstances), a company must file a non-routine application and include a summary of outstanding concerns or issues. Concerned parties have until the statement of concern filing deadline (listed in a notice of application) to submit a statement of concern about the application with the regulator. The AER will only make a decision on this application after the filing deadline has passed; these applications are thus also called non-expedited.

non-saline groundwater, non-saline aquifer

Groundwater with low levels of salts, usually defined as less than 4,000 mg per litre total dissolved solids. Extractive wells may be drilled into shallow, non-saline aquifers can potentially contaminate nearby shallow, potable-water aquifers. Non-saline water may be extracted along with natural gas or coalbed methane. It is removed from these resources and managed differently than saline groundwater.

occupant

The person, other than the owner, who has certain rights to the land and is in actual possession of the land. The occupant may also be referred to as the tenant. In the case of government-owned land, such as a grazing lease on public land, the occupant is the person shown in the records to have an interest in the land. In the Surface Rights Act, section 1(g), an occupant may also be a company that has been granted a right-of-entry to land under a right-of-entry order.

Note that the definition of an occupant used in this guide is more general than the definition used by the AER. In Directive 056, Appendix 1, the AER distinguishes between landowners, occupants, residents and Crown land disposition holders.

oilsands

A deposit of sand saturated with bitumen. The bitumen may be extracted by surface mining or by injecting steam through a well.

operator

Usually the company that is carrying out some activity. It includes the holder of a licence, approval or permit issued by the AER. In the Environmental Protection and Enhancement Act, it means an approval or registration holder who carries on or has carried on an activity on or in respect to specified land pursuant to an approval or registration. In the Surface Rights Act, it means the company that has the right to conduct surveys or extract the oil, gas or other mineral.

orphan well

If the company holding the licence to operate a well becomes defunct or insolvent before it can abandon or reclaim the operation, the well is an orphan and no owner or party can be held responsible for the cleanup. The proper abandonment and reclamation of orphan wells (and pipelines) is paid for through the Orphan Fund, which is financed by an AER-issued levy on oil and gas licences and managed by the Orphan Well Association.

owner

The person in whose name a certificate of title has been issued under to the Land Titles Act.

permit agent

A person whom the energy company employs to negotiate with landowners and occupants, and secure permission and access to undertake geophysical exploration. The permit agent may be certified. This is different than a land agent, who negotiates leases.

ppm (parts per million)

The ratio by mass of a pollutant per one million parts of the total solution that it is in. Often measured as milligrams of pollutant per litre of water.

pit

A temporary storage area for liquid or semi-liquid waste produced during drilling or operations; also known as a sump.

pre-application concern

A notification filed with the AER before an application is submitted to the regulator. This notifies the AER and the company that you have concerns, and can be submitted by anyone. A pre-application concern does not act as a statement of concern and you cannot request a hearing through a pre-application concern, so unless your concerns have been satisfactorily dealt with, it should be followed by an official statement of concern once the application has been submitted.

private surface agreement

A written agreement between a landowner and an energy company that contains terms and conditions of operations, and can be registered with the AER on the Private Surface Agreements Registry. The landowner can use the registry to ask the AER to intervene if the company is not complying with the terms of the agreement.

public land

Lands administered under the Public Lands Act, such as grazing lease dispositions, are referred to as public lands, to avoid confusion with other Crown lands.

reclamation

As defined in the Environmental Protection and Enhancement Act, reclamation means any or all of the following:

- the removal of equipment or buildings or other structures
- the decontamination of buildings or other structures or land or water
- the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of the land to a state of equivalent land capability
- any other procedure, operation or requirement specified in the regulations under the Environmental Protection and Enhancement Act

reclamation certificate

The certificate issued by the AER to indicate that any land disturbed by an energy activity has been reclaimed and all AER requirements have been met. When applying to the AER, the operator must include an analysis of contamination and a report detailing how contaminants were cleaned and how surface issues such as soil replacement and revegetation were addressed. The AER conducts both random and targeted audits on certified sites. Certificates can be cancelled if the company fails an audit or a landowner complains and the site is found to be noncompliant with reclamation criteria. A company remains liable if conservation and reclamation problems arise within 25 years after issuance of the certificate.

remediation

The removal or neutralization of chemical substances from a site to mitigate or prevent any adverse effects. Also known as decommissioning or decontamination.

remediation certificate

The certificate issued by the AER to indicate that remediation has been conducted according to the AER's requirements.

request to participate

Once the AER decides to hold a hearing, it will issue a notice that includes details on how to request to participate in the hearing. Those who think they are directly and adversely affected can request to participate, as can anyone who thinks they have a tangible interest in

the matter and can materially assist the AER with its decision even if they are not considered directly and adversely affected.

resident

A resident is defined by the AER as a person occupying a residence on a temporary or permanent basis. See also *occupant*.

reservoir fluids

A mixture of fluids found in a petroleum reservoir, which usually includes oil and water. These can flow to the surface during drilling and well testing, and during hydraulic fracturing.

right-of-entry order

An order of the Land and Property Rights Tribunal granting an operator access to and use of a certain area of the land surface for operations such as drilling and roadway construction.

right-of-way

A legal right to pass through land owned by another. Also, a term used for land set aside for a road, pipeline or other infrastructure; see also *easement*.

routine application

A company may submit a routine application for a project if there are no outstanding concerns, objections, or other technical reasons designated by the AER. The AER may proceed to make a decision on the application immediately, without waiting for a filing deadline to pass (an expedited application).

saline groundwater, saline water

Groundwater with high levels of salts, usually defined as more than 4,000 mg per litre total dissolved solids. It is usually found at a lower depth than non-saline groundwater (see also *base of groundwater protection*) and often is extracted along with natural gas or coalbed methane. It is removed from these resources and usually re-injected deep underground. Saline water must be carefully managed during production to avoid contaminating non-saline aquifers.

seismic survey

A survey of the geological layers under the ground, conducted by sending out vibrations and measuring the way they are reflected back from the different layers. The vibrations may be created by dynamite charges in holes (usually 12 to 18 metres deep) or by mechanical vibrations at the surface (vibroseis). Data is recorded on receiving devices — either in two

dimensions using one line of receiver “geophones” along a shot line, or more often now with a three-dimensional technique using simultaneous recording along multiple receiver lines. This enables geophysicists and geologists to identify the geological structure and formations where oil or gas may be found.

setback

The distance required to separate a project, such as a well or pipeline, from another activity, such as a residence, water well or watercourse.

shale gas

Methane gas found in shale formations; it is extracted using hydraulic fracturing rather than standard gas extraction wells.

shot hole

In a seismic survey, dynamite charges are detonated in shallow shot holes. (Also referred to as a seismic hole.) Shot holes should be plugged and sealed when testing is complete.

shut-in well

See *suspended well*.

solution gas

Natural gas that comes to the surface with crude oil. The gas may be sweet or sour (containing hydrogen sulphide). The gas is dissolved in oil at high pressures under the ground, but released at surface pressure. If the quantities are too small to pipe or conserve economically, the gas may be flared; see also *flaring*.

sour gas

Natural gas, including solution gas, containing hydrogen sulphide.

specified land

Land that is being or has been used for, or is being held for or in connection with, the construction, operation, or reclamation of a well, oil production site, battery or pipeline. This term is used in the Conservation and Reclamation Regulation, under the Environmental Protection and Enhancement Act.

specified enactments

Regulatory documents and laws that govern the protection of the environment around energy activities. These include the Environmental Protection and Enhancement Act, Part 8 of the Mines and Minerals Act, the Public Lands Act, and the Water Act.

stakeholder

A person with an interest in an issue. In the case of oil and gas resource development, this may include nearby residents, recreational users of land, local business, environmental groups and various government agencies, as well as the company, its staff and contractors.

statement of concern

A written submission to the AER that outlines specific concerns about an energy application. A statement of concern may be filed by anyone who believes they may be directly and adversely affected by an application.

straddle plant

A gas processing plant close to a gas transmission pipeline that extracts natural gas liquids from the gas and then returns the gas to the pipeline.

subsoil

The layer of soil directly below the topsoil that generally has much less organic matter than topsoil. It can also be defined as the zone below the ploughed soil in which roots normally grow.

surface abandonment

A stage in well abandonment that includes removal of all the wellhead equipment, but not the down-hole abandonment or the reclamation of the lease site.

surface water

Water in a water body such as a lake, river, stream or wetland. In some cases, surface water is considered to include groundwater at a depth of not more than 15 metres beneath the surface of the ground.

suspended well

A well site where operations have been temporarily halted for economic, environmental or other reasons. The well may or may not have produced in the past. Wellhead equipment will still be present, but the operator must ensure that the well or facility is left in a safe and secure condition. A well must be suspended within 12 months after the last production or injection, unless it is an observation well or intended to produce for seasonal markets.

sweet gas

Gas that does not contain hydrogen sulphide (H₂S). If even a trace of H₂S is present, a well is classed as a sour gas well.

synergy group

A group comprising local landowners and residents, and representatives of the government and companies working together to exchange information and resolve issues related to oil and gas development. Other members may include the local chamber of commerce and industry people from other sectors.

tight reserves

Oil and gas found in shale rock and other types of non-porous geological formations. This includes shale gas. Tight reserves are produced using hydraulic fracturing.

topsoil

The surface layer of mineral soil, often containing organic matter. It provides structure and nutrients needed for plant germination and growth. It normally contains most of the plant roots.

unrestricted country development

Any collection of permanent dwellings outside an urban centre with a density of more than eight dwellings per quarter section.

urban centre

A city, town village or hamlet with not fewer than 50 separate occupied dwellings.

venting

Venting occurs when solution gases from oil wells, batteries or tanks are released unburned to the air. Some venting may also occur from compressor vents, instrument gas stations, pneumatic devices, dehydrators and storage tanks. This release of unburned hydrocarbons to the atmosphere creates odours and exposure to potentially harmful substances. Vented gas also contributes to global climate change and wastes a non-renewable resource. Current AER regulations set standards for venting and allow venting of small volumes of gas where it is not considered practical to conserve or flare it.

Appendix E. Abbreviations

ADR	alternative dispute resolution
AER	Alberta Energy Regulator
BGWP	base of groundwater protection
BTEX	benzene, toluene, ethylbenzene and xylenes
CBM	coalbed methane
CER	Canada Energy Regulator
CO ₂	carbon dioxide
CSA	Canada Standards Association
EPEA	Environmental Protection and Enhancement Act
EPZ	emergency planning zone
ERP	emergency response plan
ESA	environmental site assessment
H ₂ S	hydrogen sulphide
M _L	local magnitude
NORM	naturally occurring radioactive material
OWA	Orphan Well Association
PADR	preliminary alternative dispute resolution
PSAR	Private Surface Agreements Registry
REDA	Responsible Energy Development Act
SO ₂	sulphur dioxide

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