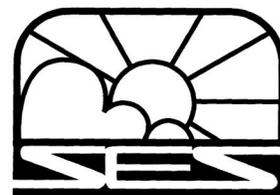


When the Oilpatch Comes to Your Saskatchewan Backyard:

A Citizen's Guide to Protecting Your Rights

by
**Stefania A. Fortugno,
LL.B., LL.M.**

May 2004



**SASKATCHEWAN
ENVIRONMENTAL
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Working for a sustainable future

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The contents of this guide are the responsibility of the author and do not necessarily reflect the views and opinions of those who are acknowledged above.

Every effort has been made to ensure the accuracy of the information contained in this guide. However, the author cannot guarantee the information provided is complete or accurate and advises that any persons relying on this publication do so at their own risk.

This guide has been developed to provide general guidance on the legal rights of Saskatchewan citizens living in the oil patch. However, this guide does not provide legal advice and should not be considered a substitute for legal advice from a lawyer.

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When the Oil Patch Comes to your Saskatchewan Backyard: A Citizens' Guide to Protecting Your Rights

Introduction

A wide green expanse of pastureland dotted only by cattle and horses, an endless prairie sky untouched by steel monoliths, a quiet and rhythmic existence passed from generation to generation, until an oil or gas exploration company comes knocking at the door. Many Saskatchewan farmers, ranchers and other landowners are only too familiar with the disruption of a pastoral way of life by new industry and development in the oil and gas sector.

Over the last decade Saskatchewan has seen an explosive expansion of the petroleum industry. Tax and investment incentives offered by the province have encouraged record numbers of exploration and production ventures. The latest statistics for the year 2002 boast that Saskatchewan has over 21,400 active oil wells. The province ranks as the second largest petroleum producer in Canada after Alberta, supplying 21% of all oil production. Saskatchewan also has over 10,000 natural gas wells, and is ranked as the nation's third largest natural gas producer.

In 2001 industry revenues were \$5.5 billion from oil, natural gas and their by-products.¹ For the same year royalties, bonuses and fees paid to the province of Saskatchewan by producers totalled \$600 million. For 2002 this amount climbed to \$1.0 billion.² This figure represents approximately 18% of total provincial revenues. Clearly this economic clout means that the petroleum industry has a major voice in the province.

What can an individual or family do when faced with a large company that wants to enter their land and blast dynamite underground to conduct seismic exploration or drill a "wildcat" exploration well? How can they protect their health and the health of their livestock? How can they ensure that their land, water and air are not polluted by the development? How can they obtain fair compensation for the loss of use of land and any ill effects suffered? What are the rights of neighbours and communities affected by oil and gas projects?

This Guide is designed to help you understand your legal rights and the rights and responsibilities of oil companies operating in Saskatchewan and in your community. It is a resource guide that seeks to make it easier for you to negotiate to protect your interests when dealing with exploration companies and oil and gas producers.

This Guide is modelled on the Guide developed by the Pembina Institute in Alberta for Alberta citizens and has been adapted to the Saskatchewan context. It also points to some key differences between the laws and regulatory activities in Alberta and Saskatchewan.

¹ Canadian Association of Petroleum Producers (CAPP), *Industry Facts and Information: Saskatchewan* (2001), CAPP website at <http://www.capp.ca>.

² CAPP, *Industry Facts and Information: Saskatchewan* (2003), CAPP website at <http://www.capp.ca>.

Chapter one of this Guide provides an overview of the legal rights of landowners and occupants, both legislated and common law, as they correspond to the different phases of an oil or gas project. It also describes provincial legislation and regulation of the petroleum industry.³ The four provincial ministries and their areas of responsibility are discussed here and elsewhere in the Guide. These Departments include Saskatchewan Industry and Resources, Saskatchewan Environment, Saskatchewan Agriculture Food and Rural Revitalization, and the Heritage Resource Branch of the Department of Culture, Youth and Recreation.

Chapter two examines what to do in the event of an emergency. Chapter three outlines the common law rights of persons affected by the oil and gas industry, including adjacent landowners and others living in the oil patch.

Chapter four highlights some of the key differences between Alberta and Saskatchewan in regulating the petroleum industry. Chapter five provides a list of contacts and other resources.

³ All Saskatchewan legislation (including regulations) can be viewed on the provincial Queen's Printer website at: <http://www.qp.gov.sk.ca/>.

Chapter One: Legal Rights of Landowners and Occupants

A. Who owns the Oil and Gas? — Crown versus private ownership of mineral rights in Saskatchewan

Many landowners do not realize that the Crown (government of Saskatchewan, or in some cases the government of Canada) may own the minerals found beneath the surface of their land. This is the case because at the turn of the 20th Century, when the Dominion of Canada granted prairie land to homesteaders, it reserved the mineral rights for the Crown. In 1930 the federal government transferred ownership of mineral resources to the province. However, the federal Crown retained mineral rights to lands under federal jurisdiction. For example, the federal government owns the mineral rights in national parks and First Nation reserves.

Currently, the provincial Crown holds approximately 78% of the total oil and gas rights in the province. Private individuals, corporations, First Nations bands and the federal Crown own the remaining 22%. An oil or gas company normally acquires these mineral rights by leasing. More rarely mineral rights are purchased through Saskatchewan Industry and Resources (Crown rights) or from the private owner (freehold rights).

To determine who owns the minerals beneath any land, the title must be checked through the provincial Land Titles system.

1. Mineral Rights

The Crown Minerals Act (1985) governs the granting of mineral rights by the province to oil and gas companies. If preliminary geological studies point to a promising oil or gas field in a specific area, the company will approach the Mineral Rights Branch of Saskatchewan Industry and Resources and request that the mineral rights for the land be “posted for disposition” or made available for lease. The mineral rights are sold by public tender and are called “petroleum land sales.” These sales take place periodically throughout the year. Although a company may request that mineral rights be posted, this does not guarantee that the company will be the successful bidder. Other companies may also bid on the posted mineral rights.

The Crown Minerals Act defines *mineral* as “any non-viable [non-living] substance formed by the processes of nature, irrespective of chemical or physical state and both before and after extraction, but does not include any surface or ground water, agricultural soil or sand or gravel”. The term “Crown disposition” refers to the rights granted under a Crown lease or any other instrument under the *Act* (*section 2(1)(b)*). These rights include the right to explore or prospect for any Crown mineral (oil and gas exploration licence), as well as the right to extract or produce the mineral (Crown lease). Therefore, an oil or gas company will purchase the mineral rights in the form of exploration licences and production leases.

Once a company or individual asks for the posting of mineral rights to oil and gas, the Mineral Rights Branch investigates whether the land has any surface or subsurface restrictions. Possible surface access restrictions would relate to environmental, heritage or Treaty Land

Entitlements issues. For example, if the land is designated in *The Wildlife Habitat Protection Act*, it may mean that the amount of exploration or development that can take place on that land is restricted.

If Saskatchewan Industry and Resources decides not to post the oil and gas rights because of such concerns, the company will be advised. Alternatively, the ministry will post the rights with restrictions attached to each posted parcel. Therefore, the companies interested in the mineral rights know up front about any possible surface access restrictions before bidding on the posted parcels. Any inquiries about the restrictions can be made to the Departments listed beside each parcel.⁴ Concerned landowners or citizens can inquire to these Departments to understand the rights and responsibilities of the proposed developer where such restrictions exist.

The public notices of the posted mineral rights and any restrictions are found on the Saskatchewan Industry and Resources website by following the links under the heading of “Petroleum and Natural Gas Dispositions: Public Offerings” to the heading “Sale Notice” at: <http://www.ir.gov.sk.ca>.

a. Royalties and Taxes

Once companies obtain mineral rights from the Crown through leasing, they must pay royalties to the province. These royalties are calculated based on the price of crude oil and natural gas, and on the amount of production from each wellhead. Where oil and gas rights are leased from private owners (freehold) the companies must pay provincial taxes.

If a landowner or occupant seeks to prevent any oil and gas companies from exploring or developing resources beneath their land by leasing or purchasing the Crown mineral rights themselves, it must be kept in mind that annual royalties, rents or taxes may be payable to the province. For instance, the *Mineral Taxation Act* provides that a mineral tax is to be levied against all owners of mineral rights. However, there is an exemption for individuals for the first five nominal sections of mineral rights owned (3,200 acres). In the case of a farm corporation, a tax exemption applies where certain guidelines are met.

b. Freehold Mineral (Petroleum) Rights

Where you as a landowner own the mineral rights relating to your property, you may dispose of these rights under any terms and conditions you choose. Freehold petroleum rights are sold or leased through a contract or agreement known as a “petroleum and natural gas lease.” Such agreements are usually lengthy and complicated. Therefore it is strongly recommended that you seek the advice of a lawyer experienced in oil and gas law before signing or negotiating a mineral rights agreement with an oil or gas developer.

⁴ Business Services Improvement Branch Economic and Co-operative Development, *The Provincial Regulatory Approval Process in Saskatchewan for Petroleum and Natural Gas Drilling and Seismic Exploration* (Sept. 2001) at p.3.

2. Surface Rights

As suggested above, where mineral rights are Crown owned, a landowner or lessee does not have exclusive control of his or her surface property. Under the common law (judge made law), the mineral owner has the right to enter upon the land held by the surface owner or occupant to work or recover the minerals. Therefore a landowner or occupant cannot refuse entry or access to the minerals.

Before legislation was enacted in the province, the right of entry by mineral owners was unrestricted. There was no requirement that the owner of the surface land receive any compensation for entry or disturbance. However, in 1931, one year after the federal transfer of resources to the province, the province enacted the first *Mineral Resources Act*. One of the most important goals of the *Act* was to balance the rights of surface owners with the rights of mineral owners. The *Act* established the right of compensation for surface rights holders and provided for arbitration in the event of disagreement.

Today *The Surface Rights Acquisition and Compensation Act* of 1978 governs the relationship between the surface owner or occupant and the mineral rights owner or lessee. Under this legislation an owner or occupant is entitled to compensation for:

- the initial right of entry for drilling and completion (based on the capital value of the land), and
- the continuing right of entry for production purposes.

Compensation for the initial right of entry usually takes the form of a one-time lump sum payment, whereas compensation for the continuing right of entry is in the form of an annual payment. The compensation is to be “just and equitable” as stated in section 3 of the *Act*, which reads:

3. The purposes of this Act are:
 - (a) to provide for a comprehensive procedure for acquiring surface rights;
 - (b) to provide for the payment of just and equitable compensation for the acquisition of surface rights;
 - (c) to provide for the maintenance and reclamation of the surface of land acquired in connection with surface rights acquired under this Act.

The term “surface rights”, used in subsection 3(b), is defined in subsection 2(m) of the *Act* as “the land or any portion thereof or any interest therein, except mines and minerals within the meaning of *The Land Titles Act*,” or a right of entry onto the land “required by an operator for the purpose of drilling for, producing or recovering a mineral.” The definition also includes the right to condition, reclaim or restore the surface of the land where the land has been held in connection with the drilling for or recovery of a mineral, or the laying, constructing, operating or servicing of a flow line, service line or power line. The right of entry and the right to reclaim or restore the surface of the land are the surface rights which mineral rights owners will seek to acquire/lease from a surface rights owner.

Because a mineral owner has the legal right to develop and extract the minerals (oil and gas), a farmer, rancher or other landowner cannot refuse surface access to the oil and gas. But the landowner’s right to compensation for the exercise of the right of entry is clear. Therefore, the

formal settling of rights and responsibilities between the surface owner and the oil and gas company is necessary. This can be accomplished either through private negotiation of a written surface lease or through the Surface Rights Arbitration Board process.

In 1998 the University of Saskatchewan, Centre for Studies in Agriculture, Law and the Environment (CSALE) published a detailed booklet outlining various considerations in the negotiation of a surface lease with an oil or gas company. This helpful document entitled, *Negotiating Surface Rights*, is available for downloading from the internet,⁵ from CSALE or from Saskatchewan Agriculture's regional offices. A contact number and address for CSALE have been provided in Chapter Five of this Guide.

The CSALE publication strongly recommends that surface owners and occupiers attempt to reach a voluntary agreement through private negotiations rather than relying on the adversarial arbitration process. This recommendation is made because it is important to establish goodwill and a positive working relationship with the oil and gas company that may be operating on your property for a lengthy period of time. Nonetheless, any terms should be acceptable to you and legal advice sought before signing any agreement.

Even where resort to the arbitration procedure is necessary when a dispute cannot be resolved, it is helpful to establish, in writing, as many points of agreement with the oil and gas company as possible before entering the arbitration process, to reduce both time and costs.

a. Negotiating a Surface Rights Lease

Often the negotiation of a surface lease or easement agreement begins when a landman acting on behalf of an oil or gas company arrives on the doorstep. The company will have purchased the mineral rights after conducting a successful seismic exploration program on or near your land.⁶ The landman will request the right to conduct a survey of the parcel of land where oil or gas development seems promising.⁷ Once the survey is complete, the landman will return with the survey, showing the proposed well site and access road locations. Next the landman will request the right to enter upon the land to develop and remove the oil or gas beneath the surface.⁸

To speed up the process of negotiation most companies will present a ready-made form of lease to secure surface rights. However, as each person's situation and concerns are unique, such a lease contract must be carefully reviewed and negotiated before signing. Where you as the landowner or occupant disagree with the terms, or important matters or concerns are not dealt with, these items must be addressed through amendments or additions to the proposed lease form. It must be kept in mind that the landman represents the interests of the lessee oil and gas company, not the interests of the lessor landowner or tenant/occupant.

⁵ See <http://www-ag.usask.ca/centres/csale/rightspaper.PDF>.

⁶ For a full review of exploration activities refer to section B2 below.

⁷ Centre for Studies in Agriculture, Law and the Environment (CSALE), *Negotiating Surface Rights* (Saskatoon: University of Saskatchewan, 1998) at p.2.

⁸ *Ibid.*

The template or backdrop for negotiating a surface lease or easement agreement is the *Surface Rights Acquisition and Compensation Act*. Easement agreements are usually prepared to grant a more limited right of way for pipelines or flowlines.

Section 24 of the *Surface Rights Acquisition Act* provides that an operator (oil or gas company) may acquire from a land owner or occupant the *right to enter upon, use and occupy* specified portions of the surface of the land for one or more of the following: the drilling for, recovery or production of a mineral; establishment of a well site and roadway for drilling or production; installation or operation of any listed equipment on a well site; the establishment of a battery site; and, the construction of a power line.

(i) Compensation Factors

The details of compensation are covered in the *Act*. Section 28 says that the operator has to pay compensation for any of the surface rights mentioned in section 23 acquired by the company. Further, this compensation must be paid in accordance with section 29. Section 29 sets out the matters that the Board of Arbitration or private individuals must consider in establishing equitable and just compensation. The factors include:

- (a) the value of the land and the loss of the use of the land or interest acquired by the operator;
- (b) the area of land that is or may be permanently or temporarily damaged by the operations;
- (c) the nature, type and quantity of any machinery or equipment to be installed or operated by the operator;
- (d) payment or allowance for severance (that is, severing or separating part of your land from the rest by the placement of access roads or well sites on your property);
- (e) the adverse effect of the right of entry on the remaining land caused by the severance (for example, placing of a well site and access road within cultivated land can severely impede a farming operation and increase the costs of farming the remaining land)⁹;
- (f) payment or allowance for nuisance, inconvenience, disturbance or noise to the owner/occupant or to the remaining land that may be caused or is likely to be caused by the operations;
- (g) any other matter peculiar to each case, including the cumulative effect of surface rights previously acquired by the operator or any other person; and,
- (h) any other relevant factors.

Therefore, a surface owner is entitled to compensation for land value, loss of use, severance and adverse effects, nuisance and general disturbance, damages and other factors. When negotiating the surface lease terms, each of these areas of compensation should be dealt with individually.

Where a farmer or rancher leases the land he or she is occupying, other than Crown land, both the landowner and occupant must provide consent under the *Act*.¹⁰ Compensation is then divided between the owner and occupant. Although it is up to the parties to decide how the

⁹ CSALE, at p.5.

¹⁰ CSALE, at p.7.

compensation will be split, a common approach is for the owner/lessor to receive compensation relating to the value of the land and any damage to the land, while the occupant/tenant receives compensation for the loss of use and severance or adverse effects.¹¹ Compensation under the category of nuisance and general disturbance is divided according to the specific circumstances.

For a detailed review of these compensation categories or factors, refer to the CSALE publication, *Negotiating Surface Leases*, referred to above under section A2.

A local Surface Rights Association office may also provide valuable insights into the negotiating process, including average compensation amounts for comparable lands in the area. The Federation of Saskatchewan Surface Rights Associations has local offices throughout the Saskatchewan oil patch. Speaking with other landowners who have well sites on their property may also be helpful.

In order to best protect your interests, it is recommended that you seek legal advice when negotiating a surface lease, particularly when dealing with a ready-made surface lease or easement agreement.

(ii) Environmental and Liability Considerations

When a well site and access roads are installed on or near pastureland or cultivated lands, a series of environmental impacts are possible. The potential impact on crops, livestock, land and water should be understood to ensure the surface lease agreement attempts to minimize them and provides for adequate compensation.

Possible environmental problems include: the transport of noxious weeds; air pollution caused by flaring; water pollution; waste management; loss or disturbance of topsoil; soil compaction from equipment; flooding due to drainage disturbance; loss of shelterbelt; and the use of chemicals on lease lands impacting on neighbouring organic crops. These environmental matters are more fully discussed in section B of this chapter below.

Liability issues are also an important consideration. The surface lease agreement should ensure that the oil and gas company takes full responsibility for any negative impacts or damages suffered by the surface owner, neighbours and downstream/riparian rights owners.

Merely entering into an agreement with an oil or gas company can create liability on the part of the landowner or occupant. Therefore, the surface lease agreement should state the company clearly accepts responsibility for any negative impacts resulting from its operations or activities and “indemnifies the owner/occupier of the land against any and all damage, claims or actions that arise out of the company’s undertaking.”¹² The agreement should also state that the company has complete control over everything that occurs on the lease premises. This latter provision would help protect against a common law claim for damages caused by the escape of anything relating to non-natural use of land. Under the common law rule, known as “the rule

¹¹ *Ibid.*

¹² *Ibid.*

in *Rylands v. Fletcher*,¹³ any person who has control of a substance that escapes from their property is strictly liable for any damages caused by the substance whether or not there has been any negligence.

Connected to the issue of liability and indemnification is the financial stability and solvency of the operating oil or gas company. A company without funds or assets cannot take responsibility or indemnify the landowner, nor perform certain tasks or make certain payments in the event of harm or operating problems. To address these concerns, the owner or occupant should investigate the financial health of the company with whom they are negotiating, and ask for evidence that the liability clauses will provide meaningful protection.¹³

(iii) Surface Rights Lease Checklist

Before signing a surface lease agreement with an oil or gas company, consider the following:

- (1) Keep a log of time spent in negotiations and a diary of events, including phone calls. A landowner should expect compensation for time lost in negotiating the agreement, and any expenses incurred, as part of the initial compensation.¹⁴ These items fall under the heading of general disturbance.
- (2) Take photographs of the site before work starts and of any damage that is done as the operations progress.
- (3) Read the CSALE document *Negotiating Surface Rights* (1998).
- (4) Consider whether you wish to add any additional conditions to the lease agreement. One Alberta landowner has drawn up an addendum with 27 conditions.¹⁵ It may be helpful to review this list to determine which conditions are relevant to your situation.
- (5) Consult with local Surface Rights Association and local landowners hosting existing well sites.
- (6) Review the location of the proposed well and access roads. Are they located to minimize inconvenience to you or your neighbours and also to permit the company to protect the environment?
- (7) Discuss the location of any possible flowlines or pipelines if the well is successful.

¹³ CSALE, at p.7.

¹⁴ Mary Griffiths and Tom Marr-Laing, *When the Oilpatch Comes to Your Backyard* (Drayton Valley, Alberta: Pembina Institute, 2001) at p.16.

¹⁵ See *Surface Lease Special Conditions Addendum* found in Appendix 2 of Griffiths and Marr-Laing, *When the Oilpatch Comes to Your Backyard*. See also the reaction of the Alberta Energy and Utilities Board (EUB) to these conditions, in Decision 2002-020 at <http://www.eub.gov.ab.ca/BBS/decisions/energydecisions/2002/E2002-020.htm> (at pages 12-15).

- (8) Set out in the agreement how the oil or gas well will be tested. Provide for pre-notification by the company of any test flares if you have health concerns or have sensitive livestock operations, including fear of being startled by the noise of a sudden flare.
- (9) Have your water well tested at the company's expense prior to entry by the company and arrange for the company to test it again after the oil or gas well is drilled.
- (10) Ensure that the proposed well, as set out on the company's survey, is set back at least the minimum distances from buildings, water wells, and other significant features. These distances are found in the *Seismic Exploration Regulations, 1999*. (See section B2b below.)
- (11) Arrange for the company to remove all drilling wastes from your land or to deal with them in a manner that will not cause pollution.
- (12) The agreement should require the company to notify you and promptly deal with any leaks, spills, or accidental releases from its well and pay compensation for any related damage.
- (13) The lease agreement should set out each head of compensation found in the *Surface Rights Acquisition and Compensation Act* and provide a separate calculation amount for each. These heads include: land value, loss of use, severance and adverse effects, nuisance and general disturbance, damages and other factors. For example, is the proposed compensation enough to cover the loss of land and inconvenience that the oil or gas well and access road will cause?
- (14) Set out the amount of compensation the company will pay if your water well is damaged either in terms of water quality or quantity.
- (15) The lease should state that if the company causes any damage to the land or crop outside of the lease area that additional compensation must be provided.
- (16) The agreement must deal with all aspects of conservation and reclamation, ensuring that the company will be held liable if any problems appear after the initial well site reclamation has been completed. The surface lease should require the company to meet your expectations as well as legislated requirements.
- (17) Ensure that everything you have negotiated with the company is included in the written agreement.
- (18) Consult with a lawyer **and** your insurance company before signing the lease agreement, to make certain that there is no liability for you as the landowner/occupant.

b. Proceedings before the Surface Rights Board of Arbitration

In the event that a surface owner or occupant and a mineral rights holder cannot agree on a mutually acceptable surface lease agreement, either party can apply to the Surface Rights Board of Arbitration to settle the dispute. One of the main goals of the Board process is to speedily and inexpensively resolve such disputes. At the same time the Board seeks to ensure: “that fair compensation is paid, fair latitude is given to the operator to produce its mineral and that the public interest in the environment is protected.”¹⁶

The Board of Arbitration consists of at least three members who are appointed by the province. There is no requirement that land owners and oil and gas operators/companies be equally represented on the Board. Currently the Board is made up of six members, including a Chair and Vice-Chair. The members include practising lawyers with farm-related backgrounds, farmers and former oil company executives.

The Board of Arbitration is headquartered in Kindersley. However, Board hearings may also be held in any of the following oil patch centres: Lloydminster, North Battleford, Regina and Swift Current. For a general overview of the operations of the Board, you can refer to its website at http://www.saskjustice.gov.sk.ca/Surface_Rights. Additional information is found in the CSALE publication, *Negotiating Surface Rights*.

(i) Right of Entry/Compensation Orders

Oil and gas companies or “operators” most often apply to the Board of Arbitration for “right of entry” orders or “immediate right of entry” orders, whereas landowners/occupants seek an award of compensation. When a company seeks a right of entry order from the Board, it must provide notice to the landowner/occupant of its application. The landowner or occupant then has seven days from the date of mailing the notice to file a written objection to the right of entry order sought. Once the Surface Rights Arbitration Board receives a written objection it must hold a hearing to determine the rights of each party.

The Board may only grant a right of entry or immediate entry to a company subject to compensation. However, if the amount of compensation is in dispute, the compensation hearing is often held at a later date than the right of entry hearing. In these circumstances the order issued by the Board is called an “immediate right of entry order.”

The Board relies on the evidence presented by the landowner/occupant and the company at the hearing to make a decision. Therefore, it is important for a farmer, rancher or other landowner to collect and present strong evidence to support his or her position.

For example, in its 1997 decision of *Hector v. Oxbon*,¹⁷ the Board of Arbitration stated that *as a minimum* the following evidence must be presented by the landowner/occupant:

- The municipal assessment of the parcel of land within which the oil installation

¹⁶ Surface Rights Board of Arbitration Website, “Board Hearings” at http://www.saskjustice.gov.sk.ca/Surface_Rights/hearings.html.

¹⁷ C.C. 9/97.

- is located (old and new assessment);
- The farming practices and farming equipment (if cultivated), including:
 - the soil classification;
 - the crop rotation;
 - the actual yields from at least the last three years, preferably the last five years;
 - field size and cultivation patterns;
 - equipment size and habitual use; and
 - any special soil or crop conditions.
 - Proposed farming plans and calculations of the financial effect on the planned farming by the oil installation;
 - Changes in farming practices in the last five years;
 - If pasture, the number of livestock and grazing practices;
 - Changes in the oil field installation practice (if applicable) since drilled or last reviewed;
 - A comprehensive description of oil field equipment on site and any changes in activity.

By contrast, the operator (oil/gas company) is expected to provide evidence to:

- address any of the evidence presented by the owner/occupant as set out above;
- address changes in the oil field installation practice (if applicable) since drilled or last reviewed;
- provide a comprehensive description of oil field equipment on site and any changes in activity; and,
- provide future plans for the site.

It is extremely important to meet the timelines provided in the Surface Rights Board of Arbitration process in order to protect your interests as landowner/occupant. The documents filed by the oil company or by the landowner/occupant to commence the process set out the various time limits. If you have any questions about the timelines or about the process in general you can make inquiries to the Board staff at (306) 463-5447. Additional contact information for the Board is set out in Chapter Five of this Guide.

The decision of the Board of Arbitration is binding on both parties. If a party disputes the Board decision an appeal is available to the Saskatchewan Court of Appeal, but solely on a

question of law. Because of this restriction and the reality that most issues determined by the Board involve questions of fact, fewer than ten appeals from the Board's decisions have been launched to the Court of Appeal in the past decade.

In order to be up to date with the latest surface lease agreement provisions and compensation rates in Saskatchewan, the Board of Arbitration continually reviews new leases, easements and amendments, and requires that such agreements between companies and farmers/ranchers in the province be filed with it.

(ii) Limited Damage Claims and Environmental Enforcement

The Board also has the jurisdiction to hear claims by owners/occupants for limited damage. These claims must be less than \$1,000 and the damage must relate to off lease property or activities. Certain off lease activities by operators and their contractors or employees can give rise to damages. For example, soil compaction caused by heavy equipment or vehicle traffic can hamper farming operations. This type of damage would come before the Board as a claim in damages for trespass off lease.

Where damage is caused by petroleum and salt water spills off the leased premises, the matter would be considered by the Board as a restoration claim. The Board's literature states that its "ability to monitor and enforce existing environmental standards is limited to acts of the operator creating damage less than \$1,000 and to the reclamation and restoration involved in the abandonment of a well."¹⁸

A damage claim by an owner must be lodged, in writing, within 30 days of the discovery of loss or damage. The Board will then notify the company of the claim. If the matter is not settled, the owner must apply for a hearing to the board within six months from the date of serving the notice of complaint.

If damages to off lease property exceed \$1,000 legal action must be taken in the Courts — unless the surface lease agreement already states that full compensation will be paid for such harm, and the oil/gas company agrees to the amount of compensation or the remedial action sought. If damages occur on the leased property, the surface lease agreement provisions should already state that the owner/occupant receives compensation.

Saskatchewan Industry and Resources (formerly Saskatchewan Energy and Mines) is responsible for monitoring compliance with oil field operating standards during the working life of an oil or gas well. On-site restoration matters are the responsibility of both SIR and Saskatchewan Environment. The Environment Department has jurisdiction once a well site has been abandoned,¹⁹ unless future problems are directly related to the operation of the well. For example, if there is residual hydrocarbon (oil or gas) contamination on the site, SIR retains jurisdiction.

¹⁸ Surface Rights Board of Arbitration, "Site Supervision", website.

¹⁹ Abandonment is part of the well decommissioning/dismantling process, and involves the capping or plugging of a well. The *Oil and Gas Conservation Regulations, 1985* (sections 35 to 38) list the procedure to be followed when a company abandons a well. For additional information refer to section 8 of this Chapter entitled, "Abandonment and Restoration of Well Sites".

c. Surface Leases and Crown Owned Agricultural Land

Most of Saskatchewan's Crown agricultural land is currently leased to individual farmers or ranchers. Saskatchewan Agriculture, Food and Rural Revitalization (SAFRR) administers this Crown land under *The Provincial Lands Act* (1978) and *The Provincial Lands Regulations*.

If an oil or gas company seeks entry to leased Crown agricultural land it must contact the farmer or rancher (agricultural lessee) to obtain consent to access the land. If the agricultural lessee refuses to provide consent to the company to enter the land, Saskatchewan Agriculture will step in to mediate the dispute to the mutual satisfaction of both parties. If a settlement cannot be reached, the Department may nonetheless grant the company permission to enter. However, in drafting the surface lease agreement ("Petroleum and Natural Gas Surface Lease Agreement") the Department will set out conditions based on the legitimate concerns of the farmer or rancher.

As compensation, Saskatchewan Agriculture provides a small one-time payment to the farmer or rancher for each surface lease on an agricultural lease, and another payment for each additional well drilled on an existing surface lease (*The Provincial Lands Regulations*, Part III, s.3.1). The farmer or rancher also receives an annual rent reduction of \$100 for each well. The maximum annual agricultural lease rental reduction is 30% of the annual rent otherwise payable for the agricultural lease. The annual rent reduction is applied for as long as the surface lease is active. Notably, the farmer or rancher remains liable for the municipal taxes on the land withdrawn from the agricultural lease for a surface lease (s.3.1).

The agricultural lessee is entitled to a one-time compensation payment for any damage to growing crops on cultivated land that will be withdrawn from an agricultural lease. Saskatchewan Agriculture will add the value of any crop damage to the rental and other charges due with the issuance of the surface lease. The amount is collected by the Department from the company and paid directly to the farmer (*Regulations*, Part III, s.3.1(7) and s.4(5)).

The oil or gas company is also responsible for any damages to the facilities and other improvements of the agricultural lessee that arise from the operation of the surface lease. Such damages are payable directly by the company to the agricultural lessee.

If the company requires temporary workspace to facilitate construction, operation or maintenance of the oil or gas project, the company must negotiate directly with the farmer or rancher leasing the agricultural land and compensate for any crop loss suffered as a result. Negotiations are required once the temporary workspace is authorized in a SAFRR surface lease. The amount of compensation is to be negotiated with the farmer or rancher (*Regulations*, Part III, s.4(6)).

More detailed information on oil and gas surface leases on Crown agricultural land is found on Saskatchewan Agriculture's website <http://www.agr.gov.sk.ca>. Follow the site category "Crown Lands/Pastures" to the topic "Petroleum and Gas Development on Crown land Documents" and select the heading "Petroleum and Gas Surface Lease Policy".

B. What is involved in an oil or gas development project?

An oil or gas development project usually involves four phases:

- (1) exploration,
- (2) development,
- (3) production, and
- (4) decommissioning.

Exploration may include the conducting of seismic operations, land surveys, and the creation of access roads. Next if the exploration results look promising, the oil company sets up an exploratory well, known as a “wildcat well.” Wastes in the form of drilling muds, hydrocarbons, and drill cuttings must be stored or disposed of on the lease site or off the lease site. After drilling a successful oil or gas well and establishing a flow to the surface, pumps may be required to keep up the flow of oil or gas. Flowlines are set up to transport the raw oil from the well to battery stations that separate the oil, gas and water found in a typical oil field. Pipelines may also be installed to transport the products to storage tanks or to oil and gas processing plants. Finally, the project ends with abandonment and reclamation (cleaning up) of the well sites and any other operating sites.

1. Oil and Gas Reservoirs

Ancient seas teeming with life, surrounded by lush vegetation, once dominated what is now Alberta and Saskatchewan. As the vegetation and tiny aquatic organisms died, organic matter was deposited on the sea floor in layers of silt. The seas eventually drained away, succumbing to climactic shifts and geophysical events. The mud, clay and sediments of the former sea beds, acted upon by heat and pressure, became porous sandstone and limestone (sedimentary rock). Bacteria and chemicals also acted on the organic matter over millions of years, creating pockets of oil deep below the earth’s surface in the sandstone formations.

Today crude oil and natural gas reservoirs are scattered throughout the southwest and southeast regions of Saskatchewan. The Saskatchewan oil patch extends in a broad swath from the Air Weapons Range (north of Lloydminster) on the western border, south through the Kindersley area and east across the southern part of the province through Swift Current, Weyburn and Estevan to the border with Manitoba.

The makeup of each oil or gas reservoir may vary due to the differing organisms and conditions that formed each one.²⁰ For example, a typical oil field may contain a mixture of oil, gas and water in varying proportions. The oil normally floats on top of the water in the oil zone. Above the oil, the lighter gaseous hydrocarbons (including natural gas) create what is called a “gas cap.”

Each area of the province may also have different types of crude oil ranging from heavy sour crude to light sweet crude. Heavy crude oil is dark, thick and sticky, similar to molasses. It also contains more asphalt and sulphur. This type of oil is found in the Lloydminster and Kindersley areas. Heavy crude requires enhanced recovery methods to extract and more

²⁰ Stuart King, unpublished research paper (available through the Saskatchewan Environmental Society) at p.4.

intensive treatment to refine. By contrast, light crude oil is light golden brown in colour and flows easily. It is considered “sweet” when it has low sulphur content. Light crude is found in the Weyburn, Estevan and Kindersley regions. Medium crude, with qualities in between heavy and light crude, may be found throughout southeast and southwest Saskatchewan.

The first commercial oil strike in Saskatchewan occurred in 1944, about 9 kms south of Lloydminster. However, the largest pools in the province were discovered in the mid-1950s and early 1960s near Kindersley and Estevan. Between 1944 and the end of 2002, Saskatchewan produced 622.1 million cubic metres (3.9 billion barrels) of crude oil. In the year 2001 alone crude oil production was a record 24.8 million cubic metres (155.7 million barrels). This figure declined slightly in 2002 to 24.4 million cubic metres (153.6 million barrels). At December 31, 2000 remaining recoverable oil reserves in the province were estimated at 182 million cubic metres (1.1 billion barrels). At December 31, 2002 remaining reserves were estimated at 1.15 billion barrels. Recoverable reserves are based on the total established reserves as of a particular date. As exploration continues, new reserves are added to the total reserves figure, minus the amount of crude oil produced in the same year.

The industry views the estimated 25 billion barrels of heavy oil-in-place in the west-central area of the province as the greatest potential for future production. However, heavy oil recovery is very resource intensive, requiring an enormous quantity of water and energy to extract.

Saskatchewan’s first commercial natural gas well was drilled near Lloydminster in 1934. Today the principal natural gas reserves are along the province’s western border in the Beacon Hill, Kindersley and Hatton areas. Most of the natural gas produced in Saskatchewan is dry (low in liquid hydrocarbons) and sweet (low in sulphur) and requires limited processing.

In Saskatchewan, most natural gas is produced from gas wells. These wells usually tap into shallow natural gas reservoirs, ranging from 275 to 760 metres (900 to 2,500 feet) deep. However, natural gas is also found in oil reservoirs. It is therefore produced from oil wells along with crude oil. This type of natural gas is called associated or solution gas. Sour gas (high in sulphur), although more rare in the province, is also found in sour crude oil reservoirs and is produced as sour solution gas.

Saskatchewan’s natural gas production peaked in 1995 at 8.7 billion cubic metres (309 billion cubic feet). In 2002 gas production was at 8.4 billion cubic metres (300 billion cubic feet). Estimated remaining recoverable reserves at December 31, 2002 were 76.8 billion cubic metres (2.731 trillion cubic feet). This amount would provide about ten more years of natural gas production. However, the National Energy Board estimates that Saskatchewan’s ultimate natural gas potential is just over three times that amount at 253.6 billion cubic metres (9 trillion cubic feet).

2. Seismic Exploration Activities

The lands that exploration companies select for seismic surveys are based on the studies and maps developed by earth scientists in the petroleum industry. Geologists, geophysicists, geochemists and paleontologists study rock formations and geological events to identify potential oil and gas fields and traps. Traps are zones where oil and gas have accumulated within rock formations. A trap must have three features:

- (1) A porous reservoir rock that acts somewhat like a sponge to accumulate oil and gas. This rock is usually sandstone, limestone or dolomite.
- (2) An overlying impermeable rock that prevents the oil and gas from escaping; and,
- (3) A source for the oil and gas, normally black waxy shales.

Exploration companies can use a variety of methods to locate the province's oil and natural gas reservoirs. The most common method used is seismic. Others include gravimetric, magnetic, electrical, geo-chemical, radiometric, structure test hole, and well logging.

In a seismic survey, the exploration crew (geophysical contractors) sets out a line or several lines of sensitive receivers (geophones or jugs) on the ground.²¹ Then explosions or mechanical vibrations are created on or below the surface. The vibrations are like small earthquakes. The geophones record the seismic waves reflected back from rock layers at varying depths. The time it takes for shock waves to travel down to the different rock layers and back indicates how deep the formations are. The strength of the returning wave also points to the type of rock reflecting the wave: strong wave, hard rock; weak wave, soft rock. As each geophone receives the reflected shock waves an electric current is relayed to the seismograph. The seismograph makes a record of the waves. With a number of seismic records, a geophysicist can map the depth and shape of underground rock formations, pinpointing potential oil and gas traps.

To reduce environmental impacts, many contractors use mechanical vibroseis to send energy waves from a heavy vibrating vehicle into the earth. In forested areas, seismic crews can further reduce environmental impacts by using narrower cut lines and improved clearing methods.

In the province, seismic activities by exploration companies are regulated under the *Seismic Exploration Regulations, 1999*. These regulations fall under *The Mineral Resources Act, 1985*, and are administered by Saskatchewan Industry and Resources (SIR). The regulations replace *The Sedimentary Basin Geophysical Exploration Regulations, 1985*, reviewed by CSALE in the publication *Negotiating Surface Rights* (see section A2 above).

Under the *Seismic Exploration Regulations* a company must apply to SIR to obtain an exploration licence. The application fee for a licence is \$250. A licence is issued for a term of 5 years.

a. Consent Requirements

Before SIR will approve an exploration program, the exploration company must obtain the consent of the owner or occupant of any land (*Seismic Exploration Regulations*, s.30). Unlike a mineral rights owner, the exploration company does not have an automatic right of entry to conduct its operations. Therefore, you as the owner or occupant can refuse access. If you are renting land, you should consult the landowner before granting permission as seismic activity could cause damage that lasts far beyond the lease period.

Notably, exploration companies can shoot seismic or other tests across road allowances

²¹ CAPP, *Finding Oil and Natural Gas*, CAPP website at <http://www.capp.ca>.

without consent. The company can even conduct tests on a road allowance that is being farmed without consent. The only exception is where the road allowance is located on reserve land, in that case the consent of the First Nations band is needed.

Before providing consent to an exploration company, ask the company to show you, on a map and on an aerial photo of your land, exactly where they want to carry out their seismic operations.

The consent must be in writing and should describe exactly where and when seismic activity is to occur and the amount of compensation to be paid by the company. If you have any concerns about damage that may be caused by the seismic work, you should discuss them with the company before giving permission. Record any restrictions you wish to impose on the company in the written access agreement before signing.

For example, the company should not be permitted to cut fences or trees on your property. The agreement may also set out the type of equipment to be used and the width of the shot lines to be cut. It should also ensure that the company would fill all shot holes. Shot holes are holes drilled for the purpose of detonating explosive charges. Any shot holes that strike water (flowing holes) must be plugged from bottom to top with bentonite clay, not just at the surface. Landowners have experienced problems with flowing holes that have made the land so wet that it was impossible to cut hay. In some cases it may be helpful to have a flowing hole completed as a water well. If this is a desirable option, it should be set out in the access agreement.

b. Setbacks

The *Seismic Exploration Regulations* also provide minimum distance requirements for shot holes and test holes. Test holes are any holes, other than shot holes, drilled for exploration purposes. The setbacks are intended to prevent damage to buildings, water wells, or other sensitive structures. However, for added security you may wish to provide for greater setbacks in the access agreement. The following table outlines some of the minimum setback distances found in the *Regulations* (Appendix, Part I, Table I):

Minimum Distances to Structures in Seismic Explorations

Type of Structure	Shot Hole	Vibrator	Surface Explosives
Residence, barn, irrigation headworks, or any building with concrete base	180 m	50 m	180 m
Water well	180 m	100 m	180 m
Residential driveway, gateway or buried water pipeline	10 m	10 m	12 m
Survey monument, buried telephone line	2 m	2 m	2 m
High pressure oil or gas pipeline, or an oil or gas well	32 m	15 m	32 m
Irrigation canal more than four metres wide	10 m	10 m	10 m

In spite of the setback requirements, the *Regulations* allow an exploration company to drill shot holes or use a mechanical vibrator or surface explosives within the minimum distance from a structure, where the owner of the structure gives prior written approval (see s.34(1) and s.42(3)). Also, an exploration company cannot drill any shot holes or use surface explosives within 180 metres of a water spring without the prior written approval of the owner of the land through whose property the spring flows (s.34(3) and s.42(4)). Similarly, the use of vibrator equipment is not permitted within 100 metres of a water spring without prior written approval.

However, for your own protection it is recommended that you do not permit a company to operate its equipment or detonate explosives within minimum setback distances.

Although septic tanks are not listed in the *Regulations*, seismic operations should be located as far as possible from them. Septic systems are highly sensitive to disturbance and are costly to repair or replace.

c. Damage and Compensation

Any damage caused by the seismic operations to any land or structure must be repaired at the expense of the company holding the exploration licence (*Seismic Exploration Regulations*, s.45). The company must also take immediate action to prevent further damage and notify the owner of the property of the location, nature and extent of damage.

When blasting is conducted in the vicinity of any building, other structure or inhabited area the holder of the explosives permit must take adequate precautions to prevent harm to persons or property (s.57). The company must limit the explosive charge to an absolute minimum, use protective mats over the shot hole, close the approaches and thoroughfares to the shot-point,

and take other reasonable precautions that are required at the time. It must also ensure that all persons are protected from the danger of falling or flying rocks and other debris.

d. Abandonment and Clean-Up of Shot Holes

The *Regulations* require that all shot holes drilled must be abandoned as soon as possible and no more than 20 days after they are drilled (s.39(1)), unless the company has the written approval of SIR (s.39(2)). Subsection 39(3) of the *Regulations* specifies how a shot hole must be abandoned. The company must:

- (1) fill the shot hole with drilling mud and material removed from the hole to a depth of 1.5 metres below the surface;
- (2) insert above the drilling mud, to a depth of 50 cm below the surface, an approved metal or plastic cap, or a wooden or cement plug one metre long;
- (3) pull detonator wires tight and cut the wires off below ground level;
- (4) fill the hole from the wooden or cement plug to the surface and tamp or compact the fill material; and,
- (5) spread any excess drilling mud and material obtained from the hole over the surrounding ground.

The company may also follow any other method of abandonment approved by the minister or SIR. Finally, the ground surrounding the abandoned shot hole must be restored as nearly as possible to its original condition.

It must be noted that the spreading of excess drilling mud over the ground surrounding the shot hole can cause pollution and harm to crops or livestock if the drilling muds are contaminated with hydrocarbons such as diesel or other chemicals. Therefore you should not agree to the disposal of any contaminated drilling muds on your property.

In the event that water or gas is released during the drilling of a shot hole, the company must immediately stop drilling and plug the hole (s.38). Again it is strongly recommended that you require the company to plug the hole from the bottom to the top with bentonite clay. The company must also notify the Department of Industry and Resources within 72 hours of completing the seismic operations of the location, elevation and depth of the hole, the depth of the flowing horizon, and the action taken to control the flow.

e. Refusals by Landowner or Occupant

If you as owner or occupant have concerns about the exploration program and refuse to grant permission to the company, the company has no right of entry or appeal. If a company breaches the *Seismic Exploration Regulations* by entering your land without authorization, it can be fined up to \$1,000. If you have refused consent and the company enters your land, you should treat it as an act of trespass and call the police.

If you occupy Crown owned land, the Crown has the right to permit or refuse entry to the land.

Even if you have refused access to an exploration company, there is still a chance that an oil and gas company will return in the future wanting to drill a well on your land. It can still survey the geological structure under your land from adjacent land or road allowances. It can also undertake aerial surveys of your land.

f. Exploration Access Agreement Checklist

- (1) Your right to refuse permission for entry to an exploration company should be exercised until adequate guarantees are given by the company in writing to prevent or address any potential problems.
- (2) Ensure the exploration plan presented by the company is acceptable and review it on-site with the company. Ask for a copy of a valid exploration licence, and a valid explosives permit where explosives and shot holes are planned.
- (3) Both on site and in the access agreement set out the point of entry, width and location of the right-of-way, location of all hole sites and the route the company will be using for the seismic lines.
- (4) Point out in person and in writing any special features or structures of concern, such as fences, gates, livestock, wells, flowable holes, etc.
- (5) Be sure the routes for the seismic lines or mechanical vibrator are setback the minimum distances found in the *Regulations* or greater from water wells, buildings, septic tanks and other structures.
- (6) Have the company test your water well before and after seismic work and provide you with the results.
- (7) The access agreement should state that the company must clean up all wastes and remove excess drill cuttings from the site. Drill cuttings can contaminate the soil with unwanted salts and hydrocarbons. Livestock can die from eating ribbons or flags left behind.
- (8) Require the company to use wooden survey stakes and not wire pin flags to mark their shot holes and operations. Farming activities such as making hay can shred pin flags and kill livestock that eat the feed.
- (9) Set out a penalty clause for any infractions. For instance, the company should be required to complete their field-work within a specified time and to pay a fine for each infringement of the agreement. In Alberta one landowner imposed penalties of \$1,000 for cutting a fence and \$100 for each piece of garbage or debris left behind. You may also wish to include a penalty for any trespass on land outside the agreed limits of entry.
- (10) Agree on the time and dates for the exploration work to be done on the property.

- (11) Agree on an adequate amount of compensation for granting a right of entry to the company.
- (12) Do not agree to a future options clause, granting future rights to the company, unless you fully understand such rights and find them acceptable.
- (13) Ensure that everything that you negotiated with the company is in writing.
- (14) Check up on the operations afterwards. When the shot holes are complete, ask if the holes have been properly filled from bottom to top with bentonite clay, inspect the site for tags or other wastes that could harm livestock, and check that water is not flowing into or from any holes.

3. Drilling and Operation of Oil and Gas Wells²²

The Oil and Gas Conservation Act (1978) regulates the drilling and production of oil and gas in Saskatchewan. The purposes of the *Act* include preventing waste, developing and conserving the province's oil and gas resources, maximizing recovery of the resources by prudent and proper operations and practices, and the protection of the environment (section 3). Saskatchewan Industry and Resources is responsible for administering the *Act*. Therefore, any inquiries or complaints about operations and practices by oil and gas companies in the province should be directed to the Department.

a. Exploration Drilling

Once seismic exploration has been completed in an area, wildcat or exploration wells are drilled to test the newly found reservoirs of oil or gas in an unproven area. Exploratory drilling is very risky and expensive. The chances of finding oil and gas in a previously untouched area are low; often only 20 to 30% of wildcat wells drilled actually find oil or gas. The chances of finding commercial quantities of oil or gas are even lower. Thus, companies often drill the first exploratory well in a new area strictly as a test. The well is not expected to produce commercial quantities of oil or gas, but to provide information upon which the drilling of future wells can be based.

As a landowner or tenant in the oil patch it is important to know that if the first wildcat well finds oil or gas, more development wells will surely follow.

One of the first testing objectives of an oil company is to determine the flow potential of the well. At this stage safety is a major concern, because the flow behaviour and the make-up of the reservoir fluids are unknown. Precautions must be taken to prevent blowout conditions during the well test. A blowout is the "uncontrolled escape of fluid from a well" (*The Oil and Gas Conservation Regulations, 1985, s.2(e)*). The uncontrolled flow of gas, oil or other well fluids during drilling occurs when the formation pressure exceeds the pressure exerted by the column of drilling mud. Sand production, for example, can contribute to a blowout, as can corrosion causing compounds in the hydrocarbons, or other unexpected events.

b. Blowout Preventer

Special equipment, known as a blowout preventer, can be used by a company to decrease the chances of a blowout, such as a special casing head used in rotary drilling and well completion. Hydraulically or mechanically operated high-pressure valves are installed at the wellhead to control pressure within the well. If unexpected high pressure is encountered, the blowout preventer system can quickly and effectively seal off and shut in the well.

The Oil and Gas Conservation Regulations require the operator of a well being drilled to install and maintain blowout prevention equipment at all times (s.60).

²² The technical information for this section is largely drawn from The Petroleum Resources Communication Foundation, *Our Petroleum Challenge: The New Era* (3rd ed.) (Calgary, 1985).

c. Development Drilling

If an exploratory well establishes the presence of producible quantities of oil or gas, development wells will be drilled in order to define the size of the oil or gas field. In development drilling the chances of success are higher. Seven or eight commercially producing wells for every ten drilled is common. Newer technologies and enhanced recovery methods also mean that a once “dry hole” can become a productive well.

A typical productive well in western Canada produces oil for twenty years.

In 2002, Saskatchewan Industry and Resources reports that 1,641 new oil wells were drilled in the province. This number includes both exploratory and development wells. Similarly a total of 1,872 natural gas wells were drilled in 2002. This record number of gas wells is a result of higher prices and an expanded pipeline system.

d. Drilling Equipment and Operations

Drilling rigs can take different shapes and sizes. The size of the rig is directly related to its depth capacity. The larger the steel derrick, the deeper it can drill. Smaller derricks mounted on trucks and flatbed trailers are used to drill shallow wells. Most land operations use rigs made up of several units, which are dismantled for transportation from site to site. Commonly used rigs have cantilever or jack-knife masts.

No matter the planned depth of the well, drilling involves the penetration of rock by a bit attached to lengths of steel pipe. The most common length of drilling pipe is 9 metres or 30 feet. Sections of this steel pipe threaded together are called a drilling string. The pieces of pipe are added one length at a time, as the bit moves deeper. The bit is located at the bottom of the drill string. In rotary drilling the bit is turned by a rotating platform at the surface.

Before a rig can begin normal drilling, the well must be “spudded” or started. Surface casing, made up of lengths of steel pipe, is cemented into place to keep the wall of the well bore from caving in and to control the return of the drilling fluid or mud. The length of surface casing varies from site to site, from 60 metres to 1,200 metres, and is dependent on soil and rock conditions near the surface. The surface casing also helps prevent contamination of fresh groundwater with substances found in the well.

The rotating bit grinds and cuts its way through rock formations; different types are used to drill through different formations. For instance, a bit studded with rows of industrial diamonds is used to cut through hard rock formations. The bit is changed as different types of rock formations are encountered or as the bit is worn down.

Every time the bit is changed, the entire length of pipe in the hole must be brought up (most often three lengths at a time), disconnected and stacked upright inside the derrick. This procedure is called “making a trip.” After the bit has been changed, the drill pipe is threaded back on, section-by-section, and drilling resumes.

Drilling fluid or mud is usually made of water or oil mixed with clay or chemicals and serves

several functions. Its primary use is to lubricate and cool the bit. Drilling mud is also circulated under pressure down the drill string's pipe and through the bit to the bottom of the well bore. The mud then returns to the surface by travelling up between the outside of the pipe and the inside wall of the well bore. By this method the drilling fluid carries the rock cuttings and fossils from the bottom of the hole to the surface, where they can be examined and identified. The weight and composition of the drilling mud also counterbalances the formation pressures in the hole. This helps to keep a well under control when high-pressure hydrocarbon or water zones are entered. The mud also reduces friction on the drill string, and its composition is changed to suit the formation being drilled.

If the drilling mud contains traces of oil, the drill crew knows that the bit is nearing an oil-producing zone. Once the bit strikes oil, the drill string is pulled from the hole. Only the casing remains. Next the drill crew installs an additional casing, known as an oil string or production string, to protect the oil-producing zone from sand and other materials exposed during drilling. If the oil string ends above the production zone, a long piece of pipe called a liner may be installed. The liner runs from the bottom of the casing to the production zone. The liner is perforated with many holes. As a final step, a smaller pipe called the tubing is lowered into the well. The tubing extends all the way from the liner to the surface of the ground above. Oil travels through the holes in the liner, up the tubing to the surface.

e. Oil Recovery Methods

Crude oil is recovered from underground reservoirs in the province using three recovery methods known as primary, secondary and tertiary.²³

Primary recovery is the simple pumping of oil from the reservoir to the surface through the wellbore drilled into a reservoir. Almost 95% of all oil wells in North America use an artificial lift (pump) to assist oil production. Most wells use the familiar beam type sucker-rod pumping unit. Primary recovery typically produces 12-15% of the original oil found in a reservoir.

Secondary recovery involves the injection of fluids into a neighbouring well to force out more oil than can be produced by primary pumping. The use of water is referred to as "waterflooding." Secondary recovery can produce an additional 15-20% of the original oil in place.

Tertiary recovery methods are usually referred to as "enhanced oil recovery"²⁴ methods, although waterflooding is also an enhanced oil recovery method. Tertiary recovery involves the injection of steam, gases or chemicals into reservoirs to flush out oil that cannot be recovered by primary or secondary methods. Nearby injection wells may be drilled to deliver the steam or chemicals. Tertiary recovery produces a further 20% of the original oil in place. Thermal recovery methods are normally used to recover heavy oil or bitumen (tar sands). Two current thermal systems include cyclical steam stimulation and steam-assisted gravity drainage. The application of heat makes the heavy oil or bitumen less viscous, allowing it to flow more

²³ Saskatchewan Industry and Resources, *Crude Oil in Saskatchewan* (2003), SIR website at <http://www.ir.gov.sk.ca>.

²⁴ Enhanced oil recovery is defined as "the increased recovery from a pool achieved by artificial means, including injection of fluids, chemicals or heat" (Petroleum Communication Foundation, *Our Petroleum Challenge: Exploring Canada's Oil and Gas Industry*, p.93).

easily towards the production well. Another thermal method being proposed is THAI (toe-to-heel air injection). This method uses air to stimulate underground combustion of some of the bitumen to warm nearby areas for extraction. Research is also being conducted into the use of solvents for in-situ bitumen recovery (the VAPEX process).

Out of the approximately 21,400 operating oil wells in Saskatchewan, SIR statistics for 2002 show that 250 producing wells involve waterflood projects (secondary recovery), 8 involve steam injection, 2 involve solvent injection, and one involves carbon dioxide injection. The latter three are tertiary recovery methods.

4. Flaring and Venting

a. Sour Gas and Hydrogen Sulphide (H₂S)

In a natural gas reservoir usually most of the gas present is methane.²⁵ Methane is an odourless and colourless hydrocarbon made up of four hydrogen and one-carbon atoms. A reservoir's gas mixture can also include other hydrocarbon gases, carbon dioxide, nitrogen and water vapour. Unfortunately, natural gas reservoirs can also contain hydrogen sulphide, H₂S. Natural gas that contains hydrogen sulphide is called "sour gas". It is sour gas that creates the rotten egg smell when test wells are flared. Apart from its noxious smell, sour gas is a corrosive and very toxic gas. Hydrogen sulphide is also found in sour crude oil, mineral hot springs, manure, sewage, marshes and rotting plants.

When people are exposed to sour gas or other sources of hydrogen sulphide, they can suffer effects ranging from mild discomfort to death. The amount or concentration of hydrogen sulphide will determine the effects on people and animals. In lower concentrations exposure can cause eye irritation, a sore throat and cough, shortness of breath, and fluid in the lungs. These symptoms normally go away in a few weeks. Long-term, low-level exposure may lead to fatigue, loss of appetite, headaches, irritability, poor memory and dizziness. In high concentrations (400-700 parts per million), hydrogen sulphide can seriously harm or kill in minutes.

Hydrogen sulphide is dangerous because it interferes with cell respiration, just like carbon monoxide or hydrogen cyanide. It combines with haemoglobin (the protein found in red blood cells used to transport oxygen) and with cytochromes (enzymes), thus rapidly stopping oxygen from accessing cellular metabolism. Hydrogen sulphide is also an irritant of the mucous membranes such as the eyes and respiratory tract. Although it is very foul smelling, H₂S can very quickly paralyse the sense of smell. As a result it can go on to overcome the victim and eventually cause death. The following chart shows the effects of hydrogen sulphide on people.²⁶

²⁵ Stuart King, unpublished research paper at p.4.

²⁶ Sources: Saskatchewan Labour, Occupational Health & Safety, *Transferring and Transporting Liquid Manure* (October 2001) at p.4; Petroleum Communication Foundation, *Flaring: Questions + Answers* (Calgary, 2000).

Hydrogen Sulphide Exposure Levels and Health Effects

Exposure Level	Expected Health Effect or Symptom
1 – 10 ppm	Moderate to strong odour. Eye irritation, nausea, headaches or loss of sleep following prolonged exposure. Effects are reversible and not considered serious for the general population. More susceptible individuals may have a more severe reaction.
10 ppm	This is the workplace 8 hour contamination limit found in the provincial <i>Occupational Health and Safety Regulations, 1996</i> .
20 ppm for more than 20 minutes	Eye, nose, throat and lung irritation. Loss of appetite after prolonged exposure.
50 to 100 ppm	Burning sensation in the eyes and throat, headaches. Vomiting nausea and diarrhea. Some may temporarily lose sense of smell.
100 ppm	This is the <i>Immediately Dangerous to Life or Health (IDLH)</i> concentration level as found in the <i>Occupational Health and Safety Regulations (s.2(ii))</i> . At this level the atmosphere is so dangerous that anyone not wearing an approved respirator will not be able to escape, or will suffer irreversible health effects if they do not leave the contaminated atmosphere within 30 minutes.
200 ppm	Dizziness, nervous system depression, increased susceptibility to pneumonia. Fluid may accumulate in the lungs with prolonged exposure.
500 ppm	Nausea, excitement, unconsciousness. If breathing stops and no immediate rescue death will result.
600 ppm and above	Paralysis of respiratory system and rapid death.
<p>Note: 1 part per million (ppm) of hydrogen sulphide is the same as 1.42 milligrams of hydrogen sulphide per cubic metre of air (mg/m³).</p>	

Approximately one-third of the natural gas produced in Alberta and British Columbia is sour. Most of Saskatchewan's natural gas is "sweet", containing little or no hydrogen sulphide. However, some sour solution gas is produced with sour crude oil in the province.

b. "Sweetening" Sour Gas

Sour gas must be "sweetened" to remove hydrogen sulphide and other impurities before it can be used commercially. Sweetening is done at gas processing plants located near natural gas fields. First the hydrogen sulphide is removed with "sulphur recovery" technology, and then the remaining natural gas mixture is separated into different components such as methane, propane and butane. The sweetening process produces methane (natural gas fuel used to heat homes) and elemental sulphur. Methane is also used as a raw material to produce petrochemicals. In turn petrochemicals are used to make plastics and other products. Sulphur is used to make fertilizers, drugs, pulp and paper, matches and plastics.

Gas processing plants convert on average more than 97% of the hydrogen sulphide in sour gas into sulphur. The remaining or excess hydrogen sulphide is burned off or flared. When hydrogen sulphide is incinerated or flared, the heating process produces sulphur dioxide, which is a major cause of acid rain. Acid rain is formed when sulphur dioxide reacts with moisture in the air, producing sulphuric acid. High levels of sulphuric acid can harm crops and trees, eat away buildings and metal, and pollute water bodies.

c. Flaring Operations

Flaring is the burning of unwanted gases from a well or processing facility. It disposes of the unwanted gas and releases emissions into the atmosphere. For example, a gas processing plant, where water, hydrogen sulphide, carbon dioxide and natural gas liquids are separated before the gas is shipped to market, will flare or incinerate excess H₂S. A flare system usually includes a "flare stack", a nozzle and an igniter. The flare stack is a metal pipe that carries gas to the top of the stack. The nozzle or "burner tip" is found at the top of the stack. A pilot light or automatic igniter ignites the gas.

Flaring may be routine or occur as a safety measure when there is an emergency, power failure, equipment failure or other upsets in processing.

The most common types of flaring are solution gas flaring and well test flaring. In Alberta routine solution gas flaring accounts for more than 75% of the total volume flared.²⁷ Other types of flaring include gas plant flaring and pipeline flaring.

Solution gas²⁸ flaring is used to dispose of natural gas produced along with crude oil and bitumen. It occurs at facilities called "batteries" where production from one or more oil wells is processed, separated and stored. While the oil is underground, the pressure of the reservoir holds the gas in the oil. When the oil is pumped to the surface the pressure is reduced and the

²⁷ See e.g., Energy and Utilities Board, *Upstream Petroleum Industry Flaring and Venting Report: Industry Performance for Year Ending December 31, 2002* (2003) found at <http://www.eub.gov.ab.ca/bbs/products/STs/st60B-2003.pdf>.

²⁸ "Solution gas" is any natural gas found in crude oil.

gas bubbles out of the oil. This is like the release of carbon dioxide bubbles in a soda when the lid is removed. If the volumes of natural gas processed in a battery are small or the facility is in a remote area, the natural gas not consumed as fuel is flared. Solution gas flares burn constantly, accounting for the high volume of gas flared.

Gas plant flaring is used to dispose of unmarketable gases or as a safety measure. All gas plants have flares to burn off gas safely during emergencies, power failures or equipment failures. Some smaller plants are licensed to flare hydrogen-sulphide-rich gas after it is removed from the natural gas.

Well test flaring occurs during drilling and testing of new wells. It is considered standard practice in the oil and gas industry. The flare is used to determine the types of fluids the well can produce, the pressure and flow rates, and other characteristics of the reservoir. A new type of drilling known as “underbalanced drilling” has required increased flaring. Underbalanced drilling speeds up drilling and thus reduces damage to producing formations caused by drilling fluids. This type of drilling increases the amount of gas that is brought to the surface. The average duration of well-test flares is 2.5 days, although some may burn longer.

Pipeline flaring is most often temporary flaring used during maintenance operations or when internal pressures reach unsafe levels.

Since 1996 efforts have been made to reduce the amount of natural gas flared in Canada. Targets have been set by industry and government to reduce flaring. Less flaring means more natural gas is recovered and sold, and fewer emissions are released into the environment.

d. Environmental and Health Effects of Flaring

Flaring of waste gases is one of the major concerns among people living in the oil patch. Flares can release over 250 hazardous air pollutants, including cancer-causing agents such as benzene and other poisonous gases. Where there is incomplete combustion,²⁹ shown by tell-tale black smoke, products may include BTEX aromatics, polycyclic aromatic hydrocarbon compounds, carbon monoxide, methane and, where the gas is sour, hydrogen sulphide. BTEX aromatics include benzene, toluene, ethyl benzene and xylenes. All are potentially harmful to the health of humans and livestock. The effects depend on the level, duration and frequency of exposure. Some of these harmful substances are known to cause cancer, affect reproduction or cause respiratory and cardiovascular disease.

In the past, it was assumed that flares burned at close to 99% efficiency. Complete combustion of methane and other hydrocarbons would in theory produce only water vapour and carbon dioxide. Sour gas flares would similarly convert hydrogen sulphide into water vapour and sulphur dioxide. However, recent research at two sites in Alberta has shown that efficiency levels under actual operating conditions are much lower than expected. At one site, a sweet solution gas well, efficiency varied between 62 per cent and 71 per cent. At the second site, a sour solution gas site, efficiency was estimated at 82 to 84 per cent.³⁰ These low efficiency rates

²⁹ Incomplete combustion can be caused by wind, water, impurities in the fuel, or poor mixing with the air.

³⁰M. Stroscher, *Investigation of Flare Gas Emissions in Alberta* (Calgary: Alberta Research Council, 1996) at p.4. See <http://www.eub.gov.ab.ca/bbs/documents/reports/StroscherInvestigationOfFlareGasEmissions-1996.pdf>.

mean that there are numerous products of incomplete combustion being released into the air with any flaring.

Apart from the harmful by-products of flaring, nearby residents and livestock may be disturbed by the odours, smoke, bright light and noise from flares.

In Saskatchewan, a recent study of oil and gas wells by the Department of Industry and Resources found alarming air pollutant emission levels.³¹ A large number of wells in the province produced hydrogen sulphide (H₂S) at levels of 30,000 parts per million (ppm). Some clusters produced levels in excess of 100,000 ppm. Hydrogen sulphide may be lethal after a 30-minute exposure to concentrations of only 100 ppm. Some areas such as Halbrite exceed the hydrogen sulphide ambient level on a 24-hour basis. According to the Manager of Ecological Monitoring for Saskatchewan Environment this particular finding means that: “in some circumstances, such as low-lying topography and venting of solution gas, the levels could become toxic.”³²

e. Eliminating or Reducing Flaring

Flaring can be eliminated or reduced by different methods. For example, solution gas can be collected and piped to natural gas facilities rather than being flared. In some cases solution gas is re-injected underground to maintain reservoir pressure. A third option is the use of new gas-fired mini-turbine generators to produce electricity from waste gas. Well test flaring can also be reduced by the use of improved well-logging instruments and the use of existing reservoir data from previous well tests to greatly reduce the period of testing.

In Saskatchewan, a pilot project was started in 2002 partnering the Crown utilities, SaskPower and SaskEnergy, with an oil company to develop flare gas microturbine technology.³³ Low-grade natural gas produced as a by-product of oil drilling (solution gas) is being used in the turbines to produce electricity.

The pilot project is located at an oil treatment and processing site near Carlyle. Flare gas is being used to run two micro-turbines that will generate approximately 60 kilowatts of electricity (enough electricity to power 20 households over a one-year period).³⁴ The electricity will be fed into the provincial utility grid. The micro-turbines burn the flare gas at a temperature of 800 degrees Celsius, so that most flare gas pollutants are burned off rather than being released into the atmosphere. The turbines are also able to combust gas containing up to 7% hydrogen sulphide. Gas with a content of 1% or greater H₂S is considered sour gas. As well, the turbines may be able to use methane from other sources such as hog-barns, forestry operations, and hospitals.

In future, regulations developed to implement the Kyoto Protocol may prohibit gas flaring altogether. Therefore, the micro-turbine technology is considered a more environmentally

³¹ Tod Han of Saskatchewan Industry and Resources conducted the study.

³² Terry Hanley as quoted in “Association of Professional Engineers and Geoscientists of Saskatchewan Annual Meeting Seminar: Air Issues in Saskatchewan”, *The Professional Edge* (June/July 2003) at p.15.

³³ Charlton Communications, “Technology With a Flare”, *The Professional Edge* (February/March 2003) at p.6.

³⁴ *Ibid.*

sound option, particularly for smaller oil and gas companies.³⁵

f. Venting

Venting is the direct release of solution gases into the atmosphere without burning or flaring. Venting may occur from oil wells, batteries, tanks, compressor vents, instrument gas stations, pneumatic devices, dehydrators and storage tanks. When pipelines are being serviced, the gases in the line may first be purged and then flared or vented. Vented gases are a source of concern and complaints among nearby residents because they present odours, the exposure to potentially harmful air pollutants (including hydrogen sulphide and benzene), and a risk of explosion. Venting solution gases is also a waste of non-renewable resources.

In Saskatchewan *The Oil and Gas Conservation Regulations, 1985* require an operator of an oil well to burn or flare any “significant volume of gas” that is vented to the atmosphere (section 72). What amount of gas is a “significant volume” is not spelled out in the regulations. This requirement is aimed at reducing the amount of solution or waste gas that is directly vented to the atmosphere.

g. Flaring Setback and Notification Requirements

In Alberta, the Energy and Utilities Board (EUB) has established a series of detailed rules to regulate flaring operations in that province, including notification requirements for landowners and adjacent communities when an oil well will be tested or sour gas flared.³⁶

In July 1999 the EUB issued *Guide 60: Upstream Petroleum Industry Flaring Requirements* and a follow-up to the Guide called, *Guide 60: Updates and Clarifications* (December 1999). For example, section 3 of Guide 60 requires that a company notify the local EUB field centre, the local municipality, and all rural residents within a particular radius of the well before testing an oil well or using a sour gas well flare for more than four hours in a 24-hour period.

By contrast, Saskatchewan does not have a detailed set of rules and regulations for flaring operations. Instead there are a few minimal requirements scattered in *The Oil and Gas Conservation Regulations* and in an Environmental Guideline issued by Saskatchewan Energy and Mines (now SIR) in 2002 called, *Minimum Standards for Flare Tanks during Drilling and Servicing Operation*.

(i) Setbacks

The *Oil and Gas Conservation Regulations* require that flares in the province be setback a minimum of 75 metres from any structures, unless the Department of Industry and Resources otherwise approves. Subsection 72(2) reads:

³⁵ *Ibid.* at pp. 6 and 8.

³⁶ The EUB is the main regulatory body for the oil and gas industry in Alberta. It reports to the Minister of Resource Development, but works at “arm’s length” from the provincial government.

- 72 (2) No flare or end of flare line is to be located closer than 75 metres to any:
- (a) road allowance, surveyed road, railway, pipeline, power line or other right of way;
 - (b) aircraft runway or taxiway; or
 - (c) dwelling, industrial plant, military building, permanent farm building, school or church;
- unless otherwise approved.

Similarly, no flare pit or open end of a flare line is to be located within 45 metres of a well or oil storage tank, or within 23 metres of any oil or gas processing equipment, unless SIR otherwise approves (s.72(3)).

(ii) Flaring Notification Requirements

Oil and gas companies are not legally required to notify neighbouring residents or communities prior to starting flaring operations. They are, however, required to provide the local SIR field office with 24 hours notice of a planned gas well test, so that the minister's representative may witness the test (*Oil and Gas Conservation Regulations*, s. 73(4)).

If you would like notification of any planned flaring on your land, it must be spelled out in the surface lease agreement you reach with the oil and gas company. If you do not have a surface lease agreement or you live or work on land neighbouring the well site, you can contact the local field office of SIR and ask that they provide you with notice of any planned flaring (see Chapter Five for contact information). Another option is to approach the oil and gas company and ask them to provide you with reasonable notice of any planned flaring, including the duration of the flaring operations. If the oil and gas company is holding any public meetings or information sessions prior to starting drilling in your area, it is important to attend and raise any concerns you may have and request details about the planned operations.

5. Pipelines

According to the petroleum industry pipelines are the safest and most economical way of transporting oil or gas to processing facilities or customers. A number of underground pipeline systems for oil and natural gas begin in and cross through the province. These pipelines deliver crude oil, natural gas, natural gas liquids and refined petroleum products. Provincial pipelines that begin and end in the province are regulated under the provincial *Pipelines Act, 1998*. Inter-provincial or international pipelines fall under the federal government's jurisdiction and are regulated by the National Energy Board.

TransGas Limited, a subsidiary of SaskEnergy, transports most of the natural gas produced by provincial oil and gas companies from the producing fields. It collects and transports the gas to SaskEnergy's distribution system for distribution to Saskatchewan consumers or to inter-provincial or international pipeline systems run by TransCanada Pipelines Ltd., Foothills Pipe Lines Ltd., and Williston Basin Interstate Pipeline.³⁷

³⁷ Saskatchewan Industry and Resources, *Fact Sheet – Gas in Saskatchewan* (2003) at p.3, SIR website <http://www.ir.gov.sk.ca>.

The Enbridge Pipeline system transports most of the crude oil in the province. The Enbridge system begins in Edmonton and stretches across Saskatchewan en route to the eastern provinces and the United States.³⁸

a. Pipeline Route Selection and Construction

(i) Surveys

The pipeline company must survey the proposed route prior to construction of a licensed pipeline. Under *The Pipelines Act, 1998* a pipeline company has the right to enter any land on the intended route of the pipeline in order to conduct its survey (section 13). Thus, even if you disagree with the intended route and refuse to provide consent, the company may enter your land. The company, however, must first obtain the consent of the Minister of Industry and Resources to enter the land and prove that it has made a reasonable effort to obtain the consent of the owner and/or occupant (section 13(2)).

(ii) Notification

Before breaking the ground to begin construction of the pipeline, the company must apply for a licence from the Department of Industry and Resources. Certain conditions must be met before a licence will be issued, including contacting and obtaining easement agreements from surface owners along the route. An easement agreement must be written for each parcel of land the pipeline route crosses.

Section 4 of *The Pipelines Regulations, 2000* lists the individuals and government bodies that must be notified of the planned pipeline:

- all municipalities that the pipeline crosses or is located within;
- the Department of Environment (Environmental Assessment Branch);
- the Department of Government Relations and Aboriginal Affairs (Community Planning Branch) if the pipeline is located within 1.5 kilometres of the boundaries of an urban municipality;
- the Heritage Branch of the Department of Government Relations and Aboriginal Affairs if there are any archaeological sites along the pipeline right of way;
- the Saskatchewan Water Corporation if the pipeline is for fresh water transportation;
- the operator of any utility or pipeline located within 30 metres of the proposed pipeline;
- all surface landowners whose property the pipeline crosses or is located within; and
- all Indian bands whose reserve the pipeline crosses or is located within.

³⁸ Saskatchewan Industry and Resources, *Fact Sheet – Oil in Saskatchewan* (2003) at p.3, SIR website.

(iii) Pipeline Easement Agreements

A pipeline easement is a right of way granted by the landowner to a pipeline company. The right of way is the strip of land in which the pipeline is buried. The width of the right of way usually ranges from 15 to 30 metres (m) for the full length of the pipeline.

The easement agreement is a written contract that sets out the rights and responsibilities of the landowner and pipeline company, including the amount of compensation to be paid the landowner and/or occupant. According to section 2 of the *Public Utilities Easements Act* (1978) a registered owner of a parcel of land may grant a pipeline company the following rights or easements:

- right to construct its pipes through, under or across the land;
- right of access to and egress from its pipes; and,
- any other rights with respect to the land that may be required.

Once an easement agreement has been finalized, the pipeline company can register the easement as an interest in land with the Land Titles Registry. Therefore the easement attaches to the parcel of land and binds the current owner and any and all future owners of the land. The land remains subject to the easement agreement until the company removes the easement from the Land Titles Registry.

(iv) Expropriation

Unfortunately if you do not want a pipeline to cross over or through your land and refuse to provide your consent to grant an easement, the pipeline company can expropriate the easement. In other words, the pipeline company can without your consent enter your land and do anything necessary to construct and operate the pipeline. Section 15 of *The Pipelines Act, 1998* allows a licenced pipeline company to expropriate the pipeline easement.

The expropriation procedure the pipeline company must follow is spelled out in *The Expropriation Procedure Act* (1978). This legislation requires the company to compensate the owner for the easement.

To begin the process, the expropriating authority (the pipeline company) must serve the registered owner of the land and any other interested person with a “notice of compulsory acquisition” (section 20(1)). The notice must include:

- a description of the land;
- the interest in land (easement) and purpose for which it is required;
- the day on which possession was taken or is required;
- the address to which claims may be forwarded; and
- the time within which an action for compensation must be commenced.

Within four months of entry on the land, the pipeline company must serve the owner with an offer in writing stating the amount of compensation offered for the easement (section 20(2)). At any time after the service of an offer of compensation the landowner may demand an

evaluation report from the pipeline company by notice in writing (section 22(1)). The evaluation report must show all the facts taken into account by the expropriating authority (pipeline company) in arriving at the amount of compensation.

If the landowner does not bring a court action for compensation within two years from the day on which notice of compulsory acquisition (expropriation) was served, the amount offered in compensation by the pipeline company is deemed accepted (section 28).

There is always a possibility that the judge hearing an action for compensation can decide to award compensation that is less than the amount originally offered by the pipeline company. To avoid the expense and uncertainties of the court process and the inconvenience of the expropriation procedure, it is recommended that you negotiate an easement agreement with the pipeline company. A negotiated agreement will allow you to protect your interests more readily.

b. Negotiating an Easement Agreement

The easement agreement should list all the things the company must do when constructing, operating and eventually abandoning the pipeline.

An easement agreement will usually cover matters such as:³⁹

- the land that will be subject to the easement;
- the size and location of the right of way;
- indemnity (protection from liabilities, damages, etc. caused by the company);
- how the land will be used;
- terms of compensation payment (lump sum or periodic payments);
- the legal responsibilities of the pipeline company and the landowner; and
- any restrictions placed on the use of the land.

When negotiating you may wish to ask about the type, size and flow pressure of the planned pipeline. For instance, pipelines with a small diameter have the highest failure rate. You will also want to know where shut-off valves will be located. If there is an emergency and the shut-off valve is far away, it will take longer to stop the flow.

If you disagree with the planned location of the pipeline, you can suggest an alternative route. If, for example, you have future plans for the land such as a new building or subdivision, you will need to alert the pipeline company and have them locate the pipeline far enough from the planned building sites to meet your needs and ensure safe setback distances. Keep in mind that the company will always need access to its line for inspection and maintenance purposes.

Helpful information on pipelines is found in the following National Energy Board documents online at www.neb.gc.ca/safety/index_e.htm under the heading “Safety Publications”:

³⁹ National Energy Board, *Pipeline Regulation in Canada: A Guide for Landowners and the Public* (Calgary: National Energy Board, 2003) p.15.

1. *Pipeline Regulation in Canada: A Guide for Landowners and the Public* (June 2003);
2. *Report of the Inquiry – Safety-Stress Corrosion Cracking on Canadian Oil and Gas Pipelines – Summary and Recommendations – MH-2-95* (November 1996); and,
3. *Pipeline Abandonment: A Discussion Paper on Technical and Environmental Issues* (November 1996).

(i) Compensation

The amount of compensation for an easement is negotiated between the company and the landowner/occupant. Many companies hire qualified appraisers to determine the market value of the land. The market value provides a basis for calculating the amount of compensation to be paid for the use of the land. Compensation is also payable for:

- an entry fee;
- the use of any temporary work space;
- any inconvenience or nuisance caused by the construction of the pipeline, including time spent in negotiating the agreement;
- loss of use of the land (based on market value of the land and number of acres affected by the construction disturbance); and,
- adverse effects and damages caused by construction, maintenance or operation of the pipeline.

Before installation of the pipeline begins, the company should pay in advance an amount for the entry fee and loss of use (based on the market value of the land). Once the pipeline is complete, you should be paid compensation for such items as adverse effects and inconvenience. Adverse effects can include loss of crops and loss of land use during operations and while vegetation is being re-established above the buried pipeline. The cost of moving livestock to another site during construction would be an example of inconvenience. You may also wish to wait to finalize compensation until a crop has been grown near the disturbed land so that the full extent of any damage can be assessed.

Once the pipeline is operating and a spill, leak or accident occurs, you should claim compensation for any losses or damage to property. A clause setting out the pipeline company's obligation to compensate you for any loss or damage caused by an accident, leak or spill should be included in the easement agreement. There should also be an arbitration clause in the agreement, so that if there are any outstanding claims relating to damages caused during pipeline construction or operation they can be dealt with by arbitration rather than having to go to court.

Compensation for a pipeline easement is often a one-time payment. In certain cases, however, you may wish to ask for annual or periodic payments. For example, where there may be long-term damage, the company should be required to make annual payments until the

damage is rectified. Another situation may be where above ground facilities, such as compressors, will be installed on the right-of-way. In this case, an annual rent for loss of use and adverse effects is fitting.

(ii) Arbitration

If the surface owner and the pipeline company cannot agree on the amount of compensation for the proposed easement, the pipeline company can submit the matter to arbitration (*Public Utilities Easements Act*, s.7). Under the *Public Utilities Easements Act*, the arbitrator is a judge of the Court of Queen's Bench. The arbitration proceeds after all persons who have an interest in the land are notified of the arbitration. After hearing the submissions of all the parties, the arbitrator decides the amount to be paid as compensation for the proposed easement. There is no right of appeal from the arbitrator's award.

Where the pipeline falls under the jurisdiction of the National Energy Board (inter-provincial or international pipeline), and you cannot agree on the amount of compensation you should receive for the easement, either you or the company can ask the federal Minister of Natural Resources for help in settling the dispute. You can send a letter to the Minister and ask to have the matter settled either by negotiation or arbitration. You must also send a copy of the request to the company as well. If the company writes to the Minister, they must send you a copy. Requests can be forwarded to:

Minister of Natural Resources

580 Booth Street

Ottawa, Ontario K1A 0A6

Phone: (613) 996-2007; Fax: (613) 996-4516

If you request negotiation, the Minister will appoint a negotiator to meet with you and the company in an informal manner in your area. However, neither party is bound by the negotiation process. Either you or the company can end the negotiation process at any time and ask to have the issue settled by arbitration instead.

If you or the company requests arbitration, the Minister will appoint an arbitration committee made up of three people. The committee will set a time and place for the hearing and notify you and the company. At the arbitration hearing the committee members can take into account any or all of the following factors:⁴⁰

- the market value of the land taken by the company;
- where payments are made annually or at regular intervals, any changes in the market value of the land since the easement agreement was signed, or since the last time the payments were reviewed or adjusted;
- your loss of use of the land;
- the adverse effect on the rest of your land;

⁴⁰ NEB, *Pipeline Regulation in Canada: A Guide for Landowners and the Public* at p.58.

- the nuisance, inconvenience and noise caused by the company;
- damage to lands in the area of the pipeline that might be reasonably caused by the company's operations;
- loss of, or damage to livestock or other personal property that has been caused by the operations of the company;
- any special difficulties in relocating your property or yourself; and/or
- any other factors the arbitration committee consider appropriate.

(iii) Environmental Matters

The pipeline company should identify possible environmental concerns when assessing the site prior to construction and take precautions to minimize the amount of remedial work needed after construction.

When negotiating the easement agreement with the company, a number of environmental issues should be taken into account. These include:

- (1) Protecting water supplies. Locating the pipeline at a greater distance from a water well or surface water will reduce the chance of contamination if there is a leak.
- (2) Safeguarding surface drainage. Ask the company to locate the pipeline where it will not disturb surface drainage. If you later find that natural drainage is affected ask the company to solve the problem.
- (3) Protecting topsoil. The agreement should state how the topsoil will be removed and later replaced when the land is to be restored to its original state. Ask what the company will do to minimize soil compaction along the right of way and anywhere that heavy vehicles will be travelling during construction.
- (4) Selecting pipeline installation methods that reduce environmental harm. Will the company be using the trenchless plow method, rather than excavation with a backhoe or chain trenchers? The trenchless plow method uses a plow tractor to install the pipeline. Advantages include: minimal clean-up because the pipe is installed and backfilled as the plow equipment moves along; shallow wet areas can be plowed through by winching the plow tractor across, possibly causing less disturbance; and installation rates are faster (for example, installation rates depend on pipe size and average between 3,000 and 6,000 metres per day with the plow tractor method).
- (5) Protecting shelterbelts or environmentally sensitive areas. Ask the company to use directional bore drilling to avoid destroying shelterbelts or ecologically important

or sensitive areas in the proposed right of way. Ask the company to avoid these areas entirely if possible.

- (6) Preventing weeds. How will the company prevent the spread of weeds? Require the company to wash track equipment before moving it to a new parcel.
- (7) Site clean up after pipeline installation. The agreement should state the company will remove construction material, spread and level the topsoil, cultivate to deal with compaction, prepare a seedbed and reseed the land where desired. If this is not done to your satisfaction, ask the company to deal with any problems.
- (8) Leaks. Find out what to do if there is a leak and how the company will deal with it.
- (9) Monitoring for leaks and corrosion, which could lead to pipeline failure. Ask how the pipeline will be monitored. Will there be external inspections, including by plane? How often will internal checks be done? Pipelines must meet Canadian Standards Association (CSA) operating standards. These standards are enforceable by Saskatchewan Industry and Resources (provincial pipelines) and the National Energy Board (international or inter-provincial pipelines).
- (10) Ask if the pipeline will be cathodically protected and if there is a corrosion mitigation program in place. A cathodically protected pipeline has a low voltage current running through it to reduce the risk of corrosion.
- (11) Heat. Pipelines transporting hot substances can cause nearby crops to ripen early, which can make harvesting more difficult.

c. Adjacent Landowners/Occupants

Owners or occupants of adjacent lands can request compensation from the pipeline company if they can show that they have incurred costs due to damages caused by the pipeline construction.

d. Pipeline Easement Negotiation Checklist

When negotiating the easement agreement with the pipeline company consider:

- (1) Is the pipeline setback far enough from any dwellings? Would you have time to escape if there is a leak or emergency? Will the location of the pipeline affect your future plans such as new buildings, expansion or subdivision?
- (2) Is the pipeline in the best possible location when you consider surface water drainage, water wells, and other environmental concerns?
- (3) If the pipeline is close to a water well, have the company test it before and after the pipeline is installed.

- (4) If the company needs any temporary work space while it builds the pipeline have this put into writing and ask for additional payment including payment for any damage to your property. Temporary work space is needed when the pipeline crosses under a road or stream, or where extra space is needed to store topsoil or subsoil.
- (5) Include a clause that protects you from all liabilities, claims or suits caused by the company's operations.
- (6) Include a clause that you will be compensated for all damages caused by the company.
- (7) The easement agreement should state that the company will quickly clean up the right of way and deal with any problems that arise later such as damage to surface drainage, a sinking trench, compaction of the right of way, or an exposed pipeline.
- (8) Require the company to immediately notify you if there is a leak or spill and to inform you about how the leak or spill is being contained and cleaned up.
- (9) How will the pipeline be decommissioned and abandoned in the future? Will the pipe be left in the ground after abandonment? The agreement should set out how the pipeline will be abandoned and the land reclaimed once the line is no longer in use.
- (10) If you do not want additional pipelines to be constructed along the right of way in the future, you can ask for a clause limiting the right of way agreement to one pipeline.
- (11) Is the amount of compensation enough to cover the costs, damage, and inconvenience that will occur while the pipeline is being installed? Compensation should include the time you have spent negotiating and the time you will spend working around the construction activities. You can also ask for reasonable costs to review the easement agreement before signing.
- (12) Include an arbitration clause to allow any disputes to be settled under the provincial *Arbitration Act* (1992) rather than going to court.
- (13) Read the National Energy Board document, *Pipeline Regulation in Canada: A Guide for Landowners and the Public* (June 2003), before negotiating an easement agreement for the planned construction of an inter-provincial or international pipeline. The NEB requires a hearing before the Board if the proposed pipeline is longer than 40 kms or the Board considers a hearing necessary for any other reason. As a landowner or occupant you have an opportunity to participate in the hearing by making a submission in person or in writing.
- (14) Ensure that everything that you have negotiated with the company is included in the written agreement.

6. Batteries and Gas Processing Plants

a. Batteries

Batteries are facilities where oil and gas are collected from one or more wells and separated into oil, gas, water and impurities before further transport. A battery may consist of a number of tanks and separators and a dike or dikes to collect any run-off fluids. Battery sites are located near producing wells and connected to the wells by flowlines or pipelines.

Potential problems associated with batteries are emissions, spills, containment dike failures, and flaring operation difficulties. These problems can impact nearby residents or communities.

Saskatchewan Industry and Resources (SIR) regulates batteries under the *Oil and Gas Conservation Regulations, 1985*. The *Regulations* define a battery as “common storage facilities receiving production from a well or wells and includes equipment for separating the fluid into oil, gas and water and for measurement” (subsection 2(d)).

Batteries must be setback a minimum of 75 metres from any:

- (a) road allowance, surveyed road, railway, pipeline, power line or other right of way;
- (b) aircraft runway or taxiway; or
- (c) dwelling, industrial plant, military building, permanent farm building, school or church;

unless the Minister of Industry and Resources considers a shorter distance is justified by special circumstances (*Regulations*, s. 51(1)). Similarly, the minimum distance a battery can be located from a well-site is 45 metres (s.51(2)).

Section 52 of the *Oil and Gas Conservation Regulations* sets out the maintenance and housekeeping requirements for battery sites. The operator of a battery cannot allow salt water, waste oil or refuse to flow over the surface land (s.52(2)). To prevent such escapes, a dike must be installed around the entire battery site (s.50(2)). If liquid escapes from a battery storage tank, a dike is needed to provide secondary containment. The dike surrounding the tank or battery of tanks must have a capacity greater than that of the largest tank or as required by SIR (s.50(2)). The dike must also be maintained in good condition and kept free from tall grass, weeds or combustible material.

Any rubbish or debris must be removed from the battery site (s.52(3)). All waste oil and refuse is to be drained into approved containers or receptacles and immediately removed from the battery site (s.52(4)). The receiving containers must be located no less than 45 metres from any battery site or tank.

When an oil spill or salt water spill occurs at a battery site (or at a well site) the operator must take immediate steps to contain and clean up the spill. The operator must also ensure that the spilled material and any contaminated soil or water is processed in the operator’s own facility,

or sent to an approved waste processing facility, or disposed of in another manner that is acceptable to the department (s.52(6)).

To minimize fire hazards, all battery piping is to be laid out properly and equipped with control valves to shut off oil or gas flows in the event of fire (s.53(7)).

Because battery facilities can pose hazards equal to or greater than oil or gas wells, special provisions should be included in a surface lease agreement to address such facilities and their risks. Additional compensation should be paid for the installation and operation of a battery site on your land.

b. Gas Processing Plants

Gas processing plants remove impurities from the gas before it is piped to market. The natural gas purchased by consumers for home heating or cooking is methane. In a gas reservoir, methane is typically found in a mixture with heavier hydrocarbons such as ethane, propane, butane and pentane, as well as water vapour, hydrogen sulphide (H₂S) if the gas is sour, carbon dioxide, nitrogen and other gases. Most of these substances are removed from the gas at processing plants located near production areas. As with batteries, potential problems that can affect neighbouring residents are emissions, spills and flaring operations.

7. Waste Management

Waste management involves the storage, treatment and disposal of oil patch wastes. Under provincial waste management guidelines oil patch wastes are referred to as “upstream petroleum wastes”. The word “upstream” means that the wastes have been generated by the exploration, development or production phase of oil and gas projects. Midstream oil and gas projects are those involving the processing, storage or transport of oil and gas. Downstream oil projects involve the refining of crude oil into various chemicals and products such as gasoline, asphalt or plastics.

Oil patch wastes include wastes from wellsites, batteries, gas plants, compressor stations, crude oil terminals, pipelines, gas gathering systems, drilling and service rigs.

a. SPIGEC Waste Management Guidelines

The 1996 *Waste Management Guidelines for the Saskatchewan Upstream Oil and Gas Industry* provide detailed waste management guidelines for the oil and gas sector. These guidelines were the first set of guidelines developed by the Saskatchewan Petroleum Industry/ Government Environmental Committee (SPIGEC).⁴¹ SPIGEC was formed in 1992 to bring industry and government together to address provincial environmental management concerns.

Although the *Waste Management Guidelines* are not legally binding, if a company follows the guidelines they will meet or exceed provincial regulatory requirements (which are legally

⁴¹ See Chapter Five for additional information on SPIGEC.

binding). The guidelines attempt to synthesize in one document the principles and practices oil and gas companies should follow. Failure to follow the guidelines means a company has fallen below accepted industry standards and is at high risk for legal liability if sued.

The SPIGEC *Waste Management Guidelines* can be downloaded from the Saskatchewan Industry and Resources website at <http://www.ir.gov.sk.ca>. Follow the links starting with “Saskatchewan’s Oil & Gas Resources” to “Guidelines and Miscellaneous Information” to “Environmental Guidelines.”⁴²

b. Provincial Regulators

Both Saskatchewan Industry and Resources (SIR) and Saskatchewan Environment (SE) are responsible for regulating oil patch wastes. Jurisdiction is divided between the two departments, but in certain cases there is an overlap of jurisdiction or responsibility. Both regulators have an administrative and enforcement role in their areas of responsibility.

SIR is the primary regulator of oil patch wastes. The department has exclusive jurisdiction over any wastes or waste management facilities specifically listed in the *Oil and Gas Conservation Act* or *Regulations* and the *Pipelines Act*. Thus the wastes or facilities regulated under this legislation are exempt from other environmental protection legislation. For example, upstream wastes generated and stored on-site at wells or at oil or gas processing facilities, are regulated by SIR. These would include crude oil, natural gas, produced water and associated oily wastes.

In general, once upstream wastes are removed from site to more permanent facilities, such as hazardous waste management facilities, landfills or commercial landfarms, the wastes are regulated by Saskatchewan Environment. If wastes or chemicals are spilled on-site both SIR and SE may have jurisdiction.

Saskatchewan Environment regulates oil patch wastes under the following pieces of legislation:

- 1) *Environmental Assessment Act* – certain waste treatment and storage schemes require approval under the *Act*.
- 2) *Environmental Management and Protection Act, 2002* and *Regulations* – industrial effluent permits are issued under the *Act*. The following *Regulations* created under the *Act* provide for the management of specific categories of wastes or facilities:
 - (a) *Environmental Spill Control Regulations* – outline required spill reporting and response actions by persons responsible for releases (upstream oil and gas spills are exempt from these regulations).
 - (b) *Hazardous Substances and Waste Dangerous Goods Regulations* – regulate waste storage facilities and sites.
 - (c) *PCB Waste Storage Regulations* – require PCB wastes to be managed and stored in an environmentally safe manner.

⁴² The SPIGEC Guidelines are referred to by the abbreviated title *SPIGEC 1 Upstream Waste Management Guidelines* on the SIR website.

The following table outlines the division of responsibility between SIR and SE for the regulation of oil patch wastes.⁴³

Saskatchewan Industry and Resources	Saskatchewan Environment
<ul style="list-style-type: none"> ▪ on-site storage of produced water and crude oil (tanks and batteries) ▪ drilling fluid waste management ▪ oily byproducts storage and disposal ▪ land treatment and land farming ▪ oilfield waste processing facilities ▪ waste disposal wells ▪ on and off lease spills of produced water, emulsion and crude oil 	<ul style="list-style-type: none"> ▪ storage of hazardous substances and waste dangerous goods ▪ landfills ▪ hazardous waste management facilities ▪ commercial land farms ▪ commercial waste contractors ▪ hazardous waste disposal wells ▪ spills of refined products

c. Waste Disposal Wells

Section 76 of the *Oil and Gas Conservation Regulations, 1985* regulates the planned on-site disposal of oil and gas wastes, salt water and other wastes.

If a company wishes to dispose of wastes below the ground in subsurface formations (waste disposal well) it must obtain the written consent of all owners, including private mineral rights owners (freehold), who may be adversely affected by the disposal (s.76(1)(a)). The company's disposal plan must be submitted to Saskatchewan Industry and Resources for approval. The written disposal plan must be accompanied by the land and mineral owners' consents.

Once every two years a disposal well requires inspection by SIR to ensure there are no production casing, tubing or packer failures, and that the casing annulus is sufficiently protected by a corrosion inhibiting fluid (s.76(4)).

Wastes placed in a disposal well cannot constitute a public health or safety hazard or contaminate fresh water or arable lands. The company operating a disposal well is required to prevent such problems (s.76(3)). Compliance with an approved written disposal plan does not relieve a company from its obligation to protect the public and the environment.

Any plans to dispose of oil and gas wastes other than by subsurface disposal requires prior written approval from SIR (s.76(2)).

⁴³ SPIGEC, *Waste Management Guidelines for the Saskatchewan Upstream Oil and Gas Industry* (1996), s.3.2, at p.9.

d. Drilling Waste Treatment and Disposal

Often, the largest volume of wastes created by oil and gas companies are drilling wastes, including drilling fluids or muds and drill cuttings. Drilling fluids are liquids used in drilling to manage the wellbore. Drilling mud is usually made of water or oil mixed with clay or chemicals. Drilling muds lubricate and cool the bit and counterbalance underground formation pressures. The muds become contaminated with formation material and the result is a large volume of liquid and solid waste that need disposal. Spills and leaks of drilling fluid, hydrocarbons and formation water can also contaminate soil and water and create waste.

In some cases, the drilling mud can be reused or recycled, but most often it is disposed of on the lease site or on nearby agricultural land such as stubble fields and cultivated lands. SIR prohibits off-lease disposal on vegetated land (pasture, native grass or forested land), except in very rare cases.

In 1999 Saskatchewan Energy and Mines (now SIR) issued the *Saskatchewan Drilling Waste Management Guidelines*.⁴⁴ The *Guidelines* replace and consolidate previous guidelines dealing with drilling wastes. They also outline comprehensive methods and criteria for the handling and disposal of drilling wastes. If a company uses disposal methods other than those found in the guidelines, it does so at its own risk. Ultimately, a company is responsible for the proper disposal of its own wastes.

The type of drilling mud system determines what treatment and disposal options may be used by a company. SIR identifies three categories of drilling mud systems and their wastes: freshwater based, salt water based, and hydrocarbon based.

Freshwater based drilling mud systems use fresh water as the base and include fresh water gel, gypsum water, nitrate gypsum water, or fresh water polymer systems.

Hydrocarbon based drilling mud systems include oil only systems, or fresh or saline water emulsified in the oil. The oil used includes crude oil, diesel oil (invert mud) and mineral oil. Canola oil or mineral oil systems are slightly more costly, but less toxic than diesel oil.

Salt water based drilling mud systems use salt water and saline inhibitive muds. The salts commonly used in the muds are potassium chloride, potassium sulphate, or diammonium sulphate.

Four types of disposal methods for drilling wastes are accepted in the province:

- (1) *On Lease Disposal* – including landspreading and residual solids disposal;
- (2) *Off Lease Disposal* – including landspraying while drilling and landspraying disposal after completion of drilling;
- (3) *Land Treatment Disposal*; and,

⁴⁴ The *Saskatchewan Drilling Waste Management Guidelines* are numbered Information Guideline GL 99-01. The *Guidelines* are available on the SIR website.

- (4) *Alternative Disposal Options* – including roadbed incorporation, encapsulation or mixing with a solidifying agent, solids washing to pre-treat wastes, and treatment and disposal at waste processing facilities.

For additional information on these disposal methods, including technical details, refer to the 1999 *Saskatchewan Drilling Waste Management Guidelines*.

(i) Drilling Waste Management Plans

A drilling waste management plan must be submitted to the appropriate SIR field office when applying for a well licence and 3 days prior to spudding or starting a well. A waste management plan must address storage, processing, handling, treatment and disposal of drilling wastes. A waste management plan is not required where freshwater mud systems are proposed. However, a plan is required when the mud system is salt based or hydrocarbon based, or where a company proposes *underbalanced drilling*.

Underbalanced drilling is drilling an oil well with a lighter drilling mud. For example, high-pressure nitrogen provides a low density drilling fluid that allows a lower downhole hydrostatic pressure. The lighter hydrostatic pressure of the drilling fluid results in a wellbore pressure that is less than the formation pressure at all times. The lower pressure in the wellbore encourages oil and gas flow out of the formation and into the well, and virtually eliminates the flow of drilling fluids into the formation (preventing formation damage). Lighter drilling fluids mean faster drilling time.⁴⁵ As a result, underbalanced drilling increases the amount of oil and gas that can be recovered in a shorter period.

(ii) Temporary Storage/Containment of Drilling Fluids

During the period of drilling, drilling fluids or muds must be contained in a safe manner. Various storage or containment methods are possible depending on the types of muds or fluids involved and other site-specific conditions or circumstances. However, upon completion of drilling, all drilling fluids must be disposed of in a timely manner (*Saskatchewan Drilling Waste Management Guidelines*, s.1.2). Sump closure must be completed within 12 months of drilling rig release, unless permission is otherwise obtained from the appropriate SIR field office. Placing hazardous wastes, waste dangerous goods or garbage in drilling sumps/tanks is prohibited. Additional details on drilling fluid storage and management are found in the 1996 *Waste Management Guidelines for the Upstream Oil and Gas Industry*.

Possible containment methods for drilling fluids include: earthen sumps, synthetically lined earthen sumps, mud tanks, closed drilling fluid handling systems, and remote sumps.

Earthen sumps or pits may only be used for the storage of freshwater drilling fluids. The bottom of the pit must also be separated from the groundwater table by at least one metre of

⁴⁵ For instance, in Venezuela a well was drilled underbalanced in 17 days, whereas the estimated drilling time for the same well using conventional methods was 43 days. See John E. Boyle, *Underbalance Drilling Service – Think Value, Not Cost*, Weatherford International website at <http://www.weatherford.com>.

continuous, impermeable subsoil. Earthen pits may be used for the storage of salt water only in an emergency.

Synthetically lined earthen sumps may be used to hold freshwater drilling fluids where containment using native soils is not feasible. The liner must be compatible with the fluid being stored, and must be strong and durable.

Mud tanks must be used for salt or hydrocarbon based mud systems, or where soil conditions are unsuitable or a high groundwater table exists.

Closed drilling fluid handling systems are required where there is an explosion hazard and/or dangerous gases may be emitted as a result of drilling activities. For example, when drilling underbalanced, drilling through a sour oil or gas formation, or drilling with petroleum distillates or diesel drilling mud, a closed system may be required by SIR. A closed drilling fluid handling system normally includes a rotating blow-out preventer, a mud-gas separator, and enclosed tanks, connected to a gas flaring unit.

Remote sumps may be used where drilling fluids cannot be contained on lease or where multiple wells are planned. A remote sump requires prior approval from SIR. To obtain approval a company must provide to SIR: a letter of application describing the type of drilling wastes to be stored in the sump; the length of time the sump is to be used; a survey plan showing the location of the remote sump; and a written consent from the landowner. The approval from SIR may contain a number of site-specific conditions.

e. **Land Application: Land Spreading, Land Treatment and Land Farming**

As a landowner or occupant you may be asked by an oil or gas company to permit the use of your land for waste treatment or disposal. It is recommended that you exercise caution in agreeing to any land application schemes such as land spreading/ spraying, land treatment or land farming. The land application of drilling wastes can pollute soils and surface waters.

Drilling mud wastes may contain potentially toxic additives such as bactericides, emulsifiers, de-emulsifiers, corrosion inhibitors, foaming agents, lubricants, polymer stabilizers, polymer breakers, shale control inhibitors and surfactants. Heavy metals found in these substances can accumulate in the soil and in the food chain.

Land application is a form of waste bio-remediation where wastes are spread or mixed into or onto the soil surface. Bio-remediation uses the activity of micro-organisms to break down contaminants found in water, soil or waste constituents. Bio-degradable wastes such as hydrocarbon contaminated soils can be treated with bio-remediation.

Land application uses the soil or vegetation system to degrade, transform and assimilate waste. The method may be used as a treatment or final disposal method.

Land Spreading/ Spraying is a one-time application of drilling waste to soil. This practice is based on maximum loading to the soil or application rates. Land spreading or

spraying relies on dilution of contaminants in the environment rather than actual treatment of wastes. Waste contaminants added to the soil can be transported from the disposal site into ground and surface waters.

Land Treatment is a one-time application of waste to soil and periodic reworking with organic amendments. This method of disposal is used for hydrocarbon based mud wastes. If the wastes have a high salt content, management practices must deal with both the salt and the hydrocarbon. Safer alternatives to land treatment for wastes with high salt content include composting, leachate bed reactors and bioreactors.

Land treatment requires frequent tillage and application of nutrients to break down the hydrocarbons. Organic amendments such as manure or straw are added to increase biological activity and soil aeration. Periodic soil sampling and analysis are needed to monitor the progress of remediation. Several years of active remediation may be needed to achieve closure.

Land Farming involves the repeated application of waste material at a dedicated site or facility. Land farms are larger, longer-term land spreading operations. They typically receive petroleum-contaminated wastes such as gasoline, diesel, used oil and solvents. Land farming operations require environmental review by Saskatchewan Environment under the *Environmental Assessment Act*.

One of the problems or risks associated with all three types of land application is the presence of soluble salts, metals and soil sterilants in the wastes. These contaminants can damage soil, contaminate groundwater, and harm livestock or wildlife.

Environmentally safer methods of treating and disposing of drilling wastes exist. For invert and hydrocarbon-contaminated muds, options include oilfield waste treatment facilities, thermal destruction and disposal in licenced hazardous waste landfills.

8. Abandonment and Restoration of Well Sites

The construction and management practises used during the life of a well or other upstream facility can impact greatly on the level of clean up and remediation needed at the time of abandonment. A pre-site assessment is recommended to record the site conditions for comparison after restoration.

Abandonment is part of the well decommissioning/dismantling process, and involves the capping or plugging of a well. The term remediation refers to the decontamination of the soil or water. Decontamination is needed if there have been spills or leaks of drilling fluids, hydrocarbons or wastes. Restoration refers to the physical reclamation process and involves re-contouring, replacing topsoil and re-vegetating to restore the surface of the land to as close to original conditions as possible.

When a company plans to abandon a well site it must serve the landowner and any occupant with a notice of its intention under section 54 of the *Surface Rights Acquisition and Compensation Act*. A copy of the notice of intention to abandon must also be filed with the Surface Rights Compensation Board. Proof of service of the notice on the owner and occupant must also be filed with the Board within 30 days of filing the notice (s.54(2)).

a. Capping or Plugging Wells

Specific requirements must be met when an oil or gas company plans to shut down and cap a dry well or a completed well that is no longer productive. The *Oil and Gas Conservation Regulations, 1985* list the procedure to be followed when a company abandons a well.

Section 35 of the *Regulations* requires that a well be plugged after it is no longer used for its original purpose. If the operations at a well have been discontinued or delayed for an unreasonable period of time, SIR can provide the owner with 30 days notice to abandon the well (s.35(2)). The well owner can dispute the notice, if it can show cause why the well should not be abandoned. If the well is not abandoned or the notice disputed after 30 days, the Minister of Industry and Resources can instruct the department to abandon the well at the owner's expense (s.35(3)).

Three types of abandonment procedure are set out in the *Regulations*:

- (1) dry hole abandonment;
- (2) production well abandonment outside pools; and,
- (3) production well abandonment inside pools.

(i) Dry Hole Abandonment

Dry holes are non-productive wells in which only the surface casing has been set. Dry holes require fewer steps to abandon than producing or completed wells. Before any work to abandon a dry hole begins, SIR must be notified of the intention to abandon the well and the details of the abandonment program (s.36(1)). Under subsection 36(2) of the *Regulations*, a dry hole is to be abandoned by:

- (1) isolating each porous or water-bearing zone with a 15 metre cement plug;
- (2) filling the interval between the plugs with an approved, heavy, mud-laden fluid;
- (3) placing cement in the hole by pumping through tubing, pump and plug, or any other approved method;
- (4) placing a cement plug of a minimum of 30 metres across the surface casing shoe;
- (5) cutting off the surface casing one metre below ground level; and,
- (6) welding a steel plate over the end of the casing at the surface to completely plug the open end.

Once the cement plugs have hardened for a certain number of hours, the company abandoning the well must test the strength of the plugs. The plugs must be able to withstand 18 kilonewtons of force (s.36(2)(g)). If the plugs fail this test, they must be reset. Any plugs that have been displaced and fail to seal off porous zones must also be reset (s.36(2)(i)).

The goal of the abandonment procedure is to ensure that there is no flow of oil or gas to water zones. Thus, the cement plugs must be of sufficient number and length to protect groundwater. Downhole plugs are also designed to prevent the flow of any substance between the zones.

(ii) Production Well Abandonment Outside Pools

A production well or completed well has production casing set in place in the wellbore. The abandonment procedure for a production well located outside an oil or gas pool is found in section 37 of the *Oil and Gas Conservation Regulations*. The operator must:

- (1) set a mechanical bridging plug immediately above the perforations or open hole (deep in the wellbore) and place a 3 metre long cement plug on top of the bridging plug; *or*, set a cement plug extending at least 15 metres above the perforations or the casing shoe from the bottom of the hole;
- (2) allow the cement to harden for 8 hours and test it to withstand a force of 18 kilonewtons;
- (3) test the bottom plug for proper shut-off;
- (4) fill the casing to the surface with an approved fluid;
- (5) cut off the surface casing and the production string one metre below ground level;
- (6) weld a steel plate to completely close off the annulus between the surface casing and production casing; and,
- (7) weld a steel plate to completely close off the end of the production casing.

(iii) Production Well Abandonment Inside Pools

If the production well is located inside a pool or the well has been producing enough gas to be classified a gas well, an additional step is required to abandon the well. Section 38 of the *Regulations* sets out the abandonment procedure. A cast iron retainer must be set immediately above the highest perforated interval or open hole, then cement is squeezed into the pool or fluid bearing formation until a satisfactory pressure is obtained indicating proper shut off. Section 38 also requires the well operator to follow the same abandonment procedure found in section 37 for production wells outside a pool.

If a production well is located in a *depleted* pool the department of Industry and Resources can approve a modified abandonment program on application (s.38(2)).

b. Restoration of Well Sites

After final abandonment and plugging of a well, the operator of a well site and access road must clean up and restore the surface of the site (*Oil and Gas Conservation Regulations*, s.44).

As noted above, surface restoration involves recontouring, replacing topsoil and re-vegetating. The end result of a successful restoration will be a suitable depth of topsoil or rooting zone, soil texture similar to that found off-site, no restriction to rooting or movement of water through the re-established soil profile, and soil capable of supporting

vegetation.⁴⁶ Revegetation may be carried out by the operator or left to the landowner or occupant.

Under section 44 of the *Regulations* the oil or gas company must:

- (1) remove all refuse from the well site and access road;
- (2) drain and fill all excavations or holes;
- (3) remove concrete bases, machinery and materials;
- (4) level the surface; and,
- (5) restore the land as close to its original condition as possible.

The company must also submit to SIR a written release from the landowner stating that the operator has restored the surface to his/her satisfaction (s.44(e)). If the landowner refuses to provide such a release to the company, the company must submit a certificate from the Surface Rights Compensation Board issued pursuant to subsection 56(2) of *The Surface Rights Acquisition and Compensation Act*. SIR will not refund any deposits paid by the company until it receives the written release or a Board certificate.

Where a company has served a landowner and occupant with a notice of intention to abandon a well site under s.54 of the *Surface Rights Act*, the company must “forthwith restore the surface of the land involved as nearly as possible to its original condition” (s.55).

If you as a landowner or occupant are dissatisfied with the state or condition of the restoration, you have five years from the date of service of notice of abandonment to apply to the Board for an order compelling the company to restore the surface of the land in compliance with section 55. If no such application has been made within the five-year period, the company will receive a certificate from the Board under subsection 56(2).

Alternatively, you may agree to a cash payment by the company in lieu of restoration (s.55). Thus you would undertake your own restoration of the land surface. The cash payment operates as a complete release of the company from its obligations under section 55 of the *Surface Rights Acquisition and Compensation Act* to restore the surface of the land. This option is not recommended. Accepting a cash payment in lieu of restoration is not an environmentally-friendly practice and could leave you as landowner with legal liability for any contamination problems arising in the future. Oil or gas companies should not be relieved of their restoration responsibilities.

For additional information on surface restoration refer to SPIGEC Guideline No.2, *Restoration of Well Sites and Associated Facilities on Cultivated Lands in Saskatchewan* (1999) and SPIGEC Guideline No.3, *Restoration of Spill Sites on Saskatchewan Agriculture and Pasture Lands* (1999). All SPIGEC guidelines can be viewed and downloaded from the Saskatchewan Industry and Resources website at:

<http://www.ir.gov.sk.ca/Default.aspx?DN=3891,3620,3384,2936>, Documents.

⁴⁶ SPIGEC Guideline No. 2: *Restoration of Well Sites and Associated Facilities on Cultivated Lands in Saskatchewan* (1999) at page 2.

Chapter Two: Emergencies

Emergencies in the oil patch can include well blowouts, oil or gas spills, pipeline leaks, fires or explosions, and uncontrolled sour gas (hydrogen sulphide) release. Any of these emergencies can pose a threat to humans, livestock and the environment.

In Alberta oil and gas companies must prepare an emergency response plan for each critical sour gas project and submit it to the Alberta Energy and Utilities Board, the petroleum industry regulator. By contrast, in Saskatchewan written emergency response plans are not mandatory. However, the larger oil and gas companies operating in the province normally have a written emergency response plan that they file with the Department of Industry and Resources (SIR). Smaller companies usually do not have their own individual plans but they will join an Emergency Response Cooperative or Unit where a joint emergency response plan is created. The companies in the Unit pool their money to buy proper equipment and provide specialized training for their employees.

1. Oil or Gas Well Emergencies

Before being granted a drilling licence by the province, each oil or gas well operator must join an Emergency Response Unit or show that they have the trained personnel and equipment necessary to respond in the case of an emergency. Saskatchewan companies operating oil or gas wells in the province contract with specialized firms to deal with any emergencies.

For example, Western Canada Spill Services (WCSS) holds annual oil spill response training exercises in each Cooperative area in the oil patch. These annual training exercises are considered an important part of a preventative maintenance program. The exercises help build and maintain response team skill levels. The goal of spill response is to minimize risk to the public, employees, property and the environment by ensuring rapid and effective response to any emergency. All personnel who may be involved in spill response are trained in containment and recovery methods and equipment use.

A well blowout is the uncontrolled escape of gas, oil, water or other fluids. Blowouts happen when the underground formation pressure is greater than the pressure exerted by the column of drilling mud placed in the well. Oil gushing into the sky from a drilling rig was once considered normal industry practice. Today conservation legislation in Saskatchewan and elsewhere makes blowout prevention equipment mandatory. Nevertheless blowouts can still occur as a result of accident or equipment failure. When a blowout does occur the well operator will contact a company such as Safety Boss Inc., an Alberta specialist in responding to fires, blowouts and pipeline ruptures.

Following the first Gulf War in 1991, Canadian emergency specialists, including Safety Boss, were called in to respond to the series of devastating oil well fires set by Saddam

Hussein's Iraqi forces as they retreated from Kuwait.⁴⁷ These same companies may be called on to respond to emergencies in Saskatchewan.

a. What to Do in the Event of an Oil or Gas Well Emergency

If you notice any serious problem with an oil or gas well, including a blowout, an oil or gas leak, or water flow, you should immediately call the company field office. If you are unable to contact the company, call your local emergency services such as the RCMP or 911.

In a typical emergency response situation the company field office will contact the local Emergency Response Unit to deal with the emergency. As part of their response the company or the Response Unit will contact the RCMP and emergency measures organizations. Government offices are also contacted, including Saskatchewan Industry and Resources, Saskatchewan Environment, and if the impacted land is Crown owned pasture, Saskatchewan Agriculture and Food.

b. Responsibilities of Well Operators/Owners in an Emergency

(i) Public Notice Requirements⁴⁸

Oil and gas companies are expected to hold public information sessions on a regular basis to keep the public informed about their operations, their emergency response plans, and where emergency response equipment is stored. When there is an emergency the company whose well or pipeline is affected is responsible for notifying area residents and evacuating them if necessary. The public has a right to be notified and should be notified if emergency response procedures are followed.

(ii) Notice to Government Departments

The Oil and Gas Conservation Regulations, 1985 state that in the event of a fire, blowout, break or leak involving an oil or gas well, pipeline or storage tank the operator must notify the Department of Industry and Resources immediately (section 106). If the emergency involves a blowout, leak or equipment malfunction, this notification requirement only arises where oil, salt water, condensate or product escapes *beyond* the operator's property or lease area, or the escape exceeds a volume of 1.6 cubic metres *within* the property or lease area (section 106(1)(d)). Where gas escapes as the result of an emergency the Department must be notified only where the loss exceeds 28,000 cubic metres of gas (s.106(1)(f)).

Within thirty days of notifying the Department of such an emergency or accident, the operator must submit a written report to the Department setting out:

- the exact location of the spill;
- the details of any remedial clean up steps taken or proposed;

⁴⁷ In a 7-month period crews from Safety Boss safely extinguished and capped 180 wells out of the total of 727 wells set ablaze in Kuwait, gaining worldwide recognition for their achievement.

⁴⁸ These public notice requirements were garnered from personal communication with SIR staff.

- an estimate of the initial amount of oil, salt water, condensate, product or gas lost and an estimate of any recovery; and,
- an estimate of the extent of the pollution to the air, land, underground water and any water-covered area (section 106(2)).

(iii) Liability for Costs of Clean-up and Harm to Persons or Property

Where the owner of a well does not take action to deal with an emergency, accident, or other risk to life or property posed by the well, the Department of Industry and Resources can, at the expense of the owner, take any remedial measures necessary, including hiring persons and equipment (*Oil and Gas Conservation Regulations*, section 81(1)).

Ultimately the operator and owner of the well, pipeline or storage facility are legally responsible for the costs of clean-up and remediation, and for any loss or harm to people, property or the environment caused by an emergency or accident. However, in order to collect damages for any health effects or losses to your business or livestock as a result of an emergency or accident, you may have to file a civil law suit.

2. Pipeline Emergencies

A pipeline emergency is any uncontrolled or unplanned release of natural gas (leak) that may or may not catch fire or explode.

a. Signs of a Gas Leak

Methane, the natural gas used to heat homes is naturally odourless and colourless. To alert homeowners to any leaks, natural gas is pre-treated with a strong-smelling additive. For example, when cooking with a natural gas stove you may notice a distinctive smell. However, natural gas that is piped through transmission pipelines is often sweet and odourless. If there is a leak, there may be no smell. But if you notice any of the following signs, there may be a pipeline leak.

What you may **see**:

- Discoloured or dead plants in an area;
- Frost on the ground but the ambient temperature is above zero; or
- Bubbles in freestanding water such as sloughs.

What you may **hear**:

- A loud whistling sound.

**b. What to Do in the Event of a Natural Gas Pipeline
Emergency**

Natural gas is flammable and can be explosive if exposed to a source of ignition. If you come across a damaged pipeline or damage one accidentally, you should:

- (1) Shut off any power equipment and motors and leave the area immediately. Do not use your car or any equipment that could be a possible ignition source — not even your cell phone.
- (2) Extinguish all flares, lanterns, fires, cigarettes, etc. in the area.
- (3) Keep people and livestock away from the area.
- (4) If it is a TransGas pipeline (the company will have posted signs in the area) immediately contact TransGas' 24-hour emergency telephone number at:

1-306-777-9800 collect.

If it is a TransCanada pipeline call the TransCanada Emergency Number at:

1-888-982-7222.

- (5) Call 911 or your local emergency number.

Chapter Three: Common Law Rights

In many cases, if you are a person living or working in the oil patch the only legal rights you may have to deal with problems caused by oil and gas development are your rights under the common law. Common law rights are those rights that have evolved over time through cases brought before the courts. The common law is sometimes called judge-made law, as opposed to statute law made by Parliament or the provincial Legislature.

For example, if you live next to an oil or gas well, but the well is not on your land, you will not be able to negotiate a surface rights agreement with the oil company. Therefore, to address any problems or complaints you may have, or if the company refuses to compensate you or settle the matter amicably, you may have to rely on your common law rights in court. Even if you have a surface rights or easement agreement with a company, you may have to go to court to enforce your rights under the contract if the company breaches a term of the agreement.

Depending on the facts you are dealing with, you may be able to rely on one or more of the following common law actions in court to be compensated for any harm you suffer:

- Nuisance;
- Trespass;
- Negligence;
- Rule in *Rylands v. Fletcher* (strict liability for non-natural land use); or
- Breach of Contract.

The first four legal actions listed are called “torts”. Torts are private or civil wrongs or injury. If a tort has been committed the court will provide a remedy in damages (money award) to the injured party (plaintiff). Either a wrongful act or an omission can result in a tort action.

Normally, three elements must be present in a tort action: a legal duty from the defendant (person being sued) to plaintiff, a breach of that duty; and damage as a result.

The role of tort law is to allow an injured person to obtain compensation from the person who caused the injury. Tort law also serves as a deterrent by holding persons (including companies) responsible for their actions, and educating the community as to what is unacceptable conduct.

An action for breach of contract is different from a tort and is subject to a different set of rules. The law of contract governs compensation sought for a breach of a duty owed to you as a result of a private agreement between you and the oil or gas company.

The following sections briefly outline these five possible court actions.

A. Nuisance

Each landowner, tenant or lessee has the right to “quiet enjoyment” of his or her land. By law a nuisance occurs when any industrial or other activity interferes with the quiet enjoyment of property. For example, in the oil patch a nuisance can occur as a result of water or air pollution

from a spill or accident, or from routine well test flaring, or from excessive noise and vibrations that affect nearby residents.

In a *private nuisance* lawsuit, one individual with a proprietary right to land sues a company or neighbouring landowner for loss of “quiet enjoyment” or interference with ordinary use and enjoyment of land. In these cases the remedy for nuisance is often the payment of damages. If the nuisance is ongoing and very disruptive, then the person bringing the action in court (plaintiff) will also ask for an injunction to stop the activity or nuisance.

If the nuisance affects many people, the nuisance may be a public nuisance and the government can bring an action for *public nuisance*. The company or landowner would then be ordered to stop the operation to bring an end to the public nuisance. However, because the government has licensed the oil or gas operations it is not likely that the government will bring a public nuisance suit unless the public applies strong pressure. The government may also seek other avenues for dealing with the public nuisance including issuing an order for the company to modify its operations to reduce or eliminate the nuisance. A class of people specifically affected by a nuisance may also bring a public nuisance action and they need not have a proprietary right in any property or land to do so.

When a nuisance action is brought to court, the judge will normally consider the following factors:⁴⁹

- the type and reasonableness of an activity;
- the nature, frequency, duration and intensity of the interference with quiet enjoyment;
- the seriousness of the harm;
- any unusual sensitivity of the plaintiff (person bringing the action);
- the utility or need for the defendant’s conduct or operations;
- the character of the neighbourhood;
- the choice of location of the activity; and,
- the effect of issuing an injunction against the defendant.

1. Vibration, Noise and Fumes as Nuisance

One of the early nuisance cases in Saskatchewan was the 1938 decision by the Court of King’s Bench in *Cubbon v. White*.⁵⁰ In that case the plaintiff, a woman living near an electrical plant, brought an action in nuisance for an injunction and damages. She had been a resident of her home in the village of Manor since 1918. An electrical plant was later built on lots adjoining her home. After a period of closure the plant was re-opened by the defendant White in March 1937 and operated continuously. The plant provided electricity for the entire village.

The plaintiff and her family suffered as a result of the constant vibrations, noise and fumes emanating from the electrical plant. The operation of the plant produced a constant vibration in the dwelling house that caused damage to the home. The noise from the plant’s exhaust pipe could be heard up to one mile away and disturbed the family, located less than 100 feet away, in

⁴⁹ Centre for Studies in Agriculture, Law and the Environment, *Environmental Law and the Farmer* (Saskatoon: Public Legal Education Association of Saskatchewan, 2000) p.10.

⁵⁰ [1938] 2 W.W.R. 257.

their sleep. There was no stack or chimney on the plant, and the smoke and fumes from the burnt fuel oil were discharged into the air at ground level. As a result fumes from the plant blew into the plaintiff's home and saturated her curtains with oil. The family also suffered from lung and bronchial problems attributed to the fumes. The Court rejected the defence argument that the discharge was only carbon dioxide and harmless.

The plaintiff argued that the operation of the plant was a nuisance and interfered with the health, comfort and convenience of the plaintiff and her family. The Court decided that the facts established "a substantial interference with the ordinary comfort and enjoyment of the plaintiff's dwelling house" and depreciation in its saleable value. Thus the plaintiff was entitled to an injunction and damages. Damages were awarded in the amount of \$100.

The Court also ruled that it could not restrain the defendant from operating an electrical generating plant because that was a lawful use of the premises. However, the Court restrained the defendant from operating the plant in a manner that caused the land and dwelling of the plaintiff to vibrate, that resulted in exhaust smoke at the level of the home, and created noise that disturbed anyone occupying the home in their ordinary enjoyment at any time. Therefore, the Court granted the defendant thirty days to build a chimney stack and muffler to eliminate the fumes and noise, and to hire an engineer to control the vibration in the soil.

2. Noise as a Nuisance

In the 1992 decision of *Joyce v. Yorkton Gun Club Inc.*⁵¹ the Saskatchewan Court of Appeal reviewed the lower court's decision to grant a permanent injunction to restrain the defendant Yorkton Gun Club from operating its shooting range. The Court of Appeal upheld the permanent injunction awarded for nuisance caused by noise and vibration.

The plaintiffs lived in a farm house located across the road from the Gun Club's property. They brought an action seeking to stop the nuisance caused by the use of the premises as a shooting range. The noise level was the plaintiffs' main concern.

The Court of Appeal stated that the primary role of the trial judge was to make the finding of fact "as to whether the noise in question in this case was of such a character, frequency and intensity as to constitute a nuisance." The Court of Appeal could not intervene unless it was obvious that the trial judge's conclusion was based on an error in law or that he made a palpable or overriding error of fact.

After reviewing the evidence, the Court of Appeal found that the trial judge properly took into account the frequency, spasmodic nature and startling effect of the sound created by the gunfire. The evidence also supported the trial judge's conclusion that a nuisance was created by the gunfire at the range. One compelling piece of evidence was a tape recording of the operating shooting range.

The Court also commented on the possibility of amending the injunction to impose certain conditions on the Gun Club that would allow for the range to be operated again. However, the lack of evidence and the all or nothing nature of the trial meant that the Court of Appeal

⁵¹ (1992) 97 Sask. R. 243.

could not identify reasonable terms for such an amendment. As a result, the appeal by the Yorkton Gun Club was dismissed and the permanent injunction was upheld.

B. Trespass

Trespass is the unlawful interference with another's person, property or rights. Under the common law anyone who enters another's property without consent or lawful authority will be liable in trespass. Similarly, anyone who permits the escape of a substance under his control onto another's property may be liable in trespass, whether or not any damage results. For example, if a pipeline bursts and oil spills across the right of way onto neighbouring farmland, the pipeline company could be liable in trespass for the spill. The Court will award damages for lost crops, clean-up costs or any other direct losses suffered by the landowner or occupant. If the spill does not cause any damage to the land or other harm, the award of damages for the trespass would be nominal (small).

A flagrant case of trespass would be where a seismic exploration company enters your land when you have refused to grant them access. By contrast, if you have refused access to an oil or gas company to drill a well they can enter your land without your consent, but only after they have obtained a right of entry order from the Surface Rights Arbitration Board. Any entry onto your land without such an order would also be trespass.

Similarly, if you have granted a company access to a designated area to conduct its operations, and a crew deliberately drives heavy equipment outside of the surface lease area and damages crops or environmentally sensitive lands, that would be an instance of trespass. If the crew mistakenly believed they were driving on the lease area, the case would be one of trespass or negligence.

C. Negligence

Negligence is considered the most important area of tort law, because it governs most activities of modern western society. Modern Canadian negligence law evolved from British court rulings.

In 1856 the British Court of Exchequer stated:

Negligence is the omission to do something which a reasonable man, guided upon those considerations which ordinarily regulate the conduct of human affairs, would do, or doing something which a prudent and reasonable man would not do. The defendants might have been liable for negligence, if, unintentionally, they omitted to do that which a reasonable person would have done, or did that which a person taking reasonable precautions would not have done. (*Blyth v. Birmingham Water Works*)

This definition of negligence still applies today.

Under the common law, companies and their employees or agents have the duty to conduct their activities in a way that does not harm others. This duty is called a duty of care. Where a company operates in such a way that it endangers the life, health or property of others and

injury occurs, it may be liable for negligence.

An oil and gas company must operate in a reasonable manner according to standards established by the industry or by statute. If the conduct falls below that of a reasonable person in similar circumstances, the court will find negligence. For example, if a company breaches a provision of a statute such as *The Oil and Gas Conservation Act* and harm results, the court would likely make a finding of negligence and award damages to the injured party.

To establish negligence, the plaintiff must show: (a) a duty of care exists between the person injured and the person responsible for the injury; (b) the conduct of the defendant fell below that duty of care (whether an act or omission); and (c) damages resulted from the act or omission of the defendant.

If the defendant oil company proves in court that it followed industry standards or normally accepted practices it may not be liable in negligence. However, if the company fails to comply with an order issued by the government or has been the subject of numerous complaints, the court will more readily find negligence.

D. Rule in *Rylands v. Fletcher*: Strict Liability for Non-Natural Land Use

The rule in *Rylands v. Fletcher* is the basis for the modern principle of strict liability for the escape of dangerous substances.⁵²

Rylands v. Fletcher is an English case from the Court of Exchequer dating back to 1866. In this case the defendant millowners built a water reservoir on their land for the purpose of supplying water to their factory. Due to negligence on the part of the engineers hired by the defendant millowners, the defendant did not know that the site chosen for the water reservoir held an abandoned mineshaft. The plaintiff owned an adjoining mine that was flooded when the water broke into the old shaft on the defendant's land and travelled through connecting passages to the plaintiff's mine. The millowners were cleared of personal negligence because they had been ignorant of the existence of the old mineshaft. However, even though they were not negligent, the millowners were still liable for the damage caused by the escape of water.

The Court of Exchequer ruled that the millowners were liable on the principle that:

... [a] person who for his own purposes brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and, if he does not do so, is *prima facie* answerable for all the damage which is the natural consequence of its escape.⁵³

The decision was appealed to the House of Lords, the equivalent of the Supreme Court of Canada, and in 1868 the ruling was upheld. However, the House of Lords placed a

⁵² See, for example, *Fondrick v. Gross*, QB03285, July 8, 2003 (Sask.Q.B.) where strict liability was found against the defendants for the aerial drift of herbicides onto the plaintiffs' land, damaging the farmstead shelterbelt and homestead vegetation.

⁵³ *Per* Blackburn J., (1866) L.R. 1 Ex. 265, 279-280.

qualification on the rule; namely, strict liability applied only to damage from *non-natural* use of land.

The distinction between natural and non-natural use of land has since been the focus of many lawsuits in England and Canada. What has developed is the view that “non-natural” refers to the level of risk created by the particular use of land, rather than that a particular use of land is unnatural. The question is also asked: who should bear the risk of escape? Should it be the landowner or occupant who brings or collects the substance onto their land, or the surrounding neighbours who may be harmed if the substance escapes? The courts look at the entire circumstances including the time, place, manner and purpose of the land use.

Strict liability is imposed when the court feels the landowner or occupant has created a particular danger and is in a better position to absorb the loss caused by the escape. For example, the aerial spraying of herbicides next to sensitive crops on neighbouring land presents too great a danger from drift to qualify as “normal” use, no matter how accepted or normal the general practice of applying herbicide.

Thus under the rule a person is liable for the escape of all inherently dangerous substances brought or collected on his/her land, even if he/she used the utmost care and diligence to prevent their escape. The absence of negligence is not a defence. The only excuse from liability is if the escape is caused by an act of God or the unforeseeable and deliberate act of a stranger.

In the 1964 Saskatchewan decision, *Lawrysyn v. Town of Kipling*,⁵⁴ the plaintiff brought an action for damages when his land was flooded by sewage from the town’s sewage lagoon. The solids in the effluent contained high levels of salt, permanently destroying the fertility of the plaintiff’s impacted land. The Court held that the town was liable for the damages caused by the escape of effluent onto the plaintiff’s land on the basis of the rule in *Rylands v. Fletcher*. Under the rule the plaintiff was not required to establish negligence. The Court also rejected the municipality’s argument that it was not liable because its lagoon was constructed under statutory authority and of benefit to the community. The Court could find no statutory authority to absolve the town from its liability under the rule.

The rule in *Rylands v. Fletcher* has been used to enforce environmental claims for damages where a nuisance, trespass or negligence action might have failed.

The provincial *Environmental Management and Protection Act, 2002* has modified the rule in *Rylands v. Fletcher* by referring to the discharge of a “substance that may cause or is causing adverse effects” rather than a “non-natural” use of land. If a person suffers personal or property damages as a result of the discharge of a pollutant, they can sue without proof of fault, negligence or wilful intent (section 13(3)). In court, the person harmed must only prove he or she suffered damages as a result of the discharge of a polluting or harmful substance owned or controlled by the defendant.⁵⁵

⁵⁴ (1964) 50 W.W.R. 430.

⁵⁵ See, e.g., *Busse Farms Ltd. v. Federal Business Development Bank*, CA98108, December 1, 1998, (Sask.C.A.) at para. 22.

E. Breach of Contract

Contracts are agreements by which persons voluntarily create obligations for themselves. In exchange for money or other benefits one party agrees to provide a service, right, product, or benefit to another party.

The existence of a contract does not necessarily relieve a person of liability under tort law to the other contracting party unless the contract specifically says so. For example, a surface rights contract might include a clause stating that compensation for any spills or leaks from the oil or gas project is limited to \$5,000 maximum. If a landowner signs the contract, he or she could not then sue the company in tort for any damages to the property exceeding \$5,000.

A breach of contract arises when one party refuses or neglects to carry out a promise made under contract. When the refusal occurs, it creates new rights for the injured party. The injured party is entitled to sue for damages suffered as a result of the breach. One example might be where a company has agreed to repair any fences that have been cut down to make way for equipment and then neglects to make the repair. If cattle escape from the fenced area and are injured or killed as a result, the landowner could sue the company for breach of contract and collect damages for the repair and the losses related to the cattle. Another example is where a company abandons a well and fails to carry out restoration activities agreed to in the surface rights lease. The company's failure is a breach of contract and damages could be recovered for the cost of carrying out the reclamation and restoration of the land.

In certain circumstances, a breach of contract may also permit the injured party to treat the agreement as being at an end, and to be free from further obligations under it. This situation is called a fundamental breach of contract. However, where a contract has been substantially performed before the breach, the courts will not permit an injured party to take unfair advantage of the party in breach. Thus, the contract could not be considered at an end. Instead the injured party is bound to perform the agreement subject only to a deduction for damages suffered as a result of the breach by the other party.

Chapter Four: Differences between Alberta and Saskatchewan in the Regulation of the Oil and Gas Industry

As the nation's leading oil and gas producer, Alberta has developed the most complex oil and gas regulatory structure in Canada. This Chapter attempts to highlight the key differences between the regulation of the petroleum industry in Saskatchewan and Alberta, and the implications for Saskatchewan citizens.

It must be noted, however, that regulators in both provinces have incorporated similar common law principles, management practices, and industry standards into their provincial schemes. Thus, there is a great deal of similarity between the two provinces. This convergence becomes evident if you compare the regulatory framework detailed in this Guide with that found in the Alberta Citizens' Guide published by the Pembina Institute.⁵⁶

A. Regulatory Oversight Differences

1. Alberta Energy and Utilities Board (EUB) as Compared to Saskatchewan Industry and Resources (SIR)

One of the key differences between Alberta and Saskatchewan in overseeing the activities of the oil and gas industry is the existence of the Energy and Utilities Board (EUB) in Alberta. The EUB is the main regulatory body for the oil and gas industry in Alberta. It reports to the Alberta Minister of Resource Development, but works at "arm's length" from the provincial government. By contrast, the main regulatory body in Saskatchewan is the government ministry, Saskatchewan Industry and Resources (SIR).

The Alberta EUB is a quasi-judicial independent body. The Board has a government appointed Chair and members who attend at hearings. It also has a staff of close to 750 located at the head office in Calgary and at field centres across the province. The EUB has extensive powers set out in several pieces of legislation. It has the power to conduct investigations, hearings and inquiries, issue orders, and develop regulatory standards with which oil and gas companies must comply.⁵⁷ The Board must approve each oil and gas project before it can proceed. It is required to listen to any objections to proposed developments and decide whether or not a project is in the public interest.

Notably, Saskatchewan legislation allows for the establishment of an arm's length regulatory body similar to the EUB. Under section 7 of the *Oil and Gas Conservation Act*, the Lieutenant Governor in Council (provincial cabinet) may establish a board known as the Oil and Gas Conservation Board. The board would have a designated chair and vice-chair and several members, as appointed by cabinet. The board's powers would include the conduct of investigations, hearings or inquiries into any matters arising pursuant to the *Oil and Gas Conservation Act* or *Regulations*, or any orders made under the *Act* (section 7.11). The Minister of

⁵⁶ See Chapter Five for more information on the Pembina Institute and the Alberta Citizen's Guide.

⁵⁷ For additional information consult the Alberta EUB website at <http://www.eub.gov.ab.ca>.

Industry and Resources and any interested party could bring a disputed matter before the board.

The Saskatchewan government, however, has not yet appointed a board. A likely reason for this delay is the additional cost to the province to fund a new board. According to the *Act*, where a board has not been established, the powers, role and responsibilities of the board can be delegated to an official of SIR.

From a citizen's point of view, several advantages are attached to an independent regulatory body such as the EUB.

One benefit of a formal regulatory system is greater transparency. A regulatory body makes decisions in a more public and open manner. The information and materials that form the basis of EUB decisions are presented in a public forum (hearings) or are largely available for public scrutiny and review. By contrast, in Saskatchewan less formal decision-making channels through SIR mean that the public is not privy to decisions and has less input into licensing decisions by the regulator.

An independent regulatory body also allows for greater public participation in decision-making. The public's role and ability to participate in EUB hearings, inquiries and investigations are clearly stipulated in the EUB authorizing legislation and rules of practice. By comparison, when government officials make licensing and enforcement decisions, individual citizens may or may not be heard on an ad hoc basis. The concerns of one individual or community may be addressed in one case, while the concerns of another individual or community may be ignored in similar circumstances in another case.

Disadvantages also exist when a more formal regulatory system is in place. From an industry point of view, oil and gas companies must jump through more hoops before being licensed to operate in Alberta as compared to Saskatchewan. This extra layer of regulation may discourage investment.

From a public point of view, the criticism has been made in Alberta that the EUB has a pro-development perspective. Although the Board does concern itself with public health and safety and environmental protection, these are not the main criteria for decision-making. It is only rarely that the EUB will reject a proposed oil or gas development project. Instead certain conditions may be imposed. This reflects the Board's mandate to facilitate the orderly development of energy resources.

A similar criticism has been made in Saskatchewan. SIR has a dual mandate to promote and regulate the petroleum industry. This dual role can easily result in a conflict of interest. Thus, oil and gas projects that ought to be rejected due to great public concern or threats to environmentally sensitive lands are nonetheless permitted to proceed with conditions. The pro-development model often prevails over a precautionary model.

Citizens with no funds or expertise are often at a disadvantage when attempting to oppose a multi-million dollar venture before the Alberta EUB. The Board hearings involve the right to

make submissions, cross-examination and argument.⁵⁸ The average citizen may not be able participate effectively in the hearings without a lawyer or agent.

2. Saskatchewan Municipalities more Powerful than Alberta Municipalities in Regulating Oil and Gas Development

In Alberta municipalities have little or no say in proposed oil and gas development projects. Alberta's energy legislation specifically exempts oil and gas projects from being subject to municipal zoning regulation. Thus, municipalities are restricted to participation as interveners in the EUB hearings process.

By contrast, Saskatchewan municipalities provide another layer of government that regulate oil and gas producers. Thus, a proposed developer must deal with municipal authorities as well as provincial departments. It must contact the local rural municipality affected by the proposed oil or gas development to find out if a development permit is needed, or if there are other municipal requirements or concerns to be addressed. For example, the company may be required to enter into a road maintenance agreement with the municipality. If the rural municipality has a development plan and zoning bylaw in place, the company will need a development permit

One advantage from a citizens' perspective is that a municipal government can be politically pressured by residents to enact zoning bylaws to restrict or prohibit oil and gas development that is considered undesirable for environmental, heritage or other reasons.

A disadvantage associated with a strong municipal regulatory role is that a municipal government can be pressured by economic interests from outside the community to encourage oil and gas development projects, even when there is strong local opposition. Individual council members may not reflect community sentiment. An unwelcome project may be fully underway before the next election call.

a. Great Sand Hills: A Case Study

The role of municipal governments in regulating the oil and gas industry in Saskatchewan is evident in the Great Sand Hills development debate.

The Great Sand Hills region is a unique environmentally sensitive area located in southwest Saskatchewan, right in the heart of the oil patch. The Hills span 1,900 square kilometres and are characterized by high, stabilized (vegetated) sand dunes, saline lakes, and prairie landscapes. The Hills contain the largest remaining contiguous area of native prairie grasslands in the province. The Hills are also home to a variety of rare plants and wildlife species. They are considered an irreplaceable natural heritage site with local, provincial and national significance. The Hills are also culturally significant to First Nations communities. Traditional folklore speaks of the "little people" who live in the sacred Hills.

⁵⁸ The EUB may provide funding for those individuals or groups who are directly affected by a proposed oil or gas development project and have legitimate concerns. A pre-hearing may be held to determine who may get funding including advance funding.

Local ranchers have lived in harmony with the local environment over the past century. By contrast, oil and gas projects in the region have left a heavy footprint. For instance, local residents have witnessed exploration crews tearing up sand dunes with utility vehicles, oblivious that the dunes may never recover from the disturbance.

The Hills are downwind from concentrated Alberta oil and gas development projects. The Manager of Ecological Monitoring for Saskatchewan studied acid rain data related to oil and gas development and other industrial activity. He found that 43 per cent of the soil areas in the Great Sand Hills have dangerously high levels of pollutants. As a result, 15 to 20 per cent of the ecosystems in the area could be lost within the next decade or two.⁵⁹

Environmental groups have similarly identified a series of threats to the environmental integrity of the Great Sand Hills created by oil and gas developments in the area:

- multiple access roads and trails that destroy native prairie;
- regular vehicle access and traffic that bring noise, chemicals and invasive plants into the area;
- drilling, operation and maintenance operations that directly impact the landscape;
- new pipeline construction that increases environmental impacts over a wide area; and,
- accidental releases of gas, fluids and chemicals that occur on a regular basis with pipeline breaches, equipment malfunctions and maintenance activities.⁶⁰

As a result, there is great public concern about recent proposals to expand oil and gas development activity in the area into a protected zone. There is a clash between oil and gas development proponents (including a single rural municipality) and local ranchers, citizens and environmental groups.

In 1991 a Land Use Strategy was devised for the Great Sand Hills region, lead by the efforts of the ranching community. The province, municipalities, the petroleum industry, ranchers, local citizens, and environmental interest groups each contributed to the Land Use Strategy. The goal was to arrive at protection and sustainable land use for the Hills. An outgrowth of the Strategy was the Great Sand Hills Planning District formed by four rural municipalities: Clinworth, Fox Valley, Pittville and Piapot. The Planning District and a new joint Planning Commission (created in 1993) developed a land use plan (Development Plan) for the District.

In 1994 similar bylaws were passed in the four municipalities to implement the Development Plan, and amendments were made to the bylaws in 1998. The bylaws mapped out three zoning districts that outlined areas open to development, those sensitive to development, and those off-limits to new developments. The zoning designations are:

- ES1 – environmentally sensitive (off-limits to new ranches, farms or oil and gas development);
- ES2 – environmentally sensitive (oil and gas development permitted with restrictions);

⁵⁹ “APEGS Annual Meeting Seminar: Air Issues in Saskatchewan,” *The Professional Edge* (June/July 2003) at p. 14.

⁶⁰ Alan G. Appleby, Canadian Parks and Wilderness Society Conservation Director, Saskatchewan Chapter, letter to Great Sand Hills Land Use Strategy Review Committee (January 3, 2003).

- AR – agriculture reserve (open to development).

Recently the Rural Municipality of Piapot elected to leave the Planning Commission, having identified a new focus for its future development.

Concurrently, the R.M. of Piapot also announced its plans to rezone areas currently zoned ES1 and ES2, to permit new oil and gas ventures. ES1 lands with current oil and gas permits in the R.M. would be de-classified to ES2. ES2 lands would similarly be de-classified to AR and thereby open to most land uses. This could affect 100 sections of land now zoned ES2 and 75 sections now zoned ES1. Prior to rezoning, Piapot must amend its current bylaws. As with any municipality in the province, Piapot has the authority to make amendments to its bylaws to accommodate or restrict development activities.

In Saskatchewan, oil and gas projects must meet both development plan and zoning by-law requirements to proceed. Under the provincial *Planning and Development Act*, if a proposed development is denied a company can appeal to the local Development Appeals Board (section 96). However, the Appeal Board cannot overturn Development Plan policies. Thus, a company could not appeal the zoning designations in the Great Sand Hills Planning District. But if the R.M. of Piapot pulls out of the District and changes its zoning by-laws, a company would be free to pursue its development plans, subject to approval from other provincial regulators such as Saskatchewan Industry and Resources (SIR) and Saskatchewan Environment (SE).

The decision by the R.M. of Piapot has fuelled a new debate that has galvanized local and national opposition to the planned zoning changes. Interventions by concerned citizens and groups have stalled the rezoning process, but the future of the fragile eco-system is uncertain.

Chapter Five: Contacts and Other Resources

A. Government Departments and Boards

1. Saskatchewan Industry and Resources

The Saskatchewan Department of Industry and Resources (SIR) is charged with the management of the province's oil and natural gas resources. SIR regulates the full life cycle of oil and gas development, including exploration, drilling, completion, production and abandonment of operations. It also administers and leases Crown mineral rights (subsurface). SIR regulates the petroleum industry through the following legislation:

- *The Crown Minerals Act*
- *The Mineral Resources Act, 1985*
 - *The Seismic Exploration Regulations, 1999*
- *The Oil and Gas Conservation Act*
 - *The Oil and Gas Conservation Regulations, 1985*
- *The Pipelines Act, 1998*
 - *The Pipelines Regulations, 2000*

All Saskatchewan legislation (including regulations) can be viewed on the provincial Queen's Printer website at: <http://www.qp.gov.sk.ca/>.

If you have any concerns about the oil and gas operations taking place on or near your land or community you can contact one of four Field Offices with the Petroleum Development Branch of SIR. The Field Offices include:

Area 1: Lloydminster Field Office

4815 – 50th Street
Lloydminster SK S9V 0M8
Phone: (306) 825-6434 (24 hours); Fax: (306) 825-6433

Area Manager: Gary Ericson
Phone: (306) 825-6436 E-mail: gericson@ir.gov.sk.ca

Area 2: Kindersley Field Office

113 – 2nd Avenue East
P.O. Box 850
Kindersley SK S0L 1S0
Phone: (306) 463-5400 (24 hours); Fax: (306) 463-5405

Area Manager: Kirk Hogarth
Phone: (306) 463-5402 E-mail: khogarth@ir.gov.sk.ca

Area 3: Swift Current Field Office

350 Cheadle Street West

Swift Current SK S9H 4G3

Phone: (306) 778-8252 (24 hours); Fax: (306) 778-8256

Swift Current Acting Area Manager: Ron Dolter

Phone: (306) 778-8252 E-mail: rdolter@ir.gov.sk.ca

Area 4: Estevan Field Office

1302 – 3rd Street

Box 5000 – 120

Estevan SK S4A 0Z1

Phone: (306) 637-4541 (24 Hours); Fax: (306) 637-4547

Area Manager: Jim Wysminity

Phone: (306) 637-4541 E-mail: jwysminity@ir.gov.sk.ca

The area manager for each Field Office may change over time. To ensure that you are dealing with the correct individual you can contact the Field Office general number or check the SIR website at: <http://www.ir.gov.sk.ca>.

If you wish to speak with the head of the Petroleum Development Branch of SIR contact:

Brian Mathieson**Director, Petroleum Development Branch**

7th Floor, 2101 Scarth Street

Regina, SK S4P 3V7

Phone: (306) 787-2593 Fax (306) 787-2478

2. Saskatchewan Environment

Saskatchewan Environment (SE) has the responsibility “to manage, enhance and protect Saskatchewan’s natural and environmental resources – fish, wildlife, lands, forests, parks and protected areas, air water and soil – for conservation, recreation, social and economic purposes and to ensure they are sustained for future generations.”⁶¹ Field officers and staff deliver field operations through the Compliance and Field Services and Resource Stewardship Branches.

The following environmental legislation administered by SE is most relevant to oil and gas developments:

- *The Environmental Assessment Act*
- *The Environmental Management and Protection Act*
- *The Wildlife Habitat Protection Act*
- *The Wildlife Act*
 - *Wild Species at Risk Regulations*

⁶¹ Saskatchewan Environment website at: <http://www.se.gov.sk.ca/corporate.mandate.htm> .

The Department administers the surface of Crown resource lands in northern Saskatchewan and Crown surface lands in southern Saskatchewan such as Provincial Parks and recreational sites. Therefore all proposed oil and gas projects on Crown land (including Crown agricultural land) require Saskatchewan Environment's approval before going forward.

The Department undertakes an initial evaluation of the environmental impact of new proposals on Crown land and determines if they require a more comprehensive environmental review such as an Environmental Protection Plan (EPP) or Environmental Impact Assessment (EIA). An EPP or EIA is required for well-known environmentally sensitive areas such as the Great Sand Hills, Cypress Hills or the Manitou Sand Hills. These are areas where there is significant environmental and public concern regarding industrial development.

Oil and gas activities on *private land*, such as drilling or the installation and operation of pipelines, flowlines, batteries and compressor stations, usually do not require approval from Saskatchewan Environment, unless there is a direct impact on a public resource such as a rare species, a stream or water body. A **Private Land Environmental Evaluation Checklist** was created by SE to assist companies in self-screening their oil and gas projects. Only those projects that trigger one or more of the environmental issues listed must be reviewed and cleared by Saskatchewan Environment before proceeding. The private land environmental checklist is available for viewing on the Saskatchewan Environment website at: <http://www.se.gov.sk.ca/environment/assessment/private-land>.

More detailed information on the environmental review process for oil and gas development projects is found under the heading "Review Process: Oil and Gas" on the Department's website at: <http://www.se.gov.sk.ca/environment/assessment>.

Saskatchewan Environment is also responsible for waste management sites and may become involved with abandoned oil or gas well sites or other facilities.

If you have any concerns about the environmental impacts of any oil and gas developments in your area contact the closest field office of Saskatchewan Environment:

Saskatchewan Environment Field Contacts (Oil and Gas Exploration and Development Proposals):

(1) Meadow Lake

Randy Slater
Oil and Gas Co-ordinator
Unit 1, 101 Railway Place
Meadow Lake SK S9X 1X6
Phone: (306) 236-7553; Fax: (306) 236-7677

(2) Prince Albert

Pat Springinotic
Oil and Gas Co-ordinator
800 Central Avenue
Box 3003
Prince Albert SK S6V 6G1

Phone: (306) 953-2878; Fax: (306) 953-2502

(3) Swift Current

Wayne Luchenski
Oil and Gas Co-ordinator
Box 5000
350 Cheadle Street W
Swift Current SK S9H 4G3

(4) Saskatoon

Lorne Sullivan
Oil and Gas Coordinator
112 Research Drive
Saskatoon SK S7K 2H6
Phone: (306) 933-6532; Fax: (306)

(5) Melville

Rick Wright
Oil and Gas Coordinator
Box 2170
(256 – 2nd Ave. W)
Melville SK S0A 2P0
Phone: (306) 728-7494; Fax: (306) 728-7447

Saskatchewan Environment also hosts the **Saskatchewan Environmental Directory** on its website at: <http://www.se.gov.sk.ca/corporate/whoswho9.htm>. The Directory lists community organizations, government, labour, industry, sources of scientific and technical information, and other groups connected with environmental matters and activities. The Directory is updated and maintained by Saskatchewan Environment's Inquiry Centre.

The **Inquiry Centre** can be reached at:

3211 Albert Street
Regina, SK S4S 5W6
Phone toll-free in Saskatchewan 1-800-567-4224 or (306) 787-2700
E-mail: inquiry@serm.gov.sk.ca.

3. Saskatchewan Agriculture, Food and Rural Revitalization

Saskatchewan Agriculture administers the surface of Crown agriculture lands, most of which are currently under lease to individual farmers and ranchers. The Agriculture Department's mandate in relation to these lands is to promote their sustainable and integrated use.

Oil and gas projects on Crown agriculture lands require approval from both Saskatchewan Agriculture and Saskatchewan Environment. The Agriculture Department provides modest one-time cash payments to agricultural leaseholders when a new surface lease is issued to an oil

or gas company or when additional wells are drilled on an existing surface lease. Agricultural lessees (farmers or ranchers) also receive annual rent reductions for as long as the surface lease is active.

Before drilling on agricultural Crown land, a project proposal and restoration plan must be submitted to both Saskatchewan Agriculture and Saskatchewan Environment. If the regional office of Saskatchewan Environment decides that the project raises significant environmental concerns an Environmental Protection Plan or Environmental Impact Assessment will be required. Where an EPP or EIA is needed Saskatchewan Environment will withhold the right of entry until the environmental concerns are addressed.

Saskatchewan Agriculture completes its own review within ten days of receiving SE's environmental conditions. Saskatchewan Agriculture then prepares a Petroleum and Natural Gas Surface Lease agreement to be signed with the company. The agreement includes conditions from both Saskatchewan Agriculture and Saskatchewan Environment. Once the agreement is finalized, drilling may begin subject to compliance with all other requirements.

For additional information contact:

Saskatchewan Agriculture, Food and Rural Revitalization

3085 Albert Street

Regina, SK S4S 0B1

Phone: (306) 787-5140

Website: <http://www.agr.gov.sk.ca>

4. Heritage Resource Branch – Department of Culture, Youth and Recreation

An oil or gas company must contact the Heritage Resource Branch of the Department of Culture, Youth and Recreation to review possible heritage restrictions *before* applying for a drilling licence or altering the land surface. The Division examines the potential effects on heritage sites located on the proposed development site, whether private or Crown land. If the Heritage Resource Branch identifies any heritage concerns it will make the company undertake a heritage impact assessment to assess the potential impact of the project. Any heritage-resource conflicts must be resolved to the satisfaction of the Branch before the project can proceed. The Branch can impose a series of restrictions and conditions on the oil or gas project.

The company must also contact the local rural municipality affected by the oil or gas development to find out if a development permit is needed or if there are other municipal requirements or concerns to be addressed. For example, the company may be required to enter into a road maintenance agreement with the municipality. If the rural municipality has a development plan and zoning bylaw in place, the company will need a development permit.

For additional information contact:

Saskatchewan Culture, Youth and Recreation

4th Floor – 1919 Saskatchewan Drive
Regina, SK S4P 3V7
Phone: (306) 787-5729; Fax: (306) 798-0033
Website: <http://www.cyr.gov.sk.ca>

Municipal Relations Division

Government Relations and Aboriginal Affairs

1855 Victoria Avenue
Regina, SK S4P 3V7
Phone: (306) 787-2635
Website: <http://www.municipal.gov.sk.ca>

5. Saskatchewan Surface Rights Board of Arbitration

The Saskatchewan Surface Rights Board of Arbitration was established to resolve disputes between a landowner or occupant and the mineral rights holder (oil, gas or potash company). The Board process is aimed at quickly and inexpensively resolving conflicts if a surface lease agreement cannot be negotiated. It is also aimed at balancing the needs of agricultural producers, petroleum producers, environmental protection and the public interest.

The Board of Arbitration consists of at least three members who are appointed by the province. The Board holds hearings to determine the rights of each party, such as a just amount of compensation and issuing right of entry orders. The Board relies on the evidence presented by the landowner/occupant and the company at the hearing to make a decision.

The Board of Arbitration is headquartered in Kindersley. However, Board hearings may also be held in any of the following oil patch centres: Lloydminster, North Battleford, Regina and Swift Current.

For a general overview of the operations of the Board, refer to its website at http://www.saskjustice.gov.sk.ca/Surface_Rights or contact:

Surface Rights Board of Arbitration

Box 1597
113 – 2nd Ave. East
Kindersley, SK S0L 1S0
Phone: (306) 463-5447
Fax: (306) 463-5449
E-mail: surface@sasktel.net

6. National Energy Board

The National Energy Board (NEB) is an independent federal agency established by Parliament in 1959 to regulate the inter-provincial and international aspects of the oil, gas and electric utilities industries. It is responsible for promoting safety, environmental protection and economic efficiency in the public interest in the regulation of pipelines, energy development,

and trade in oil, gas and electricity. The NEB is accountable to Parliament through the Minister of Natural Resources Canada.

The NEB holds public hearings and makes decisions on any major applications it receives. For instance, when a company seeks to build or expand an international or interprovincial pipeline the Board can hold oral public hearings. The Board sits as a tribunal with three Members. The procedures used are similar to a civil court. Applicants and other interested people, such as landowners and nearby residents, can participate in these public hearings. The public hearings are normally held at locations where there is a specific interest in the application. More rarely the Board will conduct public hearings in writing.

For additional information on the National Energy Board, visit the **NEB website** at:

<http://www.neb.gc.ca/AboutUs>

You can also contact the Board at:

National Energy Board

444 Seventh Avenue SW

Calgary, Alberta T2P 0X8

Phone: 1-800-899-1265 or (403) 292-4800

Fax: (403) 292-5503

E-mail: info@neb-one.gc.ca

B. Community and Environmental Groups

1. Federation of Saskatchewan Surface Rights Association

The Federation of Saskatchewan Surface Rights Association provides help to surface rights owners dealing with reclamation, compensation, or environmental issues having to do with oil and gas development, rail lines, pipelines and other industrial land use. The Federation also lobbies government. Local surface rights organizations can be contacted through the Federation.

Box 53

Lone Rock, SK S0M 1K0

Phone: (306) 387-6650

Fax: (306) 387-6650

2. Saskatchewan Environmental Society (SES)

The Saskatchewan Environmental Society was incorporated as a non-profit organization in 1981. Its mandate is to address environmental issues of concern to the people of Saskatchewan. The Society grew out of the Saskatoon Environmental Society, founded in 1970. The Saskatoon Society was formed to respond to development issues in the City. The

Saskatoon Society was soon asked to address environmental issues from various corners of Saskatchewan. Today SES' membership is drawn from across the province.

Over its history SES has earned respect as a leading provincial environmental group. When government, media or industry want an environmental perspective on an issue SES is normally contacted. The Society has participated in a number of multi-stakeholder groups, advisory committees, and environmental review hearings. SES also provides information and assistance to citizens concerned with local environmental issues.

SES conducts research, develops policy and runs various environmental education projects and initiatives. For example, SES was instrumental in the development of this Citizens' Guide for residents of the oil patch.

SES has a resource library in downtown Saskatoon located at 203 – 115 2nd Avenue North. The library has information on a variety of topics including water pollution, sustainable development, energy efficient housing, community action, nuclear energy, World Watch papers and more. The resource library is set up for in-house use.

Teachers' resource materials are available for various grade levels and subjects. These materials are loaned out as requested.

SES also has a dedicated group of volunteers who can give talks or presentations on specific issues. The speakers have considerable expertise on a number of environmental topics such as: climate change and energy, oil and gas, energy conservation, forests, environmental assessment, hazardous waste, livestock manure management, environment and health. Contact the SES office to request a speaker.

Saskatchewan Environmental Society:

Resource Centre: 203 – 115 2nd Avenue North
Saskatoon, SK S7K 2B1
Phone: (306) 665-1915
Fax: (306) 665-2128
Mailing Address: Box 1372
Saskatoon, SK S7K 3N9

E-mail: info@environmentalsociety.ca

Website: www.environmentalsociety.ca

3. Saskatchewan Eco-Network (SEN)

The Saskatchewan Eco-Network is an umbrella group for Saskatchewan-based environmental groups. It is a non-profit, non-governmental organization with membership open to any provincial ENGOs – non-governmental organizations that are concerned with environmental issues. SEN is affiliated with the Canadian Environmental Network (CEN) as are other provincial and territorial networks and the First Nations Environmental Network.

SEN connects environmentalists with each other, both in Saskatchewan and across Canada, by promoting active networking among its members. To facilitate diversity and dialogue among its member groups, the SEN does not take a position on specific issues. Thus the network is not an advocacy coalition or lobby organization, but a communications structure that facilitates the work of its member groups.

Through SEN, members can share information, skills, publicity and other resources. SEN general membership meetings and working group meetings allow people to meet face to face. The SEN publishes a quarterly newsletter, *Network News*, and sends out information by e-mail and fax. SEN also works as a clearinghouse to help members, media, government workers, and the public connect with other individuals or groups who have the information or skills they need.

Currently the SEN has over forty member groups. Individuals can subscribe to the SEN e-mail information service and newsletter. More information on the SEN and its member groups is available from:

Saskatchewan Eco-Network

Room 203 – 115 2nd Avenue North
Saskatoon, SK S7K 2B1
Phone: (306) 652-1275
Fax: (306) 665-2128

E-mail: sen@link.ca

Website: www.econet.sk.ca

4. Pembina Institute for Appropriate Development (PIAD)

The Pembina Institute is an independent non-profit organization focused on environmental policy research and education. It is a citizen-based environmental think-tank that specializes in the areas of energy and environment, climate change and environmental economics.

The Institute was founded in Drayton Valley, Alberta in 1986 by six high school teachers in response to the Lodgepole sour gas blowout. This blowout was one of Canada's largest industrial accidents, killing two people and fouling the air in central Alberta for weeks. The Institute's response to the accident led to dramatically improved safety standards and a permanent change in the manner in which oil and gas companies conduct business.

Today the Institute has a staff of approximately forty people drawn from various fields and backgrounds. It has corporate offices in Drayton Valley, Calgary and Ottawa, and research offices in Vancouver and Toronto. The Institute has major policy research and education programs in the areas of sustainable energy, climate change, and environmental governance among others.

The Energy Watch Program is a key advocacy branch of the Institute that focuses on:

- the environmental impacts of conventional energy and oil sand development;
- air quality issues in Alberta, including acidifying emissions, ground level ozone, particulate matter and air toxics; and
- the development of provincial and national energy and air quality protection standards and regulations.

The Pembina Institute published the following citizens' guide upon which this Guide is based:

When the Oilpatch Comes to Your Backyard: A Citizens' Guide to Protecting Your Rights by Mary Griffiths and Tom Marr Laing (February 2001).

To order the guide or to obtain other information or assistance regarding the oil and gas industry contact:

Pembina Institute Head Office
 Box 7558
 Drayton Valley, Alberta T7A 1S7
 Phone: (403) 542-6272
 Fax: (403) 542-6464

Pembina Institute Calgary Office
 #517, 604 – 1st Street, SW
 Calgary, Alberta T2P 1M7
 Phone: (403) 269-3344
 Fax: (403) 269-3377

Website: www.pembina.org

E-mail: piad@pembina.org

5. Canadian Parks and Wilderness Society (CPAWS)

CPAWS is one of Canada's oldest conservation groups, founded in 1963. The non-profit organization has over 20,000 members, and almost 400 volunteers working with eleven regional Chapters in the Yukon, North West Territories, B.C., Alberta, Saskatchewan, Manitoba, Ontario, Quebec and Nova Scotia. CPAWS promotes wilderness protection by campaigning for protected areas across Canada. It works to have the government put nature as the first priority in protected areas management. The group also advocates for a wise use of land and resources outside of parks and other protected areas.

The **CPAWS Saskatchewan** chapter is dedicated to the protection of boreal forest and grassland wilderness in the province. The chapter has been active since 1976 and has focused on establishing new protected areas, improving the management of existing parks and other protected areas, and legislative and policy reform. The local chapter has fought for the protection of the Great Sand Hills in southwest Saskatchewan threatened by oil and gas development, and for the establishment of Grasslands National Park. It has also campaigned for boreal forest ecosystem protection. The group works with Aboriginal people, scientists, educators, communities, industry and government to establish widely supported protective land use policies. CPAWS Saskatchewan has also earned respect for its science-based and solution-oriented approach.

For additional information contact:

Canadian Parks and Wilderness Society – Saskatchewan Chapter

#203 – 115 2nd Avenue North

Saskatoon SK S7K 2B1

Phone: (306) 586-3863; Fax: (306) 586-3863

Website: www.cpaws-sask.org E-mail: info@cpaws-sask.org

C. Industry Organizations

1. Saskatchewan Petroleum Industry/Government Environment Committee (SPIGEC)

As its name reveals, the Saskatchewan Petroleum Industry/Government Environment Committee is not strictly an industry organization. Rather, it is an organization that brings industry and government together to address provincial environmental management concerns. SPIGEC was formed in 1992 with a goal of ensuring the expansion of the oil and gas industry, while minimizing adverse environmental effects.

Provincial government Departments represented on the Committee include:

- Saskatchewan Environment
- Saskatchewan Industry and Resources
- Saskatchewan Agriculture, Food and Rural Revitalization
- Saskatchewan Government Relations and Aboriginal Affairs
- Saskatchewan Watershed Authority, and
- Other agencies on an issue-specific basis.

Federal Departments represented on the Committee include:

- Environment Canada
- Fisheries and Oceans Canada
- Prairie Farm Rehabilitation Administration
- Northern Oil and Gas Division of Indian and Northern Affairs.

Industry associations represented include:

- Canadian Association of Petroleum Producers
- Small Explorers and Producers Association of Canada
- Canadian Association of Oilwell Drilling Contractors
- Canadian Association of Geophysical Contractors
- Petroleum Services Association of Canada.

Representatives of individual companies are also involved as Committee members.

The Committee meets about six times per year. Environmental protection issues are identified and practical measures and actions are developed. For instance, SPIGEC has developed a series of environmental protection guidelines. The government uses the guidelines to direct

the petroleum industry and requires that the identified procedures will be followed in Saskatchewan oil and gas operations.

The SPIGEC guidelines issued to date include:

- SPIGEC 1 Upstream Waste Management Guidelines (1996)
- SPIGEC 2 Restoration of Well Sites on Cultivated Lands Guidelines (1999)
- SPIGEC 3 Restoration of Spill Sites on Agriculture and Pasture Lands (1999)
- SPIGEC 4 Upstream Contaminated Site Remediation Guidelines (1999)
- SPIGEC 5 Environmental Site Assessment Guidelines (1999)
- SPIGEC 6 Required Qualifications: Field Environmental Monitors for Oil and Natural Gas Exploration and Development Projects (2002)
- Environmental Operating Guidelines for the Upstream Petroleum Industry (2001)

The SPIGEC guidelines can be viewed and downloaded from the Saskatchewan Industry and Resources website at:

<http://www.ir.gov.sk.ca/Default.aspx?DN=3891,3620,3384,2936,Documents>.

Additional information on SPIGEC is found at:

<http://www.se.gov.sk.ca/environment/assessment/oilandgas/spigec.htm>.

2. Canadian Association of Petroleum Producers

The Canadian Association of Petroleum Producers (CAPP) is the most influential voice of the oil and gas industry in Canada. It represents 140 member companies who develop over 97% of the nation's oil, gas and elemental sulphur. CAPP works closely with its members, governments, communities and stakeholders to address key oil and gas issues. It seeks to reach consensus on industry codes of practice and operating guidelines that meet or exceed government standards. CAPP is committed to promoting the oil and gas industry in a "socially, environmentally and technically responsible and safe manner."

The CAPP website at <http://www.capp.ca> provides detailed information on the oil and gas industry in Canada and includes links to other relevant websites.

Canadian Association of Petroleum Producers

Suite 2100

350, 7th Avenue SW

Calgary, Alberta T2P 3N9

Phone: (403) 267-1100

Fax: (403) 261-4622

E-mail: communication@capp.ca

3. Small Explorers and Producers Association of Canada

The Small Explorers and Producers Association of Canada (SEPAC) is a volunteer organization that represents almost 400 small oil and gas companies in Canada. Approximately one quarter of its members operate in Saskatchewan. SEPAC lobbies on behalf of its members

to government, regulatory bodies, and other sectors of the oil and gas industry. It also educates the public about its membership's role in resource development and investment opportunities. The small producers represented by SEPAC produce up to 10% of conventional oil and gas in Canada.

The organization can be contacted at:

SEPAC

1060, 717 – 7th Avenue SW

Calgary, Alberta T2P 0Z3

Phone: (403) 269-3454

Fax: (403) 269-3636

E-mail: info@sepac.ca

Website: <http://www.sepac.ca>

4. Canadian Association of Petroleum Land Administration (CAPLA)

The Canadian Association of Petroleum Land Administration hosts a website that provides a more complete list of petroleum industry organizations and links to their websites. The list can be viewed at the following web address: <http://www.caplacanada.org/links.htm>.

D. Lawyers, Expert Witnesses or Technical Assistance

1. Centre for Studies in Agriculture, Law and the Environment

The Centre for Studies in Agriculture, Law and the Environment (CSALE) is a multi-disciplinary research centre located at the University of Saskatchewan in Saskatoon. The Centre was established in 1996 and brings together scholars and researchers in the areas of agriculture, law, economics, and science.

CSALE conducts research on issues such as food safety, greenhouse gases, land use and the interplay of environmental and agricultural law and policy.

The Centre has published a series of books and pamphlets to assist farmers and ranchers in dealing with various legal issues and environmental matters. These include:

- *A Farmer's Guide to Production Contracts in Saskatchewan* (2003)
- *The Economics of Conservation Cover Programs* (2001)
- *Agricultural Research Policy For Crop Improvement in Western Canada: Past Experience and Future Directions* (2001)
- *Transforming Agriculture: The Benefits and Costs of Genetically Modified Crops* (2001)
- *Climate Change Handbook for Agriculture 2000*
- *Environmental Law and the Farmer* (2000)
- *Negotiating Surface Rights* (1998).

The above books or pamphlets are available from the CSALE offices. In some cases the documents are available on-line at the **Centre's website** at:

<http://www.csale.usask.ca/csalePubBooks.html>

CSALE can be contacted at:

Centre for Studies in Agriculture, Law and the Environment

University of Saskatchewan

51 Campus Drive

Saskatoon, SK S7N 5A8

Phone: (306) 966-8893

Fax: (306) 966-8894

E-mail: csale.ag@usask.ca

2. Lawyer Referral Service

The Law Society of Saskatchewan (the governing body for lawyers) has set up a lawyer referral service for the province. Members of the public who contact the service are given the name and address of a lawyer in their area with whom they can discuss their legal matters. When contacting the service request a lawyer experienced in oil and gas law, natural resources law, or environmental law and contract law.

To contact the **Lawyer Referral Service** call:

1-800-667-9886 (toll free) or (306) 359-1767.

An alternative way to find a lawyer to assist you in negotiating a surface rights agreement with a company, or if you are appearing before the Surface Rights Board of Arbitration, or bringing a civil law suit, is to ask friends or others in your area about a lawyer who has been helpful in similar situations.

3. Technical Consultants and Laboratories

Saskatchewan Environment hosts the **Saskatchewan Environmental Directory** on its website at: <http://www.se.gov.sk.ca/corporate/whoswho9.htm>. The Directory lists community organizations, government, labour, industry, sources of scientific and technical information, and other groups connected with environmental matters and activities. The Directory is updated and maintained by Saskatchewan Environment's Inquiry Centre.

Be sure to hire an accredited laboratory if you need any water, soil or other testing services. The Standards Council of Canada accredits laboratories on the advice of the Canadian Association of Environmental Analytical Laboratories (CAEAL). Each laboratory is inspected and evaluated at regular intervals by CAEAL.

The CAEAL website lists all laboratories in the Prairies that are CAEAL members at: <http://www.caeal.ca/regions.html#t2>. Accredited labs have an “A” designation next to their names on the list.

The **Canadian Association for Environmental Analytical Laboratories** can be reached at:

Suite 300 - 265 Carling Avenue
Ottawa, ON K1S 2E1
Phone: (613) 233-5300 Fax: (613) 233-5501

The following accredited Saskatchewan labs are found on the CAEAL list:

Enviro-Test Labs (Saskatoon)
General Purpose Building
124 Veterinary Road
Saskatoon, SK S7N 5E3
Phone: (306) 668-8370 Fax: (306) 668-8383
E-mail: wgreig@envirotest.com
Website: www.envirotest.com

Saskatchewan Research Council, Petroleum Technology Research Centre (PTRC)
6 Research Drive
Regina, SK S4S 7J7
Phone: (306) 787-5091 Fax: (306) 787-8811
Website: www.src.sk.ca

Saskatchewan Research Council, Analytical Laboratory
422 Downey Road
Saskatoon, SK S7N 4N1
Phone: (306) 933-5204 Fax: (306) 933-7922
Website: www.src.sk.ca

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