



GEO THERMAL SPRING, USA

Geothermal Energy Development in Alberta

Brief: Liability Issues in Geothermal Resource Development

Environmental Law Centre
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Environmental
Law Centre

The Environmental Law Centre (Alberta) Society

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TABLE OF CONTENTS

INTRODUCTION.....	3
A Note about Scope	5
OVERVIEW OF GEOTHERMAL RESOURCE REGULATION IN ALBERTA.....	5
Overview of the GRDA Liability Provisions	6
Regulations under the GRDA	7
AER Draft Directive [XXX] for Geothermal Resource Development	9
Amendments to other Legislation	9
AER'S LIABILITY MANAGEMENT FRAMEWORK	13
Licensee Liability Rating Program.....	13
Redwater Decision	13
Revised Liability Management Framework	14
License Eligibility Requirements	18
Licensee Capability Assessment Program.....	20
Licensee Management Program	23
Inventory Reduction Program	24
License Transfers	25
Security Deposits.....	26
Estimating Liability.....	27
WELL CLASSIFICATION AND STATUS.....	28
Active Well	30
Inactive/Suspended	30
Abandoned.....	32
Reclaimed and Remediated	33
Orphan	33
GEOTHERMAL RESOURCE DEVELOPMENT AND LIABILITY	37

New geothermal wells and infrastructure unassociated with oil, gas, or other developments	.38
Co-production.....	39
Conversion and re-entry of existing oil and gas wells, and conversion of existing oil and gas infrastructure for geothermal resource development.....	43
Geothermal wells and infrastructure sharing a surface footprint with oil, gas, or other developments	45
RECOMMENDATIONS.....	47
Concerns with the OGCA Model of Liability	48
The Need for a Pre-Transfer Site Assessment Process	48
Geothermal wells and infrastructure sharing a surface footprint with oil, gas, or other developments	49

INTRODUCTION

Geothermal resources have significant potential as a clean, renewable source of energy to be used in geo-exchange systems, direct heat systems or power plant developments.¹ With the passage of the *Geothermal Resources Development Act* (GRDA) in late 2020 and the ongoing development of geothermal rules by the Alberta Energy Regulator (AER), there will be a regulatory framework in place for geothermal resource development (although it is important to note that the GRDA is not yet in force).²

Despite its relatively clean character, there are environmental impacts associated with geothermal resource development (as with any activity). Potential impacts include land disturbances, water pollution, air pollution, noise pollution, and threats to biodiversity (including thermophilic biota).

It is essential that the geothermal regulatory scheme be designed with the goal of avoiding placing the industry's liabilities onto the public purse. Unfortunately, it seems that the regulatory approach to geothermal resource development liabilities will be the same as that adopted for oil and gas liabilities. This is problematic because it is clear that Alberta has an oil and gas liability problem. As well, there is great interest in the potential to repurpose old oil and gas wells, facilities and infrastructure for geothermal resource development purposes.³ However, there is little clarity provided in the GRDA and AER's geothermal rules as to how past liabilities related to these old oil and gas site will be addressed in the context of conversion to geothermal development.

¹ For more information, see Brenda Heelan Powell, *Gaining Steam: A Regulatory and Policy Framework for Geothermal Energy Development in Alberta* (Edmonton: 2020, Environmental Law Centre).

² Geothermal Resources Development Act, S.A. 2020, c. G-5.5 [GRDA] which, as at publication date, is passed but awaiting proclamation into force.

³ See for example: Tony Seskus, "Alberta urged to remove hurdles to turning dormant oil wells into 'major' opportunity" (April 26, 2021) CBC News, online: <https://www.cbc.ca/news/canada/calgary/repurposing-dormant-wells-1.5993265>; Bill Graveland, "Alberta wants to clear the way for development of 'untapped' geothermal energy" (October 9, 2020) Canadian Press, online: <https://www.cbc.ca/news/canada/calgary/alberta-sonya-savage-energy-minister-alison-thompson-1.5754791>; and Alison Cretney and Chad Park, "Five Big Ideas for Alberta's Economic Recovery" (n/d) The Energy Futures Lab, online: <https://energyfutureslab.medium.com/five-big-ideas-for-albertas-economic-recovery-efbc444d2c39>.

As of 2020 there are more than 96,000 inactive wells in Alberta.⁴ For an oil and gas well, inactive status means that the well is not actively producing and has not been properly abandoned and reclaimed (i.e., the well is not permanently capped and the site has not been returned to a pre-disturbance equivalent land capacity). In addition, there is a significant number of orphan facilities in Alberta meaning there is no legally responsible or financially able party to conduct the necessary abandonment and reclamation activities. These orphan facilities are transferred to the Orphan Well Association (OWA) for management.⁵ Some estimates place the cost of Alberta's liability at \$100 billion.⁶ A public statement by the AER in 2018 estimated total liabilities at \$58.65 billion for both conventional and unconventional oil and gas operations.⁷ However, there is some indication that the AER's internal calculations actually come to an estimated \$260 billion.⁸

Clearly, this is not a desirable path for geothermal resource development to follow. To say that adoption of the flawed oil and gas liability approach for geothermal resource development is concerning is an understatement. Geothermal resource regulation should be designed to adhere to the polluter pays principle where the geothermal operator is responsible to clean-up its wells and other infrastructure.⁹ This is said recognizing that that geothermal resource development may also require policy and financial supports to become a financially viable sector.

⁴ Government of Alberta, Press Release dated July 30, 2020, online: <https://www.alberta.ca/release.cfm?xID=72928417D69DB-F217-3A72-879326E24DAF392D>.

⁵ Orphan Well Association, Orphan Inventory, online: <http://www.orphanwell.ca/about/orphan-inventory/>.

⁶ Sharon J. Riley, "The Story of Alberta's \$100-billion well liability problem. How did we get here?" (November 2, 2018) *The Narwhal*, online: <https://thenarwhal.ca/the-story-of-albertas-100-billion-well-liability-problem-how-did-we-get-here/>.

⁷ Alberta Energy Regulator, Public Statement dated November 1, 2018, online: <https://static.aer.ca/prd/documents/news-releases/AERPS2018-05.pdf>.

⁸ Mike De Sousa et al. "Cleaning up Alberta's oilpatch could cost \$260 billion, internal documents warn" (November 1, 2018) *Global News*, online: <https://globalnews.ca/news/4617664/cleaning-up-albertas-oilpatch-could-cost-260-billion-regulatory-documents-warn/>. The AER has taken issue with this report, see: Carolyn Jarvis et al., "Alberta regulator apologizes for spooking public with \$260-billion cleanup cost estimate" (November 1, 2018) *Global News*, online: <https://globalnews.ca/news/4621955/alberta-regulator-apologizes-for-spooking-public-with-260-billion-cleanup-cost-estimate/>.

⁹ For more on the polluter pays principle, see Environmental Law Centre, *The Polluter Pays Principle in Alberta Law: An Introduction & Survey* (Edmonton: 2019, Environmental Law Centre) [ELC Polluter Pays].

This brief looks at potential liabilities arising from geothermal resource development in the context of:

- New geothermal wells and infrastructure unassociated with oil, gas, or other developments;
- Co-production of geothermal with oil and gas;
- Conversion and re-entry of existing oil and gas wells, and conversion of existing oil and gas infrastructure for geothermal resource development.
- Geothermal wells and infrastructure sharing a surface footprint with oil, gas, or other developments.

This brief provides a review of Alberta's geothermal resource development regulatory scheme, the AER's liability management framework, and well classification and status. As well, the brief makes recommendations for ensuring the polluter principle is implemented for geothermal resource development.

A Note about Scope

This brief is focused only on those geothermal resources which would be used as direct heat systems or power plant developments (i.e., deep geothermal resources which utilize wells as opposed to shallow geothermal resources which utilize geo-exchange systems relatively near the surface). This is because the regulatory scheme under discussion, i.e., the GRDA and the AER's rules, apply only to those geothermal resources as defined in the GRDA as "the natural heat from the earth that is below the base of groundwater protection" (in other words, deep geothermal resources).¹⁰ The base of groundwater protection is the elevation above which groundwater is deemed to be non-saline.¹¹

¹⁰ GRDA, s. 1(1)(d).

¹¹ These elevations can be found on the AER's website at <http://www1.aer.ca/ProductCatalogue/378.html>. In areas of Alberta where there is not base of groundwater protection data, it is set at 600m.

OVERVIEW OF GEOTHERMAL RESOURCE REGULATION IN ALBERTA

Until recently, there was no regulatory scheme in place for geothermal resources. At the end of 2020, the GRDA was passed and provides the regulatory framework for geothermal resource development (although it has not been proclaimed into force at the time of publication). Development of geothermal rules – i.e., AER directives and perhaps regulations - is underway. The regulatory scheme established by the GRDA is modelled on the *Oil and Gas Conservation Act* (OGCA)¹² with regulatory oversight being provided by the AER.

The primary function of the GRDA is to establish a licensing regime for deep geothermal resource operations. A licence is required to drill a geothermal well or to operate any geothermal well or facility.¹³ The AER may grant licences on any terms and conditions that it considers appropriate and licences may be amended either on the AER's own motion or on application by the licensee.¹⁴ A licence may be transferred to another person only with written consent of the AER and the transfer is subject to any conditions, restrictions or stipulations prescribed by the AER.¹⁵ Further, the AER has the authority to cancel or suspend a licence in the event of a non-compliance or if equipment or operations are improper, hazardous, inadequate or defective.¹⁶ In addition to cancellation or suspension of a license, the AER may shut down a well or facility and direct remedial actions be taken.¹⁷ The AER has various enforcement powers under the GRDA such as inspection and investigation,¹⁸ directing suspension or abandonment of

¹² *Oil and Gas Conservation Act*, R.S.A. 2000, c. O-6 [OGCA].

¹³ GRDA, s. 7.

¹⁴ *Ibid.*, s. 9.

¹⁵ *Ibid.*, s. 9.

¹⁶ *Ibid.*, s. 10.

¹⁷ *Ibid.*, s. 10.

¹⁸ *Ibid.*, ss. 11 and 12.

a well or facility,¹⁹ taking steps to suspend or abandon a well or facility,²⁰ and directing or taking remedial action in the event of a substance release.²¹

The GRDA does not say much about environmental matters for deep geothermal operations. There is nothing in the GRDA mandating environmental assessment, payment of upfront security, appropriate set-backs from water bodies or other sensitive landscapes, or timelines for reclamation and remediation activities. Instead, the AER is granted broad discretion to make rules, leaving much of the environmental regulation to the discretion of the AER.

Overview of the GRDA Liability Provisions

In terms of liability, geothermal resource regulation should be designed to adhere to the polluter pays principle where the geothermal operator is responsible to clean-up its wells and other infrastructure.²² So what does the GRDA say about liability for geothermal wells/facilities? The short answer is not a lot.

As a starting point, the GRDA defines a geothermal well as “an orifice in the ground completed or being drilled to a depth below the base of groundwater protection for the purpose of the exploration for or development of geothermal resources”.²³ In addition, the AER may designate an oil and gas well/facility as being a geothermal well/facility for the purposes of the GRDA.²⁴ This means in addition to being a geothermal well/facility, that same well/facility may have had a previous history of oil and gas operations which complicates the liability picture (i.e., which operator and which activity created the liability).

¹⁹ *Ibid.*, s. 14.

²⁰ *Ibid.*, s. 15.

²¹ *Ibid.*, s. 21.

²² For more on the polluter pays principle, see ELC Polluter Pays, *supra*. note 9.

²³ GRDA, s. 1(1)(h).

²⁴ *Ibid.*, s. 1(3)(b).

Since the AER may designate an oil and gas well/facility as a well/facility for the purposes of the GRDA, this means oil and gas well/facilities may be converted into geothermal wells/facilities. If a person other than the licensee or a person directed by the AER to undertake operations wants to rework a well or facility, the GRDA indicates that they must obtain a licence to undertake operations.²⁵ At such time, the former licensee is relieved from all obligations under the Act with respect to the well or facility except for outstanding debts to the AER or to the orphan fund in respect of suspension or abandonment costs.²⁶

The GRDA also states that abandonment of a geothermal well or facility does not relieve the licensee or working interest participant from responsibility for control or further abandonment or from responsibility for the costs doing such work.²⁷

As between working interest participants, the GRDA provides that costs of suspension, abandonment, remediation and reclamation must be paid by each working interest participant in accordance with their proportionate share in the well or facility (although this can be modified by the AER).²⁸

Once the GRDA is proclaimed into force, the *Environmental Protection and Enhancement Act* (EPEA) will be amended to expand the definition of well to include geothermal wells.²⁹ This means lands which contain geothermal wells will be categorized as **specified land** under the *Conservation and Reclamation Regulation* and will be subject to the EPEA's conservation and reclamation requirements (i.e., returning land to an equivalent land capability).³⁰

²⁵ *Ibid.*, s. 8.

²⁶ *Ibid.*, s. 8.

²⁷ *Ibid.*, s. 16.

²⁸ *Ibid.*, s. 17.

²⁹ *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12 [EPEA].

³⁰ *Conservation and Reclamation Regulation*, A.R. 115/1993, s. 2 [Conservation and Reclamation Regulation].

Regulations under the GRDA

The Cabinet is granted regulation making authority on several matters including access to geothermal resources, applicability of other energy resource enactments to geothermal resources, and prescribing things as not being wells or facilities for the purposes of the GRDA.³¹

At the time of publication, no draft regulations have been released to the public. However, it is reasonable to expect that some regulations will follow proclamation of the GRDA.

AER Draft Directive [XXX] for Geothermal Resource Development

Significant, discretionary rule making powers are granted to the AER by the GRDA. This includes addressing matters such as licensing; operational matters; management of wastes; monitoring and compliance; shut-down, suspension, abandonment and other closure activities; security requirements; conservation and management of geothermal resources; and location of geothermal operations including setbacks.³²

As can be seen, much of the regulation for geothermal activities is left to the discretion of the AER. The AER proposes to provide this regulation via *Directive [XXX] for Geothermal Resource Development (Geothermal Directive)* which, at the time of publication, remains in draft form.³³

The *Geothermal Directive* applies to wells, facilities and pipelines associated with geothermal resource development at all stages: initiation, construction, operation and closure. Many of the requirements for geothermal developments are the same as those

³¹ GRDA, s. 27.

³² *Ibid.*, s. 26.

³³ *Draft Directive [XXX] for Geothermal Resource Development [Geothermal Directive]* available on the AER website at https://static.aer.ca/prd/documents/directives/DirectiveXXX_GeothermalEnergy.pdf.

for oil and gas development and, as such, the *Geothermal Directive* contains numerous references to other AER directives which are applicable.

The *Geothermal Directive* addresses matters such as technical requirements for wells, facilities and pipelines; requirements for risk assessment of induced seismicity (for wells); applications for obtaining and transferring licenses; and geothermal data filing, measurement and reporting requirements. The *Geothermal Directive* also sets out closure requirements for wells, facilities and pipelines which includes meeting the equivalent land capability standard as set by the *Conservation and Reclamation Regulation*.³⁴ Requirements for conversion of an oil and gas well to a geothermal well are set out in section 3.4.6 of the *Geothermal Directive* (i.e., an amendment application is required to convert the well licence and converted wells must meet the requirements in *Directive 020* as well as those in the *Geothermal Directive*).

In terms of liability, the most relevant part of the *Geothermal Directive* is section 2 which sets out the requirements for license eligibility, holistic licensee assessment, the licensee management program, liability assessment and security deposits. Before applying for a licence, an applicant must obtain licensee eligibility as per *Directive 067: Eligibility Requirements for Holding Energy Licences and Approvals* (to be discussed later in this brief). Only those determined to be eligible by the AER are allowed to acquire or hold licenses for well, facilities or pipelines.

All regulatory decisions made about a particular licensee are informed by holistic licensee assessment which is a “multi factor approach to assess the capabilities of licensees to meet their regulatory and liability obligations throughout the Geothermal development life cycle”.³⁵ The factors to be considered are listed in section 4.5 of *Directive 067*, as well as those listed in section 2.8 of the *Geothermal Directive*, including:

- financial health;
- estimated total magnitude of liability;
- remaining lifespan of the geothermal development and infrastructures;

³⁴ *Geothermal Directive*, *ibid.*, ss. 3,4 and 5 respectively.

³⁵ *Ibid.*, s. 2.8.

- rate of closure activities and spending, and pace of inactive liability growth;
- management and maintenance of regulated infrastructure and sites; and
- compliance with administrative regulatory requirements.

All geothermal licence applications trigger the holistic licensee assessment which is considered in the decision to approve, approve with conditions, or deny a licence.

The Licensee Management Program is designed to allow the AER to “proactively monitor licensees to support the responsible management of geothermal development”.³⁶ Under this program, the information gathered from the holistic licensee assessment is used to identify those licensees at greater risk of failure in meeting regulatory and liability obligations. The AER may undertake engagement (such as education, encouragement to follow best practices) or specific regulatory action as a result.

The AER requires geothermal applicants or licensees to provide a liability assessment which is an estimate of total liabilities associated with geothermal development.³⁷ This includes the costs of care and custody, and the costs to permanently end operations including abandonment and reclamation. The liability assessment must consider factors such as geographic location, site contamination, H₂S and CO₂ content of production fluid in open-loop wells, and well or facility characteristics (e.g., new or converted, depth and diameter, groundwater protection, facility type). The AER may require a site-specific assessment in accordance with *Directive 001: Requirements for Site-Specific Liability Assessments in Support of the ERCB's Liability Management Programs*.

In terms of security deposits, the *Geothermal Directive* references the *Geothermal Resources Development Rules* (which have not been released at the time of publication even in draft form) as granting the AER broad authority to require security deposits. The AER will determine the need and amount of security required based upon the holistic licensee assessment. The maximum security amount that can be required is the licensee's total liabilities.

³⁶ *Ibid.*, s. 2.9.

³⁷ *Ibid.*, s. 2.10.

Amendments to other Legislation

There are numerous consequential amendments that will be made once the GRDA is proclaimed into force including to the *Responsible Energy Development Act*, the EPEA, the *Mines and Minerals Act*, the OCGA, and the *Pipeline Act*.³⁸ For instance, the *Mines and Minerals Act* will be amended to provide that, where the context permits or requires, that Act applies to geothermal resources.

The OCGA will be amended to include the possibility that, via regulation, some or all provisions of the OCGA will apply to geothermal wells and facilities. As well, the OCGA section 106 authority which essentially allows suspension of principals (including officers and directors) from engaging in ongoing or future operations is extended to geothermal wells and facilities. [Download the Geothermal Energy: Alberta's Geothermal Resources Regulatory Scheme at a Glance.](#)

³⁸ *Responsible Energy Development Act*, S.A. 2012, c. R-17.1; *Mines and Minerals Act*, R.S.A. 2000, c. M-17; and *Pipeline Act*, R.S.A. 2000, c. P-15.

AER'S LIABILITY MANAGEMENT FRAMEWORK

It is necessary to review the AER's existing oil and gas liability management framework to understand the implications for geothermal liability. This is because the regulatory approach to geothermal development is modelled on that adopted for oil and gas operations, and many of the same requirements apply. In addition, there is potential for geothermal co-production with oil and gas wells and for converting existing oil and gas wells into geothermal wells.

Licensee Liability Rating Program

Currently, a key tool for managing oil and gas liability is the Licensee Liability Rating (LLR) Program which is delineated in *Directive 006: Licensee Liability (LLR) Program*.³⁹ As will be discussed below, the intention is to transition the LLR program to a new, enhanced program which uses holistic licensee assessment. In this regard, *Directive 006* was amended effective December 1, 2021 (to remove the components related to license transfer applications and their security collection).

The LLR Program applies to all upstream oil and gas wells, facilities, and pipelines included within the scope of the Orphan Fund as described in Appendix 1 of *Directive 006*.⁴⁰ The LLR Program is designed to assess a licensee's ability to address its suspension, abandonment, remediation, and reclamation liabilities. This is done by looking at the Liability Management Ratio (LMR) of a licensee which is the ratio of a licensee's eligible deemed assets to its deemed liabilities. The LMR assessment occurs monthly and if the licensee's LMR falls below 1.0, then a security deposit is required.

³⁹ Alberta Energy Regulator, *Directive 006: Licensee Liability Rating (LLR) Program* (December 1, 2021) [Directive 006]. The industry parameters and liability costs to be used in calculating LMR are provided in Alberta Energy Regulator, *Directive 011: Licensee Liability Rating (LLR) Program: Updated Industry Parameters and Liability Costs* (March 31, 2015).

⁴⁰ The liability management program for large upstream oil and gas facilities is set out in Alberta Energy Regulator, *Directive 024: Large Facility Liability Management Program* (February 24, 2016) [Directive 024] and for oilfield waste is set out in Alberta Energy Regulator, *Directive 075: Oilfield Waste Liability (OWL) Program* (April 11, 2016) [Directive 075]. Both of these programs also use the LMR approach.

A LMR assessment include assets and liabilities in the LLR program, as well those under the Large Facility Liability Management Program (LFP) and the Oilfield Waste Liability (OWL) program. The LFP is set out in *Directive 024: Large Facility Liability Management Program*.⁴¹ That directive sets out which facilities are included in the LFP, the methodology to calculate deemed assets and liabilities and the LMR, the license transfer process, and other aspects of the program.

The OWL program is outlined in *Directive 075: Oilfield Waste Liability (OWL) Program* and applies to all AER approved waste management facilities except those which are solely dedicated to landfill purposes.⁴² *Directive 075* sets out security deposit requirements, the methodology to calculate deemed assets and liabilities and the LMR, the license transfer process, and other aspects of the OWL program.

Redwater Decision

Shortcomings in the LLR Program were highlighted by the Alberta Court of Queen's Bench decision in the *Redwater* case (which was upheld by the Alberta Court of Appeal but ultimately reversed by the Supreme Court of Canada).⁴³

In this case, Redwater owned 127 oil and gas assets (wells, pipelines and facilities), the majority of the wells were spent and subject to abandonment and remediation liabilities. A loan was made by ATB to Redwater, and ATB held a security interest in Redwater's oil and gas properties. At no point did Redwater's LMR fall below 1.0, as such it had never provided security deposits for its oil and gas properties. Redwater became insolvent and entered into receivership, at which point the AER notified the

⁴¹ *Directive 024*, *supra*. note 39.

⁴² *Directive 075*, *supra*. note 40. Oilfield waste management by the upstream petroleum industry is subject to the requirements in Alberta Energy Regulator, *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry* (February 1, 2006) [Directive 058].

⁴³ *Orphan Well Association v Grant Thornton Limited*, 2016 ABQB 278 (CanLii), *aff'd* 2017 ABCA 124 (CanLii), *rev'd* 2019 SCC 5 (CanLii) [Redwater]. As might be expected, there is a significant body of relevant caselaw aside from Redwater including *PanAmericana de Bienes y Servicio v Northern Badger Oil & Gas Limited*, 1991 ABCA 181 (CanLii) and *Newfoundland and Labrador v AbitibiBowater Inc.*, 2012 SCC 67 (CanLii). Recent Alberta cases interpreting Redwater include *PricewaterhouseCoopers Inc. v Perpetual Energy Inc.*, 2020 ABCA 417 (CanLii) and *Manitou Energy Inc. (Re)*, 2021 ABQB 227 (CanLii).

receiver – Grant Thornton Limited (GTL) - of its obligations to fulfill abandonment obligations prior to distributing funds or finalizing any proposal to creditors. The AER indicated that it would not allow license transfers unless both the transferee and transferor were in a position to fulfill regulatory obligations. In response, GTL indicated that it would be taking control and possession of only the 17 most productive wells, 3 associated facilities and 12 associated pipelines; the remainder was disclaimed. GTL's position was it had no obligation to fulfill any regulatory requirements associated with the renounced assets. The AER and Orphan Well Association (OWA) sought a declaration that the renunciation was void and court orders requiring GTL comply with the AER's abandonment orders on all Redwater's properties.

The question became, under the *Bankruptcy and Insolvency Act* (BIA),⁴⁴ could GTL disclaim the non-productive assets and not fulfill the associated regulatory obligations? If GTL was not allowed to disclaim the non-productive assets, there would be insufficient funds to pay out creditors (because the liabilities associated with the non-productive assets were greater than the value of all Redwater's assets). However, if GTL could disclaim the non-productive assets and their associated liabilities, then Redwater's secured creditors could recover from the value of the productive assets (without their value being diminished by the liabilities of the non-productive assets).

Both the Alberta Queen's Bench and Court of Appeal held that the GTL could disclaim the non-productive properties and, as a result, not be bound to fulfill the abandonment orders made by the AER. Ultimately, the Alberta Court of Appeal decision was reversed by the Supreme Court of Canada (SCC). The SCC stated that not all environmental obligations are considered claims provable in bankruptcy.⁴⁵ If environmental obligations are considered to be claims provable in bankruptcy, then they are treated as unsecured claims which have lower priority than secured claims under the BIA.⁴⁶ In order to determine if a regulator's orders are claims provable in bankruptcy, then the test in *AbitibiBowater* applies.⁴⁷

⁴⁴ *Bankruptcy and Insolvency Act*, R.S.C. 1985, c. B-3 [BIA].

⁴⁵ *Redwater*, *supra*. note 43, paras. 122 and 131.

⁴⁶ BIA, ss. 136 and 141. The priority scheme is also explained in *Redwater*, *supra*. note 43, para. 40.

⁴⁷ *Newfoundland and Labrador v. AbitibiBowater Inc.*, [2012] SCR 443.

In applying the test to this case, the SCC stated that *AbitibiBowater* does not stand for the proposition that a regulator is always a creditor when it exercises its enforcement powers against a debtor. Rather, a regulator exercising its power to enforce a public duty is not a creditor and the SCC found that, in this case, the AER was acting in a *bona fide* regulatory capacity and did not stand to benefit financially. The SCC found the AER was clearly acting in public interest and for the public good in issuing the abandonment orders and enforcing the LMR requirements and, as such, the AER was not a creditor. The SCC also stated that *AbitibiBowater* test requires that there must be sufficient facts indicating that the environmental duty will ripen into a financial liability owed to the regulator. In other words, it must be sufficiently certain that the regulator will enforce the obligation by performing the environmental work and seeking reimbursement but that, in the *Redwater* case, that was not sufficiently certain to happen. The SCC ordered that the proceeds from the sale of the productive assets must be used to address the end of life obligations for the non-productive assets prior to any distribution to creditors.

As a result of the *Redwater* decision, it may be that a the receiver appointed in an insolvency cannot disclaim those assets burdened with environmental liabilities in excess of the asset's value. The abandonment, reclamation and remediation liabilities must be accounted for in the distribution of assets. Some have suggested this means that receiver sales may be made more costly and complex as "undesirable assets" must be bundled with "desirable assets" and may even result in more orphans because it will be too difficult to achieve sales.⁴⁸ However, the operation of the *Redwater* decision should assist in ensuring end-of-life obligations are addressed in a way more aligned with the polluter pays principle as compared to the creation of orphans (recognizing that *Redwater* may shift some of the cost of end-of-life obligations to the insolvent company's creditors).

As will be discussed below, part of the regulatory response to the shortcomings of the LLR has been to enhance that approach by requiring more detailed financial information initially, on an ongoing basis, and upon license transfer requests. Time will

⁴⁸ Mike Hurst, David Mann, and Hazel Saffery, "Redwater – Impacts" (February 1, 2019) Denton's Blog, online: <https://www.dentons.com/en/insights/alerts/2019/february/1/redwater>. See also Tom Cumming and Caireen E. Hanert, "Environmental liabilities now enjoy super-priority in Canada" (February 14, 2019) American Bar Association, online: https://www.americanbar.org/groups/business_law/publications/committee_newsletters/bcl/2019/201902/fa_10/ for concerns around access to capital and chilling effects on insolvencies.

tell as to whether this enhanced approach is sufficient to catch potential insolvencies and prevent license transfers to underfunded companies (i.e., where closure liabilities exceed company value).⁴⁹

In looking back over the last year (January to November 2021), there appears to have been about 1,129 transfer applications made, of which only 37 were denied.⁵⁰ In most cases, the reasons for denial are not readily accessible but in at least one case from 2020 - Shell Canada Limited Transfer of Ownership to Pieridae Alberta Production Ltd. - concerns around operational and remedial aspects of the relevant sites was cited as a reason to deny the transfer application.⁵¹ It should be noted that this transfer application has been made again and a Notice of Hearing has been issued.⁵²

It should be noted that, in light of recent changes to *Directive 006* as part of the transition away from the LLR Program, the AER has indicated any transfer applications submitted but not dispositioned by December 1, 2021 will be closed and companies must apply under the new requirements.⁵³

⁴⁹ An example of one such failure is the *PricewaterhouseCoopers Inc. v Perpetual Energy Inc.*, 2020 ABCA 417 (CanLii) case [Sequoia] which is ongoing. The bankruptcy trustee for Perpetual Energy/Sequoia has challenged a multi-step transaction on the grounds that it was, allegedly designed to artificially inflate the LLR of Perpetual Energy/Sequoia until the transaction closed.

⁵⁰ This was determined by searching the AER's online publication of decisions database for the word "transfer" on November 3, 2021. From January 1, 2021 to the date of the search, there were 1,129 applications. Some were withdrawn, many were closed due to deficiency, and only 37 were denied. Reasons for decision on the denials were not typically readily accessible. It is possible, that there were duplications between applications (i.e., deficiencies in closed application were rectified and resubmitted).

⁵¹ AER Decision Letter re: Shell Canada Limited Transfer of Ownership Including the Waterton Sour Gas Plant EPEA Application No 021-258 and Jumping Pound Sour Gas Plant EPEA Application No. 015-11587 (May 13, 2020), online: <https://ablawg.ca/wp-content/uploads/2020/05/Shell-Pieridae-Decision-Letter-2020-05-13.pdf>.)

⁵² Alberta Energy Regulator website, online: <https://www.aer.ca/regulating-development/project-application/notices/application-1931841>.

⁵³ Alberta Energy Regulator, *Bulletin 2021-45: New Requirements and Guidance Related to Liability Management* (December 1, 2021).

Revised Liability Management Framework

The AER released a statement responding to the *Redwater* decision indicating that it “must change the way we manage liability to ensure that end-of-life obligations are addressed”.⁵⁴ Accordingly, in July 2020, the Government of Alberta announced a new Liability Management Framework (LMF) which briefly sketched out several elements:⁵⁵

- Licensee Special Action

This component of the LMF will provide “practical guidance and proactive support for individual or distressed operators”. Presumably, the rationale being that assisting operators through difficulties will prevent the creation of more orphans.

- Licensee Capability Assessment System

This will replace the AER’s current LLR program which is used to determine whether a company is financially stable enough to receive a licence to operate and whether up-front security may be required.

The LMF indicates that the LLR program will be improved to assess the capabilities of oil and gas operators to meet their regulatory liabilities. It is intended that a more comprehensive and accurate corporate health assessment will be made by taking into account a wider variety of assessment parameters. This program will be used to inform decisions about licence applications and, where appropriate, to trigger the Licensee Special Action program. The AER has already taken steps to replace the LLR program, including making changes to *Directive 067* and introducing *Directive 088* which will eventually replace *Directive 006* (these changes are discussed in detail below).

- Inventory Reduction Program

⁵⁴ Alberta Energy Regulator website, online: <https://www.aer.ca/protecting-what-matters/holding-industry-accountable/redwater>.

⁵⁵ Government of Alberta, *Liability Management Framework* (July 2020) [LMF], online: <https://www.alberta.ca/assets/documents/energy-liability-management-framework.pdf>.

This program will establish annual industry site closure spending targets over a 5-year rolling period to help reduce inactive well inventories. Changes were made to the OGCA and the *Pipeline Rules* in late 2020 to support the goal of timely well/facility closure by allowing the AER to set closure spend limits (i.e., closure quotas) for industry, to require licensees to provide closure plans, and to direct the timing and priority of the work.⁵⁶

As well, the site rehabilitation program has been established to distribute \$1 billion in federal funding to oil field service companies for the performance of oil and gas site closure and reclamation work.⁵⁷ One interesting aspect of this program is a nomination process wherein landowners, First Nations peoples on reserves or Métis Settlement residents can nominate an inactive site for clean-up. Once a site is nominated, the government posts it online, and a company may apply for a grant. Nomination of a site does not guarantee that it will be cleaned-up or that a grant will be made.

- Addressing Legacy and Post-closure Sites

The LMF provides that there will be a “process to address legacy and post-closure sites, or sites that were abandoned, remediated or reclaimed before current standards were put in place and sites that have received reclamation certificates and the operator’s liability period has lapsed”. Aside from indicating an intention to establish a panel to consider how to address this gap, there is no indication of what this process may consist.

- Expanding the Mandate of the Orphan Well Association

The mandate of the OWA was recently expanded by *The Liabilities Management Statutes Amendment Act* (June 2020). This includes enabling the OWA to better manage orphan sites (including operation of those that are still capable of production) and to monitor the behaviour and condition of orphan

⁵⁶ *Pipeline Rules*, A.R. 91/2005. Changes implemented via *Bill 12: Liability Management Statutes Amendment Act*, 2020. See also Alberta Energy Regulator, *Bulletin 2020-26* (December 17, 2020).

⁵⁷ Alberta Government, *Site rehabilitation program: Application information and guidelines, Version 6.1* (Edmonton: 2021, Government of Alberta), online: <https://www.alberta.ca/assets/documents/energy-site-rehabilitation-program-guidelines.pdf>.

wells. It seems that the LMF does not envision additional changes to the OWA's mandate beyond those made in June 2020.

As mentioned, some legislative changes have been made to implement the LMF. Other changes which have been made or are underway will be discussed below. [Download Geothermal Energy: Oil & Gas Liability in Alberta at a Glance.](#)

License Eligibility Requirements

In April 2021, significant amendments were made to *Directive 067: Eligibility Requirements for Acquiring and Holding Energy Licenses and Approvals*.⁵⁸ These amendments put into place additional requirements to provide financial information at the time of application and throughout the energy development life cycle. This information will be used to:

- assess licensee eligibility;
- assess capabilities of licensees and approval holders to meet regulatory and liability obligations throughout the energy development life cycle;
- provide further direction on which material changes can indicate a risk of licensees or approval holders being unable to meet their regulatory and liability obligations;
- administer AER liability management programs; and
- ensure safe, orderly and environmentally responsible development of energy development of energy resources in Alberta throughout life cycle.

While the basic requirements for holding licenses and approvals are set out in the OGCA and the *Pipeline Act* (and also the rules under those acts), *Directive 067* expands on those requirements. As per *Directive 067*, there are three license eligibility types:

⁵⁸ Alberta Energy Regulator, *Bulletin 2021-11* (April 7, 2021).

- No eligibility.
- General eligibility which means the applicant is eligible to hold licenses for all types of wells, facilities and pipelines.
- Limited eligibility which means the applicant can only hold certain types of licenses and approvals, or subject to certain terms and conditions including a limit on the number of licenses that may be held, additional scrutiny at time of application/transfer, a requirement to provide security, minimum or maximum working interest percentage permitted, addressing outstanding noncompliances of current or former licensees that are directly or indirectly associated with applicant (including directors, officers, shareholders), or anything else the AER considers appropriate.

Once granted, the AER may revoke or restrict license eligibility if the licensee fails to provide complete or accurate information (or to update information), poses an unreasonable risk, or fails to acquire or hold licenses/approvals within 1 year of the grant of eligibility. In order to maintain eligibility, a licensee must continue to meet the eligibility requirements on an ongoing basis, and must provide notice of material changes, cancellation or significant reduction of insurance coverage, insolvency proceedings, and changes to contact information.

The financial information which the AER uses to assess eligibility - as well as to assess licensee capabilities to meet regulatory and liability obligations throughout the life cycle, administer liability management programs, and ensure safe orderly and environmentally responsible development of energy resources – is listed in Schedule 3 of *Directive 067*. The AER may request additional information.

In determining whether a particular applicant or licensee poses an unreasonable risk, the AER considers a variety of factors including:

- Lack of a person in Alberta to make decisions and take actions on behalf of applicant.
- Compliance history (including entities currently or previously associated, directors, officers, shareholders).
- Outstanding non-compliances (including entities currently or previously associated with applicant or its directors, officers, shareholders).

- Experience of applicant, directors, officers, shareholders.
- Corporate and ownership structure.
- Working interest partnership arrangements.
- Financial health of the applicant and entities currently or previously associated with applicants, or its directors, officers, shareholder.
- Assessed capability of the applicant to meet regulatory and liability obligations throughout life cycle.
- Assessed ability of applicant to provide reasonable care and measures to prevent impairment or damage in respect of a pipeline, well, facility, wellsite, or facility site.
- Outstanding debts to AER, Orphan Fund, municipal taxes, surface lease payments, public land disposition fees or rental payments.
- History of insolvency proceedings.
- Cancellation or significant reduction of insurance coverage (*Directive 067* requires a minimum of \$1,000,000 comprehensive insurance to be retained).
- Section 106 OGCA or Section 51 *Pipeline Act* orders (i.e., declarations which effectively bar a person from obtaining AER approvals).

Directive 067 addresses the eligibility of a person to hold an AER license initially and on an on-going basis. As well, the financial information collected under *Directive 067* will be used as part of holistic licensee assessment for other regulatory programs and decisions.

The requirements set out in *Directive 067* for assessing eligibility and to provide financial information also apply to geothermal resource development.⁵⁹

⁵⁹ *Geothermal Directive*, *supra*. note 33.

Other steps to address liability concerns are covered by *Directive 088: Licensee Life-Cycle Management* which was finalized and released in December 2021.⁶⁰ *Directive 088* introduces the Licensee Capability Assessment program, the licensee management program, and the inventory reduction program. As well, *Directive 088* updates the application requirements related to the license transfer process and describes security collection. *Directive 088* is supplemented by *Manual 23: Licensee Life-Cycle Management* which expands on the requirements and programs set out in the directive.⁶¹

Licensee Capability Assessment Program

The Licensee Capability Assessment (LCA) program as outlined in *Directive 088* will replace the existing Licensee Liability Rating (LLR) program (which is delineated in *Directive 006*).⁶² The transition away from the LLR program to the LCA program outlined *Directive 088* will occur in phases, with the first phase being some amendments to *Directive 006* and moving license transfer applications into the new program (these changes are effective December 1, 2021). Subsequent phases will include additional changes to *Directive 006* and to other directives⁶³ (including *Directives 001, 024, 068, and 075*) to align with the new LMF. Ultimately, *Directive 006* will be replaced by *Directive 088*.

The LCA program is designed to assess the capabilities of licensees to meet their regulatory and liability obligations across the energy development life cycle. Results from the LCA will be incorporated into the larger holistic assessment of the licensee which informs regulatory decisions regarding the licensee (including license eligibility

⁶⁰ Alberta Energy Regulator, *Directive 088: Licensee Life-Cycle Management* (December 1, 2021) [*Directive 088*].

⁶¹ Alberta Energy Regulator, *Manual 23: Licensee Life-Cycle Management* (December 2021) [*Manual 23*].

⁶² *Directive 006*, *supra*. note 39.

⁶³ These include Alberta Energy Regulator, *Directive 001: Requirements for Site-Specific Liability Assessments in Support of the ERCB's Liability Management Program* (June 6, 2012) [*Directive 001*]; *Directive 024*, *supra*. note 40; Alberta Energy Regulator, *Directive 068: ERCB Security Deposits* (September 17, 2010) [*Directive 068*]; and *Directive 075*, *supra*. note 40.

under *Directive 067* and decisions under the licensee management and inventory reduction programs introduced in *Directive 088*).

LCA uses various factors to identify risks posed by a licensee:

- financial health (i.e., the financial information submitted under *Directive 067*);
- estimated total magnitude of liability including abandonment, remediation and reclamation;
- remaining lifespan of mineral resources and infrastructure, and the extent to which current operations may fund current and future liabilities;
- rate of closure activities and spending, and pace of inactive liability growth;
- management and maintenance of regulated infrastructure and sites, including compliance with operational requirements; and
- compliance with administrative regulatory requirements, including management of debts, fees and levies.

Additional information about LCA factors and parameters is found in *Manual 23*.

While the LCA program as outlined in *Directive 088* does not apply to geothermal resource developments, a similar approach is adopted in the *Geothermal Directive* which use holistic licensee assessment to assess capabilities of licensees to meet their regulatory and liability obligations.⁶⁴

Licensee Management Program

The Licensee Management program is meant to proactively monitor licensees to support the responsible management of energy development. The results from holistic licensee assessment (i.e., under the LCA program and *Directive 067*) are used to identify those licensees that are at greater risk of potential failure in meeting regulatory

⁶⁴ *Geothermal Directive*, *supra*. note 33, s. 2.8.

and liability obligations. If a licensee is determined to be at greater risk of failure, the AER may undertake specific engagement or regulatory actions with the licensee. These actions include education, recommendations to follow industry best practices, and initiation of regulatory actions where appropriate (such as changing license eligibility under *Directive 067*, placing restrictions on new applications, requiring security deposits or issuing orders). As well, the AER will encourage licensees to use collaborative closure planning tools - such as, area based closure - to reduce overall closure costs and work more efficiently to reduce liability on the landscape.

Although *Directive 088* is not applicable to geothermal resource developments, the *Geothermal Directive* outlines a similar licensee management program.⁶⁵ Licensees will be proactively monitored to support responsible management of geothermal development. If holistic licensee assessment indicates that a licensee is at risk of failure to meet its obligation, then the AER may undertake specific engagement or regulatory actions.

Inventory Reduction Program

The Inventory Reduction program introduced by *Directive 088* sets mandatory closure spend targets for closure activities and spends by licensees. Each licensee must meet their annual mandatory target, report annually to the AER on all closure activities and spends, keep records of all closure activities and spends, and provide information as requested to the AER. In lieu of meeting the mandatory target through closure work, a licensee may provide a security deposit in the amount of the mandatory target. Failure to meet the mandatory target or provide security in lieu, will result in the AER requiring an additional amount to compensate for increased liability accumulated through the year. As well, other regulatory actions may be taken to ensure compliance and achievement of outcomes.

⁶⁵ *Geothermal Directive*, *supra*. note 33, s. 2.9.

Mandatory closure spend targets have been set for 2022 and 2023, along with forecasts for 2024 to 2026, in *Bulletin 20121-23: Mandatory closure spend targets*.⁶⁶ The industry-wide targets are:

2022 (Set) \$422 million

2023 (Set) \$443 million

2024 (Forecasted) \$465 million

2025 (Forecasted) \$489 million

2026 (Forecasted) \$513 million

Individual annual mandatory targets will be determined by the AER taking into account liability and historical closure spending, and the financial information required by *Directive 067*.

This program does not apply to geothermal resource developments. While the *Geothermal Directive* sets requirements for closure of well, facilities and pipelines, there are no mandatory spend limits or timelines imposed.

License Transfers

Directive 088 also addresses license transfers (i.e., the relevant components have been removed from *Directive 006* and placed into *Directive 088*). Regardless of what agreements between parties may say, all license transfers must be approved by the AER and trigger holistic licensee assessment of both transferor and transferee. The AER may approve, approve with conditions (including security), or deny the license transfer. If a license transfer application involves inactive licenses, then the transferor must update its reported closure activities and spends before submitting the transfer application. Further, if the transfer application involves a problem site, or a 10, 20 or 40

⁶⁶ Alberta Energy Regulator, *Bulletin 2021-23: Mandatory closure spend targets* (June 2021).

well equivalent non-sulphide recovery gas plant,⁶⁷ then a site specific liability assessment completed within 3 years must be submitted along with an evaluation of cost changes since the time of the assessment. The AER considers the whole package of licenses to be transferred and may reject an application that does not include licenses that have either received reclamation certifications or are abandoned and classified as reclamation exempt.

Again, although *Directive 088* does not apply to geothermal resource development, a similar approach is outlined in the *Geothermal Directive*.⁶⁸ If a transfer application is made, then a holistic assessment is triggered and is used to guide the decision-making. The AER may require a site-specific assessment be submitted and, in the event a problem site is involved, that assessment must be no more than 3 years old (site-specific assessments discussed below).

Security Deposits

Directive 088 also addresses security deposits which can be required pursuant to OCGR 1.100. The AER considers the holistic licensee assessment in determining whether to require a security deposit (and its quantum). In particular, the AER considers whether a licensee poses an unreasonable risk as per section 4.5 of *Directive 067*. The maximum security amount is the licensee's total liabilities including cost of care and custody, and the cost to permanently end operations (which includes abandonment and reclamation). Requests can be made for a refund of security deposits which triggers holistic assessment of licensee to determine if a refund is appropriate.

More information about security deposits is provided in *Directive 068: ERCB Security Deposits*.⁶⁹ This directive provides information and direction regarding cash and letters of credit that can be provided to satisfy security deposit requirements. The security deposit may be used for costs associated with suspension, remediation or reclamation of a well, facility or pipeline. If the security deposit is reduced by costs incurred by the

⁶⁷ *Directive 006*, *supra*. note 39, Appendix 6 and s. 2.3 respectively.

⁶⁸ *Geothermal Directive*, *supra*. note 33, s. 6.

⁶⁹ *Directive 068*, *supra*. note 39.

AER on behalf of a licensee, then the licensee must replace the amount required to offset a difference between deemed liabilities and deemed assets.

Although *Directive 088* is inapplicable to geothermal resource developments, security deposits are mentioned in the *Geothermal Directive*. Specifically, the *Geothermal Directive* references the *Geothermal Resources Development Rules* (which have not been released at the time of publication even in draft form) as granting the AER broad authority to require security deposits. The AER will determine the need and amount of security required based upon the holistic licensee assessments. The maximum security amount that can be required is the licensee's total liabilities.

Estimating Liability

Typically, estimates of liability are made using deemed liability amounts which represents average values developed with industry input. These are set out in *Directive 011: Licensee Liability Rating (LLR) Program: Updated Industry Parameters and Liability Costs*.⁷⁰ The estimated costs used in calculating LLR include those for well abandonment (based on depth and region), groundwater protection, vent flow repair, gas migration, multiple event sequence factor, facility abandonment, and reclamation (based on location).

In some cases, a site-specific assessment may be done to estimate the cost to suspend, abandon, or reclaim a specific site as opposed to deemed liability amounts.

The requirements and methodology for site-specific liability assessment are found in *Directive 001: Requirements for Site-Specific Liability Assessments in Support of the ERCB's Liability Management Programs*.⁷¹

A site-specific assessment may be conducted in two circumstances:

⁷⁰ Alberta Energy Regulator, *Directive 011: Licensee Liability rating (LLR) Program: Updated Industry Parameters and Liability Costs* (March 31, 2015).

⁷¹ *Directive 001*, *supra*. note 63.

- On a voluntary basis by a licensee with a LLR less than 1.0. In this case, the licensee must submit separate liability assessments for each of its facilities or wells to ensure the review is complete and does not just assess low-cost sites.
- The AER may direct a site-specific assessment for a potential problem site (which is a site expected by the AER have reclamation costs at least 4 times greater than the deemed reclamation liability normally calculated for a site of that type in that region). A site may be identified as a potential problem site due to insufficient recovery of spilled or released produced fluids or oilfield waste; significant off-lease damage to soil, vegetation or water body; high probability or evidence of groundwater contamination; and extraordinary surface reclamation issues such as extensive cut and fill. The potential problem site designation applies until reclamation work has been done and a subsequent liability assessment indicates that the reclamation cost is estimated to be less than 4 times the normal reclamation liability.

In conducting a site-specific assessment, estimates of reclamation costs should include all land and water directly affected by the construction, operation or abandonment of the development which includes all facilities, infrastructure and equipment included in the AER license or approval. Where a site is not eligible for a reclamation certificate, the site-specific assessment should estimate the costs to complete an equivalent degree of remediation and reclamation.

Directive 001 sets out the applicable assessment standards, as well the tasks to be included in estimating costs in a site-specific assessment.⁷² Site-specific assessment of suspension or abandonment costs must be based on a plan to meet or exceed AER standards for suspension and abandonment, including *Directive 020: Well Abandonment*⁷³ and *Directive 059: Well Drilling and Completion Data Filing Requirements*.⁷⁴ Remediation and surface reclamation issues must be identified via a Phase I environmental site assessment and, as required, a Phase II environmental site assessment.

⁷² Tasks are listed in Appendix 1 of *Directive 001*, *supra*. note 62.

⁷³ Alberta Energy Regulator, *Directive 020: Well Abandonment* (April 21, 2021) [*Directive 020*].

⁷⁴ Alberta Energy Regulator, *Directive 059: Well Drilling and Completion Data Filing Requirements* (April 8, 2020).

The *Geothermal Directive* does require completion of liability assessments although there is not a standardized set of parameters and costs as for oil and gas operations.⁷⁵ Liability assessments must include costs for total liabilities including costs for care and custody, abandonment, and reclamation. The AER may request, at any time, that a site-specific assessment be conducted in accordance with *Directive 001*.

WELL CLASSIFICATION AND STATUS

Aside from the fact that geothermal resource development regulation is modeled on the OGCA, there is significant interest in using geothermal resources to offset costs of oil, gas, or other fossil fuel production (co-production), and in converting oil and gas wells into geothermal wells. These possibilities raise liability questions around the appropriate assignment of regulatory liability for environmental damages, accidents, and clean-up requirements between past oil and gas operators and new geothermal entrants. There may also be legal liability arising from common law rules such as negligence, nuisance, and trespass.⁷⁶ Liability can arise on both a short-term and long-term basis.

In order to discuss liability issues with respect to the geothermal – oil and gas interface, some background on the various status of oil and gas wells is necessary. Wells can be active, inactive/suspended, abandoned, or certified reclaimed and remediated. Each of these indicate where a well is along its lifecycle from operational to fully dismantled and cleaned-up. Regardless of where a well is along its lifecycle, a well without a legally responsible and/ or financially viable person to deal with the closure and remediation responsibilities is called an orphan.

Active Well

An active well is one that is currently producing oil and gas. The production of oil and gas is a regulated activity which requires authorization issued by the AER. There are

⁷⁵ *Geothermal Directive*, *supra*. note 33, s. 2.10.

⁷⁶ See Mary Griffiths, *Policy Option Paper - Closing the Liability Gap* (Drayton Valley, AB: 2008, Pembina Institute) which discusses liability issues in the context of carbon capture and storage.

myriad operational and environmental responsibilities imposed upon an operator by the authorization, by the AER's directives and bulletins, and by statutes and regulations.

The OGCA provides that the AER may order or undertake containment and clean-up of any escaped substances (i.e., oil, crude bitumen, water or any other substance).⁷⁷ The AER may recover any costs incurred from the licensee, approval holder and operator. As well, the AER may undertake necessary steps when the control, completion or operation of a well is not in accordance with an order, direction or requirement of the AER.⁷⁸ The AER may recover any costs incurred from the licensee, approval holder, or working interest participant.⁷⁹

With its release of substances provisions,⁸⁰ the EPEA also has relevance to active well operations. An environmental protection order (EPO) may be issued where (a) a release of a substance may occur, is occurring or has occurred, and (b) the release may cause, is causing or has caused an adverse effect.⁸¹ An EPO may be issued to the **person responsible for the substance** which means:⁸²

- (i) the owner and a previous owner of the substance or thing,
- (ii) every person who has or has had charge, management or control of the substance or thing, including, without limitation, the manufacture, treatment, sale, handling, use, storage, disposal, transportation, display or method of application of the substance or thing,
- (iii) any successor, assignee, executor, administrator, receiver, receiver-manager or trustee of a person referred to in subclause (i) or (ii), and

⁷⁷ OGCA, s. 104. Section 41 provides that AER may take any means necessary to prevent or control an escape of oil, gas, water, or any other substance from a well.

⁷⁸ *Ibid.*, s. 100.

⁷⁹ A working interest participant is a person with a beneficial or legal interest in a well under relevant ownership agreements (*ibid.*, s. 1(1)(fff)).

⁸⁰ EPEA, ss. 107 to 122.

⁸¹ *Ibid.*, s. 113.

⁸² *Ibid.*, s. 1(tt).

(iv) a person who acts as the principal or agent of a person referred to in subclause (i), (ii) or (iii).

These provisions of the OGCA and the EPEA illustrate two statutory environmental liabilities that can potentially arise with the operation of an active well. The statutes provide that a broad range of parties associated with the offending activity may be held liable. However, in oil and gas operations, there may be attempts to apportion these liabilities via commercial agreements.⁸³

Inactive/Suspended

An inactive well is one that has not produced in 12 months (or, in the case of critical sour wells, 6 months). Inactive wells are required to be suspended in accordance with AER *Directive 013: Suspension Requirements for Wells* within 12 months of the inactive status date.⁸⁴ *Directive 013* sets requirements for minor surface clean-up (contain and clean-up any releases, remove debris) and securement of the area, for securing the wellhead to protect against leaks, and for ongoing maintenance, monitoring and reporting. A suspended well may be reactivated to begin production at a later date.

The licensee is responsible for the actions required by *Directive 013*. Section 27 of the OGCA provides that the AER may allow or direct suspension of a well by a working interest participant other than the licensee or approval holder. In addition, if the well was not suspended properly, the AER may step in to authorize suspension of a well by any person.⁸⁵ In its inactive or suspended state, there is still potential for liability associated with a release of substances under the OGCA or EPEA (as discussed above).

⁸³ For more detail on this area of law, see H.E. Lilles (2017) *The Statutory Liabilities of Joint Operators and Non-Participating Parties* (Unpublished Master's Thesis). University of Calgary, Calgary, AB doi:10.11575/PRISM/28390 <http://HD.handle.net/11023/3577>.

⁸⁴ Alberta Energy Regulator, *Directive 13: Suspension Requirements for Wells* (December 1, 2021) [*Directive 013*].

⁸⁵ OGCA, s. 28.

Abandoned

Once a well is no longer needed, it must be permanently dismantled, sealed, and taken out of service. This process is called abandonment and, once complete, the well is abandoned. If a licence is cancelled or suspended, the liability to abandon and reclaim a well still rests with the licence holder.⁸⁶

Abandonment requirements are set out in *Directive 020: Well Abandonment* and the “objective is to cover all non saline groundwater... and to isolate or cover all porous zones”.⁸⁷ In other words, the abandonment requirements are focused on sub-surface impacts of a well. There is no mandatory timeline in place directing when a suspended well must be abandoned.

The OGCA provides that liability for a well continues post-abandonment.⁸⁸ This liability attaches to the licensee, approval holder or working interest participants. The provisions relating to release of substances under the OGCA and EPEA, as discussed above, would still be applicable to an abandoned well.

Reclaimed and Remediated

Once abandonment has been completed, the final steps of a well lifecycle are reclamation and remediation. Reclamation is the process of bringing the well-site land back to an equivalent land capacity as before the development (i.e., focused on surface impacts). Remediation means the well-site has been cleaned up to meet soil and water standards.

The EPEA's conservation and reclamation provisions⁸⁹ address reclamation of former well-sites with the goal of returning the land to equivalent capability.⁹⁰ Equivalent land

⁸⁶ *Ibid.*, s. 28.

⁸⁷ *Directive 020, supra.* note 73, page 4.

⁸⁸ OCGA, s. 29.

⁸⁹ EPEA, Part 6.

⁹⁰ *Conservation and Reclamation Regulation*, s. 2.

capability means that “the ability of the land to support various land uses after conservation and reclamation is similar to the ability that existed prior to an activity being conducted on the land, but that the individual land uses will not necessarily be identical”.⁹¹

The conservation and reclamation requirements apply to **specified land**, which is defined in the *Conservation and Reclamation Regulation*,⁹² and includes land which was a well-site. Conservation of specified land is defined as the “planning, management and implementation of an activity with the objective of protecting the essential physical, chemical and biological characteristics of the environment against degradation”.⁹³ Reclamation requires removal of equipment, buildings and structures; the decontamination of buildings, structures, land and water; the stabilization, contouring, maintenance, construction and reconstruction of the land surface; and other operations as may be required by regulation.⁹⁴

An operator has a duty to conserve specified land, to reclaim specified land, and, unless exempted by regulation, to obtain a reclamation certificate.⁹⁵ The term **operator** is broadly defined and includes the person who conducted the activity, the statutory authorization holder, a working interest participant in certain oil and gas operations, the surface lease holder, the successor/assignee/executor/administrator/receiver/receiver-manager/trustee of the foregoing, or the principal or agent of the foregoing.⁹⁶ Once the AER is satisfied that the applicable standards have been achieved, a **reclamation certificate** will be issued to the operator.⁹⁷ For a well-site, once a reclamation certificate

⁹¹ *Ibid.*, s. 1(k).

⁹² *Ibid.*, s. 1(t).

⁹³ EPEA, s. 1(l).

⁹⁴ *Ibid.*, s. 1(ddd).

⁹⁵ *Ibid.*, s. 137.

⁹⁶ *Ibid.*, s. 134.

⁹⁷ *Ibid.*, s. 173 and *Conservation and Reclamation Regulation*.

has been issued, an environmental protection order cannot be issued more than 25 years after issuance.⁹⁸

The EPEA's remediation requirements apply to all lands which have experienced a substance release with significant adverse effects. The goal of remediation is to clean-up any releases at a former well-site in terms of soil and groundwater. Section 117 of the EPEA allows for issuance of a **remediation certificate** to the person responsible for the substance. In order to receive a remediation certificate, the site must be remediated in accordance with the guidelines adopted under the *Remediation Regulation*.⁹⁹ These guidelines include the Alberta Tier 1 and Tier 2 Soil and Groundwater Remediation Guidelines.

Once a remediation certificate is issued, then no environmental protection order requiring further work in respect of the same release of the same substance may be issued.¹⁰⁰ However, an environmental protection order may still be issued in circumstances indicated by regulation (such as presence of substance exceeding guidelines established at the time the certificate was issued).¹⁰¹ The issuance of a remediation certificate does not change the obligation to obtain a reclamation certificate.¹⁰²

The AER recently issued *Manual 021: Contamination Management* to assist in understanding remediation regulatory requirements and expectations for conventional oil and gas, in situ and pipeline activities regulated by the AER.¹⁰³ This manual does not introduce any new regulatory requirements, rather it is meant to clarify existing requirements under the *Conservation and Reclamation Regulation*.

While the EPEA provisions relating to remediation, reclamation, and environmental protection orders are meant to bring land back to an equivalent capacity and to

⁹⁸ *Conservation and Reclamation Regulation*, s. 15.

⁹⁹ *Remediation Regulation*, A.R. 154/2009 [*Remediation Regulation*].

¹⁰⁰ EPEA, s. 118.

¹⁰¹ *Remediation Regulation*, s.8.

¹⁰² EPEA, s. 119.

¹⁰³ Alberta Energy Regulator, *Manual 21: Contamination Management* (October 2021).

ensure clean-up substance releases into soil and water, there are limitations on their ability to address **legacy sites**. Legacy sites are those sites that were decommissioned prior to current environmental standards being in place, and those for which the operator's liability period under a reclamation certificate has lapsed (it should be noted that legacy sites are not limited to only former oil and gas sites). Legacy sites can cause ongoing environmental issues and determining the responsible party can prove problematic despite the broad definition of person responsible in EPEA.

This difficulty is illustrated by the Sears-North Hill Mall site in Calgary.¹⁰⁴ The Sears-North Hill site was a former service station originally owned and operated by a predecessor of Sears Canada Inc from 1958 to 1984. In 1984, the service station was operated by a predecessor of Suncor Energy Inc. until it was decommissioned in 1994. The site was purchased from Sears in 2015 by Concord North Hill GP Ltd. Gasoline was discovered in the soils under the service station in 1984 and the contamination migrated into a commercial property, a shopping mall, to the west, and into a residential neighbourhood. Sears had been working to remediate and risk manage the contamination until 2017 when it advised Alberta Environment that it would be discontinuing this work (Sears had become insolvent), and in response Alberta Environment issued an environmental protection order under section 113 of the EPEA (EPO). The EPO named Sears, Suncor and Concord as persons responsible under EPEA and made them parties to the EPO. Both Suncor and Concord appealed the decision naming them as persons responsible to the Alberta Environmental Appeals Board (AEAB). Ultimately, the AEAB found that both Sears and Suncor were persons responsible under EPEA and proper parties to the EPO, Concord was not. Concord was determined to not be a person responsible under section 113 of the EPEA because it was merely an owner of the site and had not taken charge, management or control of the substances at this time (the AEAB noted that might change if Concord decides to redevelop the site). In making its decision, the AEAB noted the differences between sections 129 and 113 of EPEA. Section 129, which deals with contaminated sites, expressly includes land-owners as persons responsible where there is a *significant* adverse effect. Section 113 deals with substances releases that may cause, are causing

¹⁰⁴ *Sears Canada Inc. et al. v Director, Regional Compliance, South Saskatchewan Region, Alberta Environment and Parks* (Appeal No's. 17-069-070 and 18-013-R 9AEAB), 2020 ABEAB 6. See also Decision Letter dated August 10, 2019 (2019 ABEAB 28), Decision Letter dated November 13, 2019 (2019 ABEAB 33) and Decision Letter dated November 27, 2019 (2019 ABEAB 34).

or have caused an adverse effect (versus a *significant* adverse effect) and does not expressly include land-owners.

The number of oil and gas legacy sites is a significant and growing problem in Alberta. As of November 1, 2021, the OWA had a catalogue of 2,570 orphan wells which require abandonment and 5,260 sites which require reclamation.¹⁰⁵ As of October 2021, there are approximately 458,000 wells in Alberta with about 329,000 requiring closure work.¹⁰⁶ Although 129,000 of these wells have received reclamation certificates or are reclamation certificate exempt, this does not preclude future environmental concerns from arising with these sites. Further, there are additional facilities and infrastructure associated with oil and gas development which will require clean-up (it's not just wells). There needs to be a systematic, effective approach to addressing the existing oil and gas legacy sites (and effective regulation to avoid creating more).

Orphan

Although not related to where a well is along its lifecycle, it is important to discuss orphan wells. A well without a legally responsible and/or financially viable person to deal with the abandonment, reclamation, and remediation responsibilities is called an orphan. In theory, a well can become an orphan at any point in its lifecycle (although it is less likely for an active well as that can still be a valuable asset to sell).

In Alberta, orphan wells are designated by the AER and administered by the Orphan Well Association (OWA) which is a non-profit organization operating under the delegated legal authority of the AER.¹⁰⁷ Part 11 of the OGCA establishes the orphan fund (as well as the levy payable by industry to support the fund) which is to be used to pay for suspension costs, abandonment costs and reclamation costs in respect of orphan wells. The OWA is the delegated authority to administer the fund pursuant to the

¹⁰⁵ See Government of Alberta website at <https://www.alberta.ca/oil-and-gas-liabilities-management.aspx>. See also the abandoned wells interactive map at <https://geodiscover.alberta.ca/GDAHTML/Viewer/?viewer=GDAHTML.GDAHTML&layerTheme=&scale=144447.638572&layers=2XXxVP2h8B%2Fy¢er=-12655332.453140557%2C7046774.507596623>.

¹⁰⁶ *Ibid.*

¹⁰⁷ Orphan Well Association website at www.orphanwell.ca.

Orphan Fund Delegated Administration Regulation.¹⁰⁸ The OWA has been delegated authority of the AER under sections 28(b), 104(1)(b), and 104(2)(b) of the OGCA with respect to suspension and abandonment of orphan wells. Section 28 allows the AER (or the OWA) to take steps to suspend or abandon a well. Section 104 allows the AER (or the OWA) to capture, recover, clean-up and dispose of escaped substances (oil, crude bitumen, water, or other substances). If the escaped substance is sold, the proceeds may be used to pay the associated costs incurred by the AER or the OWA as the case may be.

As a result of recent legislative amendments,¹⁰⁹ the OWA is now authorized to continue operation of and production from an orphan well. In addition, the purposes for which the orphan fund may be used were changed extending the use of funds to cover suspension costs, abandonment costs, **remediation costs**, and reclamation costs for orphan wells, and to monitor the behaviour and condition of orphan wells.

Currently, geothermal wells and facilities are not part of the orphan well program as it only applies to those wells and facilities specified in the OGCA.¹¹⁰ Although it possible that regulations could be passed to make the orphan well provisions of the OGCA and its relevant regulations applicable to geothermal wells and facilities.

GEOHERMAL RESOURCE DEVELOPMENT AND LIABILITY

The discussion of allocation of liability associated with geothermal resource development is divided into four situations: new geothermal wells/infrastructure unassociated with oil, gas or other developments; co-production with oil and gas operations; reworking and re-entry of existing oil and gas wells/infrastructure into

¹⁰⁸ *Orphan Fund Delegated Administration Regulation*, A.R. 45/2001.

¹⁰⁹ *Bill 12: Liabilities Management Statutes Amendment Act*, 2020 which has been passed and comes into force on proclamation. See bill status at https://www.assembly.ab.ca/net/index.aspx?p=bills_status&selectbill=012&legl=30&session=2.

¹¹⁰ OGCA, ss. 1(1)w, 1(1)eee and 68, and Part 11.

geothermal wells/infrastructure; and geothermal wells/infrastructure sharing a surface footprint with other developments. In all situations, the legislative and policy goal should adhere to the polluter pays principle where the party that created the liability (polluter) is responsible for clean up of its wells and infrastructure.

New geothermal wells and infrastructure unassociated with oil, gas, or other developments

From a liability perspective, this is the most straight forward situation. Although not extensive, the GRDA does contain some provisions addressing liability. Section 10 of the GRDA provides that cancellation or suspension of a license by the AER (for non-compliance) does not relieve the licensee of its liability to complete or abandon the well/facility and reclaim the well/facility site and to suspend operations. Further, section 16 of the GRDA provides that abandonment of a well/facility does not relieve the licensee or a working interest participant from responsibility for the control or further abandonment of the well/facility or from the costs of doing that work.

The GRDA also provides that costs of suspension, abandonment, remediation and reclamation must be paid by each working interest participant in their proportionate share of the well/facility.¹¹¹ All obligations for suspension, abandonment, remediation and reclamation extend to associated equipment and non-licensed facilities located on the site or used in connection with the site.¹¹²

The GRDA provides that the AER may order or undertake remedial action to address any escaped substances from a well, facility, pipeline, underground formation, or an unidentified source.¹¹³ The AER may allocate the costs among all or any of the licensee and working interest participants and may recover such costs as a debt. As well, the AER may undertake necessary steps when the control, completion or operation of a well is not in accordance with the Act, the regulations, the rules, or an order or direction

¹¹¹ GRDA, s. 17.

¹¹² *Ibid.*, s. 18.

¹¹³ *Ibid.*, s. 21.

of the AER.¹¹⁴ The AER may allocate and recover any costs incurred from the licensee or working interest participants.

With its release of substances provisions,¹¹⁵ the EPEA also has relevance to geothermal operations. An EPO may be issued where a release of a substance may occur, is occurring or has occurred, and that release may cause, is causing or has caused an adverse effect.¹¹⁶ An EPO may be issued to the **person responsible for the substance** which means:¹¹⁷

- (i) the owner and a previous owner of the substance or thing,
- (ii) every person who has or has had charge, management or control of the substance or thing, including, without limitation, the manufacture, treatment, sale, handling, use, storage, disposal, transportation, display or method of application of the substance or thing,
- (iii) any successor, assignee, executor, administrator, receiver, receiver-manager or trustee of a person referred to in subclause (i) or (ii), and
- (iv) a person who acts as the principal or agent of a person referred to in subclause (i), (ii) or (iii).

Where there has been a substance release with significant adverse effects, then the EPEA's remediation requirements apply. The goal of remediation is to clean-up any releases at a former well-site in terms of soil and groundwater. Section 117 of the EPEA allows for issuance of a **remediation certificate** to the person responsible for the substance. In order to receive a remediation certificate, the site must be remediated in accordance with the guidelines adopted under the *Remediation Regulation*. These guidelines include the Alberta Tier 1 and Tier 2 Soil and Groundwater Remediation Guidelines.

¹¹⁴ *Ibid.*, s. 21.

¹¹⁵ EPEA, ss. 107 to 122.

¹¹⁶ *Ibid.*, s. 113.

¹¹⁷ *Ibid.*, s. 1(ff).

Once a remediation certificate is issued, then no environmental protection order requiring further work in respect of the same release of the same substance may be issued;¹¹⁸ although an environmental protection order may still be issued in circumstances indicated by regulation (such as presence of substance exceeding guidelines established at the time the certificate was issued).¹¹⁹ The issuance of a remediation certificate does not change the obligation to obtain a reclamation certificate.¹²⁰

Once the GRDA is proclaimed into force, there will be an amendment to the EPEA that expands the definition of well to include geothermal wells.¹²¹ This means lands which contain geothermal wells will be categorized as **specified land** under the *Conservation and Reclamation Regulation* and will be subject to the EPEA's conservation and reclamation requirements.¹²²

The EPEA and the *Conservation and Reclamation Regulation* impose a duty to conserve specified land, to reclaim specified land, and, unless exempted by regulation, to obtain a reclamation certificate on operators.¹²³ The term **operator** is broadly defined and includes the person who conducted the activity, the statutory authorization holder, a working interest participant in certain oil and gas operations, the surface lease holder, the successor/assignee/executor/administrator/receiver/receiver-manager/trustee of the foregoing, or the principal or agent of the foregoing.¹²⁴

Conservation of specified land is defined as the “planning, management and implementation of an activity with the objective of protecting the essential physical, chemical and biological characteristics of the environment against degradation”.¹²⁵

¹¹⁸ *Ibid.*, s. 118.

¹¹⁹ *Remediation Regulation*, s.8.

¹²⁰ EPEA, s. 119.

¹²¹ *Ibid.*, s. 1(aaaa).

¹²² *Conservation and Reclamation Regulation*, s. 2 and EPEA, Part 6.

¹²³ EPEA, s. 137.

¹²⁴ *Ibid.*, s. 134.

¹²⁵ *Ibid.*, s. 1(l).

Reclamation requires removal of equipment, buildings and structures; the decontamination of buildings, structures, land and water; the stabilization, contouring, maintenance, construction and reconstruction of the land surface; and other operations as may be required by regulation.¹²⁶ The goal of reclamation is to return land to an equivalent land capability.¹²⁷ Equivalent land capability means that “the ability of the land to support various land uses after conservation and reclamation is similar to the ability that existed prior to an activity being conducted on the land, but that the individual land uses will not necessarily be identical”.¹²⁸

Once the AER is satisfied that the applicable standards have been achieved, a **reclamation certificate** will be issued to the operator.¹²⁹ For a well-site, once a reclamation certificate has been issued, an environmental protection order cannot be issued more than 25 years after issuance.¹³⁰

In terms of specific AER requirements for geothermal liability, the most relevant part of the *Geothermal Directive* is section 2 which sets out the requirements for license eligibility, holistic licensee assessment, the licensee management program, liability assessment and security deposits. All geothermal licence applications trigger the holistic licensee assessment which is considered in the decision to approve, approve with conditions or deny a licence. As well, the holistic licensee assessment informs the Licensee Management Program which is designed to allow the AER to “proactively monitor licensees to support the responsible management of geothermal development”.¹³¹

In a similar fashion to oil and gas wells, the AER requires geothermal applicants or licensees to provide a liability assessment which is an estimate of total liabilities

¹²⁶ *Ibid.*, s. 1 (ddd).

¹²⁷ *Conservation and Reclamation Regulation*, s. 2.

¹²⁸ *Ibid.*, s. 1 (k).

¹²⁹ EPEA, s. 173 and *Conservation and Reclamation Regulation*.

¹³⁰ *Conservation and Reclamation Regulation*, s. 15.

¹³¹ *Geothermal Directive*, *supra*. note 33, s. 2.9.

associated with geothermal development.¹³² This includes the costs of care and custody, and the costs to permanently end operations including abandonment and reclamation. The AER may require a site-specific assessment in accordance with *Directive 001: Requirements for Site-Specific Liability Assessments in Support of the ERCB's Liability Management Programs*. The *Geothermal Directive* states that the AER “will continually assess the liability holistically to ensure the responsible management by the licensee of their ongoing liability from their collective wells, facilities, pipelines, and sites”.¹³³

In terms of security deposits, the *Geothermal Directive* references the *Geothermal Resources Development Rules* (which have not been released at the time of publication even in draft form) as granting the AER broad authority to require security deposits. The AER will determine the need and amount of security required based upon the holistic licensee assessments. The maximum security amount that can be required is the licensee's total liabilities.

The *Geothermal Directive* sets out the technical requirements for geothermal wells, facilities and pipelines including closure requirements. Inactive wells must meet the requirements set out in the *Geothermal Directive*, as well as *Directive 013: Suspension Requirements for Wells*. Well closure activities include abandonment, remediation and reclamation and must meet the requirements in the *Geothermal Directive* and *Directive 020: Well Abandonment*. Geothermal facilities which are inactive must be suspended, abandoned or reactivated. As appropriate, a suspension plan or closure plan (which addresses abandonment, remediation and reclamation) is required. In addition, closure of all geothermal wells, facilities and pipelines must meet the requirements in the *Conservation and Reclamation Regulation*.

Co-production

In a co-production scenario, the geothermal production would most likely be incidental to the oil and gas operations. In other words, the geothermal production would be

¹³² *Ibid.*, s. 2.10.

¹³³ *Ibid.*, s. 2.10.

designed to use what would otherwise be waste heat associated with the oil and gas operations. This would not be a geothermal well *per se*.

An example of this type of operation is underway as a pilot project (by Razor Energy with the University of Alberta) in Swan Hills, Alberta.¹³⁴ As part of Razor Energy's normal operations, there is a large amount of heat in produced water. As such, this project repurposes an oil and gas battery to capture geothermal heat thereby reducing overall emissions of its oil and gas operations and adding power revenues to Razor Energy (up to 5 MWe).¹³⁵

The *Geothermal Directive* addresses these co-production situations by providing that an OCGA license may be amended to include heating or power generated by geothermal energy for use only within the facility. In that case, a GRDA license is not required (only an amendment to the OGCA license). Given the geothermal aspect of the operations is an adjunct to the oil and gas operations, statutory liability would fall in accordance with provisions under the OGCA and EPEA, as discussed above.

In the case where the geothermal operator is a different party than the oil and gas operator, this might prove a hindrance to geothermal development because it potentially exposes the geothermal operator to liability for the oil and gas operations. While there may be contractual arrangements between the different working interests to apportion potential liability amongst the parties, the AER is not bound to accept the contractual arrangements for apportioning liability. For instance, in considering a proposal by Shell and Pieridae to split regulatory liability for remediation and reclamation for some sour gas facilities, the AER refused the license transfers necessitated to reflect the contractual arrangements on the grounds of public interest.¹³⁶ Thus, contractual arrangements may not be sufficient to insulate such a geothermal operator from liability.

¹³⁴ See Razor Energy press release (June 27, 2019) at <https://static1.squarespace.com/static/5ba9071b9d41490a35a48592/t/5d14d2461d6147000120a106/1561645638862/Razor+Press+Release+Geothermal+Funding.pdf>.

¹³⁵ See project description at <https://www.nrcan.gc.ca/science-and-data/funding-partnerships/funding-opportunities/current-investments/geothermal-energy-co-production-active-oil-and-gas-operation/22151>.

¹³⁶ *Supra*, note 51. See also Shaun Fluker and Nigel Bankes, "AER Refuses Transfer of Foothills Sour Gas Approvals from Shell Canada to Pieridae Energy" (May 15, 2020) ABLawg.

It is recommended that clarity be provided by regulation on apportionment of liability in cases where geothermal operations are undertaken by a party other than the oil and gas operator. In particular, the question of whether such a geothermal operator should be treated the same as the oil and gas operator from a liability perspective needs to be answered. Is it a desirable approach to potentially hold the geothermal operator liable for regulatory obligations, such as remediation and reclamation, directly associated with the oil and gas operations? If the geothermal development has received public funding (such as grants or subsidies), does this change the equation?

Conversion and re-entry of existing oil and gas wells, and conversion of existing oil and gas infrastructure for geothermal resource development

Since the AER may designate an oil and gas well/facility as a well/facility for the purposes of the GRDA and allows reworking and re-entry of wells, this means oil and gas well/facilities may be converted into geothermal wells/facilities. The *Geothermal Directive* addresses conversion of oil and gas wells to geothermal wells in section 3.4.6. If the applicant is the current OGCA licensee, then an amendment application is submitted. If the applicant is not the current OGCA licensee, then the license must first be transferred and then an amendment application made (approval of the transfer does not guarantee approval of the conversion application). Once converted, the GRDA and the *Geothermal Directive* apply.

If further activity is to be conducted at an existing suspended or abandoned wellbore that is referred as re-entry (or resumption if done by the existing licensee). If a person other than the licensee or a person directed by the AER to undertake operations wants to rework a well or facility, the GRDA indicates that they must obtain a licence to undertake operations.¹³⁷ At such time, the former licensee is relieved from all obligations under the Act with respect to the well or facility except for outstanding debts to the AER or to the orphan fund in respect of suspension or abandonment costs.¹³⁸

¹³⁷ GRDA, s. 8.

¹³⁸ *Ibid.*, s. 8.

Neither the GRDA nor the *Geothermal Directive* expressly addresses re-entry of reclaimed and remediated wells (i.e., certificates issued). While there is no explicit reference in the GRDA to liability in the case of re-entry to reclaimed and remediated oil and gas wells/facilities, presumably under section 8(3) of the *Remediation Regulation*, the geothermal operator would be liable for taking remedial action as directed in an EPO. Remedial actions could include undertaking risk management or exposure controls at the site.

If land is not adequately reclaimed, then an EPO may be issued directing that appropriate measures be taken to reclaim the land. Even if a reclamation certificate has been issued, an EPO can be issued to the party that received the reclamation certificate or a successor, assignee, executor, and other positions clearly related to the reclaiming party.

If, in fact, the reclamation efforts were insufficient or have failed, the geothermal operator may still have to deal with land as given and be required to reclaim it to an “equivalent land capability” (as opposed to the condition that the site was actually in when the geothermal operator took over). This means, for example, on a site with former oil and gas operations for which a reclamation certificate was issued and the operator liability period has expired,¹³⁹ the geothermal operator may still be required to reclaim the land to an equivalent land capacity even though there may have been problematic weeds on site at the time the geothermal operator stepped in. The geothermal operator cannot claim sufficient reclamation by returning the land to the state it was in when it began operations (i.e., the degraded state left by the oil and gas operator).

Based on the broad definition of a “person responsible for a substance” found under EPEA, the government historically has been of the view that an EPO may be issued to remediate sites by subsequent owners or occupiers of land (rather than original “polluters”). However, the Alberta Environmental Appeals Board recently limited this view in its decision *Sears Canada Inc. et al.* (although it should be noted that this

¹³⁹ Operator liability after a reclamation certificate has been issued is detailed in section 15 of the Conservation and Reclamation Regulation. For oil and gas wells, operator liability ceases after 5 years for reclamation certificates issued on or before October 1, 2003 and after 25 years for reclamation certificates issued after October 1, 2003.

decision is in no way binding on the AER).¹⁴⁰ The pivotal issue being a matter of who has “charge, management and control” of a substance that may cause an adverse effect. Insofar as geothermal operators are likely to be disturbing some areas of the land, this may result in a taking management and control of contaminating substances.

Once a remediation certificate has been issued, an EPO may be issued to a person who:¹⁴¹

(a) causes a change in the condition of the remediated area or the remediated zone specified in the remediation certificate in such a manner that, in the opinion of the Director or an inspector, the substance present within the remediated zone may cause, is causing or has caused an adverse effect, or

(b) changes the use of the remediated area specified in the remediation certificate in such a manner that, in the opinion of the Director or an inspector, the substance present within the remediated zone may cause, is causing or has caused an adverse effect.

This means if the operations of the geothermal operator undermine risk management or exposure controls at the site the geothermal operator will become liable.

Geothermal wells and infrastructure sharing a surface footprint with oil, gas, or other developments

It is possible that multiple extraction activities will occur on one site – for example, oil and gas/geothermal/solar/wind – in an effort to minimize surface disturbance and footprints. Although it is desirable to reduce surface disturbances and footprints, this has the potential to create significant questions of liability including determining which activity created which liability.

There is nothing in the GRDA, the *Geothermal Directive* or other AER requirements addressing such multiple extraction activities sites. Indeed, not all activities will

¹⁴⁰ *Supra.* note 104.

¹⁴¹ *Remediation Regulation*, s.8(3).

necessarily fall into the AER's scope of authority (e.g., wind and solar power are regulated by the Alberta Utilities Commission). It may be that most of the activities will be subject to the *Conservation and Reclamation Regulation* as it covers a variety of renewable energy activities (but not all), as well as oil and gas activities.

RECOMMENDATIONS

When considering liability issues in geothermal resource development, there are three main areas of concern. Firstly, the liability approach is modeled on OGCA approach which is far from ideal. Secondly, there are concerns around re-entry and conversion of oil and gas wells to geothermal wells in that a geothermal operator may be liable for historic issues created by the oil and gas operator (which deviates from the polluter pays principle). Finally, multiple extraction activities sites may lead to complex problems of apportioning liability.

Concerns with the OGCA Model of Liability

Looking at the GRDA and the *Geothermal Directive*, it apparent that geothermal regulation is modelled on the OGCA. However, the OGCA approach has resulted in numerous legacy and orphan wells leaving a significant liability on the public purse. In practice, the OGCA model does not always align with the polluter pays principle. While changes have been made and will be made to address the shortcoming of the OGCA liability model, it is “patched-up version of the old approach”, there still is no default security, no timelines for closure, no protection against oil-price crashes, debt calls by creditors and attempts to enforce come too late (i.e.when there are financial red flags).¹⁴² Furthermore, consistent ongoing monitoring of the financial health of every

¹⁴² Shaun Fluker and Drew Yewchuk, *The AER is Seeking Public Input on its Proposed Regulatory Solution for the Growing Orphan Well and Other Unfunded Liabilities Problem in Alberta's Oil and Gas Sector* ((February 10, 2021) available on ABlawg.ca <https://ablawg.ca/2021/02/10/the-aer-is-seeking-public-input-on-its-proposed-regulatory-solution-for-the-growing-orphan-well-and-other-unfunded-liabilities-problem-in-albertas-oil-and-gas-sector/>).

AER licensee is a tremendous undertaking which requires dedication of expertise and funding which the AER may not actually possess.¹⁴³

It is extremely concerning that the same mistakes are being embraced for geothermal resource development.

There needs to be mechanisms in place to closely monitor existing legacy and post-closure sites to ensure they are not causing negative environmental impacts. Further, we need to take clear steps to prevent future orphans and legacy sites. Good first steps are (1) legislated timelines for abandonment, reclamation and remediation and (2) upfront payment of security to cover clean-up costs. Ultimately, an approach which is predictable and relatively administratively simple; doesn't allow wells to languish without clean-up; and adheres to the polluter pays principle is needed.

The Need for a Pre-Transfer Site Assessment Process

If the policy is to encourage the re-entry and conversion/reworking of wells to address the backlog of suspended and abandoned oil and gas wells on the landscape and to secure a renewable, low impact energy resource, then simply transferring liability to the geothermal operator may not be desirable as this might cause a geothermal operator to be liable for damages associated with the past oil and gas operations. On the other hand, a geothermal operator will be disturbing the suspended or abandoned well in a manner unconnected to the actions of the past oil and gas operator. Further, there should be assurances in place to ensure that liabilities do not fall on the public purse.

We recommend that a pre-transfer inspection and assessment process be implemented prior to conversion of oil and gas into geothermal wells (as part of the transfer process regulated by the AER). This process would apply regardless of whether the well was in a pre-abandonment, abandoned, reclaimed, or remediated stage. The object of the process would be to provide a snapshot of the condition of the well, the subsurface, and the surface. This would bring issues to the forefront which must be resolved by the oil and gas operator.

¹⁴³ *Ibid.*

If there are outstanding issues, the oil and gas operator would be required to resolve the issue. For instance, in the case of incomplete or failed remediation efforts, then the oil and gas operator may be required to obtain a (or even another) remediation certificate.

The results of the pre-transfer inspection and assessment process would also provide some evidence as to which operator – the oil and gas operator or the geothermal operator – caused the issues requiring reclamation, remediation or otherwise to assist with apportioning liability that might arise in the future.

However, it must be kept in mind that geothermal operations can have significantly long life cycles (upwards of 80 years) which may outlive the oil and gas operator existing at the time of transfer. In this case, provision of security sufficient to address issues apparent at transfer but not suitable for resolution until certain stages of geothermal activities are completed, should be required.

Geothermal wells and infrastructure sharing a surface footprint with oil, gas, or other developments

If the approach of multiple extraction activities is to be adopted, then these sites should be addressed as a whole to properly assess and review cumulative impacts of the entire development (not on a disparate, project by project). This will require development of joint processes between the AER and other regulatory bodies such as the Alberta Utilities Commission. Furthermore, specific attention to liability apportionment, clean-up timelines and security requirements will be needed.