

Liability Management of (Non-Oil Sands) Oil and Gas Infrastructure

Alberta Energy Regulator

Report of the Auditor General
March 2023



**Auditor
General**
OF ALBERTA

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Related Reports:

- AER Pipeline Safety and Reliability in Alberta ([March 2015](#) / [AOI Nov. 2021](#))
- Sufficient Financial Security for Land Disturbances from Mining ([July 2015](#) / [Followup Nov. 2019](#) / [Progress report June 2021](#))
- Processes to Provide Information About Government's Environmental Liabilities ([June 2021](#))
- Energy—Site Rehabilitation Program ([March 2022](#))

Appointed under Alberta's *Auditor General Act*, the Auditor General is the legislated auditor of every provincial ministry, department, and most provincial agencies, boards, commissions, and regulated funds. The audits conducted by the Office of the Auditor General report on how government is managing its responsibilities and the province's resources. Through our audit reports, we provide independent assurance to the 87 Members of the Legislative Assembly of Alberta, and the people of Alberta, that public money is properly accounted for and provides value.

Summary

The principle: polluter pays

Oil and gas activities are important economic drivers in Alberta. Albertans expect that where oil and gas development has occurred, the land is properly cared for, cleaned up and restored. In the 1980s, the Alberta government established a liability management system with the stated intention of achieving the economic-environmental balance Albertans seek. Alberta's liability management system is based on the "polluter pays" principle that if energy companies (licensees) are going to profit from Alberta's resources, they must safely close (abandon, remediate, and reclaim) their wells, pipelines, and facilities once they are finished with them. In upholding this principle, Albertans are to be shielded from having to cover the costs of these closure obligations and be sufficiently protected from health and safety risks and environmental harm.

The key parties

The Alberta Energy Regulator (**AER**), a provincial government agency, is responsible for implementing and operating the liability management system. The departments of Energy and Environment and Protected Areas set overall policy direction for liability management. Another key player in the system is the Orphan Well Association (**OWA**), an independent, non-profit organization funded by an industry levy and responsible to close wells, facilities, and pipelines without a solvent owner. Oil and gas companies are responsible for ensuring their infrastructure is safely closed and cleaned up.

The weaknesses in the current liability management system

Economic and energy price volatility, a maturing energy industry, and growing concern over environmental liabilities have exposed weaknesses and gaps in the liability management system. Since the start of a liability management system in Alberta, the number of inactive oil and gas sites has steadily climbed, and in recent years, the number of "orphan" wells transferred to OWA has increased.

The growing liability for cleaning up

Excluding oil sands, recent AER estimates of industry's inactive closure liability—the estimated costs to do the necessary closure work—is about \$11.3 billion.¹ Given the amount and cost of work to be done, Albertans face increasing environmental concerns along with the risk that some of industry's large and growing liability for closing inactive wells could shift to taxpayers.

Three main problems with the current liability management system

In response to growing industry liability management risks and stakeholder concerns, AER completed a comprehensive risk analysis of its liability management system in 2019 that highlighted three main issues:

- lack of prompt closure of inactive oil and gas sites
- unfunded liabilities such as legacy sites where there is no owner or industry funded backstop
- inadequate collection of security from operators to ensure they can meet their obligations when projects end

Our examination found that the key issues identified by AER were well-supported. And the results of the analysis formed the basis for the new liability management framework announced in 2020.

¹ The \$11.3 billion figure is from June 2022 and does not include inactive pipeline liabilities. Total closure liability, including both inactive and active, AER estimated to range up to \$60 billion.

Government created a new liability management framework

Informed by AER's risk analysis, in July 2020 the provincial government announced a new liability management framework² (the **framework**). The objective is to shrink the inventory of inactive wells across the province, ensure faster restoration of land, and protect future generations from facing a backlog of sites needing cleanup. AER is now implementing the framework and as of mid-2022, it continues to design and implement new programs and processes based on it. Key parts of AER's liability management system are in transition—and they will be for a few years.

Our two audit objectives

To accommodate this changing landscape, our two audit objectives were to assess:

- whether AER has an effective liability management system to mitigate the risks associated with the closure of oil³ and gas infrastructure
- whether AER's analysis of the oil and gas liability management system appropriately identified risks and gaps and whether AER prepared an implementation plan to effectively mitigate those risks and gaps in the design of its system changes

The six areas of our report

Our report examines six key areas of AER's liability management system: Risk Management, Performance Measurement and Public Accountability, AER's Processes to Assess Information From the Orphan Well Association (OWA), Timely Closure of Inactive Sites, Financial Security and Licence Transfers, and Regulatory Compliance of Closure Activities.

Section 1, risk management—discusses AER's 2019 comprehensive risk analysis of the liability management system. The analysis focused on three fundamental points: the lack of timely closure of inactive sites, unfunded liabilities with no financial backstop (such as legacy sites), and inadequate security collection.

AER has been methodically rolling out key parts of the new framework. But it must still decide how the framework will deal with two of the three fundamental issues—legacy sites and financial security.

The new Inventory Reduction Program (the **program**) sets annual industry spending targets. It aims to increase timeliness and reduce inactive sites over time (discussed in section 4).

AER must also decide how the framework will treat pipeline closure liabilities. They were largely excluded from the previous liability management system.

Section 2, performance management and public accountability—focuses on the extent and effectiveness of performance measurement and public accountability for the liability management system. Public reporting and external performance measurement to assess the system have been insufficient. AER has been working to improve this area with the new framework. AER should improve how and what it communicates on closure liabilities—for example, the need for complete, regular and up-to-date information that better informs Albertans of the various liabilities and how AER has managed its programs.

Section 3, assessing information from OWA—examines AER's processes to assess information from OWA, which uses the Orphan Fund⁴ to close inactive sites where no operator exists. AER had not scrutinized the annual orphan levy or assessed the longer-term sustainability of the Orphan Fund. Improvements in these processes began in 2022.

Section 4, timely closure of inactive sites—looks at AER's processes to ensure inactive sites are closed promptly. This was one of the three key issues AER identified in its 2019 risk analysis. The framework did not introduce any timelines for operators' closure activities. To encourage more closure activity and timeliness, AER implemented the Inventory Reduction Program. It requires operators to meet minimum spend requirements. But the program is new, so it is too early to tell if sites are being closed faster. That increases the importance of performance measurement. Another risk is the likelihood that operators focus on lower-risk sites but still achieve spend targets.

² <https://www.alberta.ca/assets/documents/energy-liability-management-framework.pdf>

³ Excludes oil sands.

⁴ The *Oil and Gas Conservation Act* established the Orphan Fund that is retained and administered by the regulator (AER). The *Act* prescribes how the Fund should be used.

Section 5, financial security and licence transfers—examines the processes to ensure sufficient financial security and to minimize the risk of inappropriate licence transfers. The previous financial security system was inherently flawed and did not meet its objectives. As part of the new framework, AER is collecting more operator information to better evaluate risk. And AER is determining a future approach to financial security. For the licence transfer process, AER has made several important improvements over the last few years. Our report highlights some further areas for improvement, like ensuring sufficient monitoring that licensees are meeting conditions of their licence transfer.

Section 6, regulatory compliance of closure activities—focuses on the regulatory compliance processes to ensure that closure activities comply with laws and rules. Broadly speaking, processes exist at AER to inspect sites and identify non-compliance with closure regulation; however, there are important areas for improvement. Certain assurance activities are not taking place, like well suspensions and routine well abandonments, and consistent review of operator remedial action plans to deal with contamination. As AER has increasingly automated its approval process for reclamation certificates, improvements to its system are needed to ensure that those approvals are consistently valid.

Our conclusion

We conclude that AER had liability management processes in place during the audit period, but not all those processes were well designed and effectively mitigating risks associated with closure of oil and gas infrastructure.

We also conclude that AER appropriately analyzed and identified existing risks and gaps of the liability management system and prepared a plan to respond to them. AER is implementing processes and programs under the new framework that were in the design and implementation phase during the audit. So we could not examine their effectiveness. AER has work remaining to design and implement a system responsive to the full spectrum of risks that historically impaired the performance and intended outcomes of the previous liability management system.

Our recommendations

We make nine recommendations for AER to improve its processes for collecting sufficient security, ensuring compliance with closure requirements, ensuring timely closure activity, reducing industry's growing liability for inactive sites, assessing information from OWA, and processing licence transfer applications. We also recommend AER improve its performance measurement processes and public reporting, along with its Enterprise Risk Management (**ERM**) program.

Objective, Criteria, Key Findings and Recommendations

Audit objective 1:

To assess whether AER has an effective liability management system to mitigate the risks associated with the closure of oil and gas infrastructure.

Audit objective 2:

To assess whether AER's analysis of the oil and gas liability management system appropriately identified risks and gaps and whether AER prepared an implementation plan to effectively mitigate those risks and gaps in the design of its system changes.

Risk Management and the New Liability Management Framework

Criterion 1:

AER should have an effective risk management system for liability management programs.

Criterion 2:

AER should have a process to identify risks and gaps in its oil and gas liability management programs and have a plan for how the risks and gaps will be mitigated as AER continues to implement the new liability management framework.

Key findings:

- AER completed a risk analysis of liability management and potential actions within the new framework.
- Future performance measurement and upcoming decisions will be critical to demonstrate whether objectives in the new framework are being achieved.
- Additional gaps identified by AER, like exclusion of pipeline liabilities, were not dealt with directly in the new framework.
- AER's enterprise risk management system is under development, but not yet fully functional.

Recommendation 1:

- We recommend that the Alberta Energy Regulator ensure that liability management risks and gaps are periodically identified, that risk responses are documented, and residual risk is determined.

Goals, Performance Measurement and Public Accountability

Criterion 3:

AER should have clearly defined roles and responsibilities for liability management programs.

Criterion 4:

AER should have processes to evaluate and report whether liability management programs are effectively meeting their objectives.

Key findings:

- Roles and responsibilities for liability management are clearly defined.
- Public reporting and external performance measurement on liability management are insufficient to assess whether results are being achieved and risks are being effectively managed.
- AER has an industry-wide closure liability estimate but does not regularly update it or communicate it to Albertans.

Recommendation 2:

We recommend that the Alberta Energy Regulator improve its accountability processes by:

- developing relevant external performance measures, including targets, to ensure that Albertans can gauge whether AER's liability management programs are meeting objectives and whether progress is being made
- periodically updating and publicly communicating an industry-wide active and inactive liability estimate using best available data, with accompanying explanation of the risks associated with that liability
- reporting more complete, integrated and useful information on liability management to provide a more complete picture of risks and the actions taken to mitigate those risks

Processes to Assess Information From the Orphan Well Association (OWA)

Criterion 5

AER should have processes to demonstrate OWA's operations are meeting intended objectives, including ensuring sustainability of the Orphan Fund to meet the demands of oil and gas site closure costs.

Key findings:

- AER is receiving information from the OWA; however, the purpose of and approach to information reviewed is unclear.
- Before 2022, AER did not scrutinize the orphan levy proposed by the OWA and did not analyze the longer-term sustainability of the Orphan Fund. In 2022, AER began implementing a process to review the levy and sustainability.
- The risks to the "polluter pays" principle have increased in recent years.

Recommendation 3:

We recommend that the Alberta Energy Regulator:

- collect information that allows AER to assess whether the OWA is achieving intended objectives and to assess the long-term sustainability of the Orphan Fund
- assess sustainability by completing modelling on how long it will take OWA to complete closure work on its current inventory of sites and anticipated funding levels

Processes to Ensure Timely Closure of Inactive Sites

Criterion 6:

AER should have processes to ensure the timely suspension, abandonment, remediation and reclamation of oil and gas sites by operators.

Key findings:

- There are no timelines for other closure activities like abandonment or reclamation, other than a timeline to suspend inactive sites.
- While inactive well sites have grown, abandonment work has remained flat, and licensees have focused more on low-risk and lower-cost sites.
- AER's new Inventory Reduction Program establishes targets for closure spending; however, whether the program encourages more timely closure is something AER will have to evaluate over time.

Recommendation 4:

- We recommend that the Alberta Energy Regulator ensures compliance with the Inventory Reduction Program by monitoring, measuring, taking corrective action and reporting on industry and licensee closure progress under the Inventory Reduction Program.

Processes to Ensure Sufficient Financial Security and Minimize Risk of Inappropriate Licence Transfers

Criterion 7:

AER should have processes to ensure its security collection programs are designed to meet objectives and operate as intended.

Criterion 8:

AER should have processes to ensure that licence transfers are being approved only when operators can fulfill closure obligations.

Key findings:

Security

- The Licensee Liability Rating Program, which has historically failed to properly identify financial risks and to ensure sufficient security is collected, remains in place while AER determines a future approach to security.
- Under the new framework, AER is collecting more operator information to better evaluate risk; however, future changes to the security system have not yet been decided.

Licence Transfers

- AER made improvements to its licence transfer review process after post-transfer bankruptcies increased.
- AER's licence transfer process lacks sufficient monitoring of licensee conditions.
- Risks remain where licences can be exchanged outside of AER's licence transfer application process via certain corporate transactions.

Recommendation 5:

We recommend that the Alberta Energy Regulator determine how much security needs to be collected, when it will be collected, and how collection will get enforced with the transition away from the Licensee Liability Rating Program.

Recommendation 6:

We recommend that the Alberta Energy Regulator continue to improve its licence transfer processes by:

- updating AER's delegation of authority to clearly articulate who can approve discretion requests, and under what circumstances
- developing a system to track, monitor and report on the effectiveness of discretion requests, including transfer conditions and licensee commitments

Processes to Ensure Oil and Gas Site Closure Regulatory Compliance (Suspension, Abandonment, Remediation, Reclamation)

Criterion 9:

AER should have processes to ensure licensees comply with legislation for industry to manage risks for suspended, abandoned, remediated, and reclaimed sites.

Key findings:

Suspension

- AER has not completed well-suspension compliance assurance activities for the past three years.
- In 2015, AER implemented a five-year program that resulted in 27,000 wells being brought into compliance; however, about 17,000 wells remain non-compliant.

Abandonment (Decommissioning)

- AER completes proactive inspections on abandoned wells; however, there is no assurance process to ensure routine abandonments are complying with directives.
- Inspections of inactive facilities are occurring. With less than three per cent of inactive facilities currently reclaimed, the number of inspections is considerable.
- Requirements exist for measuring fugitive greenhouse gas emissions from active wells; however, no similar requirements exist for inactive wells.

Reclamation

- AER has increasingly automated its approval process for reclamation certificates, but improvements are needed to ensure approvals are consistently valid.
- Manual reviews for reclamation certification are occurring; however, improvements are needed to ensure judgments and reviews are properly evidenced.
- AER lacks processes to ensure third-party professional declarations meet requirements.
- AER audits reclamation post-certification; however, the process has been inconsistent and there is a 16 per cent rate of non-compliance.

Remediation

- AER did not consistently complete reviews of remedial action plans.

Recommendation 7:

We recommend that the Alberta Energy Regulator evaluate compliance assurance activities for suspended wells and routine abandonments and determine whether it is meeting AER's risk tolerance.

Recommendation 8:

We recommend that the Alberta Energy Regulator:

- improve the controls resulting in invalid approvals for reclamation certificate approvals
- retain documented evidence to support justifications and reviews as part of its manual reclamation certification process
- determine the necessary level of assurance work on post-reclamation certification and consistently complete it

Recommendation 9:

We recommend that the Alberta Energy Regulator ensure there is evidence of review of remedial action plans and demonstrate that timelines for remediation are being consistently monitored and followed up.

Glossary

Abandoned well	○---	An abandoned well is one that has been permanently sealed and taken out of service. An abandoned and reclaimed well is one that received a reclamation certificate.
Closure	○---	Means the phase of the energy resource development life cycle that involves the permanent end of operations, and includes the abandonment and reclamation of wells, well sites, facilities, facility sites, and pipelines.
Closure liability	○---	The costs associated with this closure work—also known as end-of-life obligations—are what is called closure “liability.”
Directives	○---	Directives are issued by AER and contain requirements and processes that energy companies operating in Alberta must follow.
Financial security	○---	AER has the authority through the <i>Oil and Gas Conservation Rules</i> to require security deposits throughout the energy development life cycle. The maximum amount of security that may be required is the licensee’s total liabilities, including the cost of providing care and custody and the cost to permanently end operations, which includes abandonment and reclamation of the site.
Inactive sites	○---	Energy facilities not active in production. For example, an inactive well is one that has not produced oil or gas, injected fluids, or disposed of waste for six or 12 months, depending on the type of well and its potential risks to the public or environment.
Legacy sites	○---	Sites where operations occurred prior to current environmental legislation and date back decades, operators no longer exist and there is no financial security or back stop (like the Orphan Fund) for these sites.
Liability management	○---	A system that comprises programs and processes to ensure licensed operators meet their regulatory responsibilities to safely close oil and gas sites. Liability management in the oil and gas sector aims to reduce the number of inactive sites (wells, facilities, and pipelines) over time.
Licensee	○---	Holder of a licence issued by AER to perform energy activities.
Licence transfer	○---	The transfer of AER-licensed wells, facilities, and pipelines between companies.
Operator	○---	Includes approval holder, disposition holder, operator, licensee, working interest participants or responsible party.
Orphan Fund	○---	The Orphan Fund was established under section 69 of the <i>Oil and Gas Conservation Act</i> (OGCA). The fund is retained and administered by AER. The fund is used to pay for the maintenance and cleanup of designated orphans (OGCA, section 70) and to pay the share of the insolvent operators’ cleanup costs for assets where there are other working interest participants that remain solvent (OGCA, section 71).

Orphan levy	○ - - -	Industry operators in Alberta pay this levy to the Orphan Fund. The levy pays for project closure costs, including suspension, abandonment, remediation and reclamation, if an energy company cannot meet its obligations to safely and responsibly close its energy project. The Orphan Well Association is a recipient of this levy through the Orphan Fund.
Orphan Well Association	○ - - -	An independent non-profit organization that operates under the delegated legal authority of AER to safely decommission orphan oil and gas wells, pipelines and production facilities, and restore the land as close to its original state as possible. The Orphan Well Association manages the abandonment of upstream oil and gas wells, pipelines, facilities, and the remediation and reclamation of their associated sites licensed to defunct operators. As a non-profit, the association is funded by an annual orphan fund levy paid by industry based on a calculation of their share of industry liability.
Orphaned site	○ - - -	When an energy company ceases its operations without having properly closed its infrastructure, AER will order anyone with a legal or beneficial interest in that infrastructure to close it. If there is no legally responsible party, AER may designate the well, facility, or pipeline as an orphan to the OWA's care to be suspended, abandoned, remediated, and reclaimed.
Polluter pays principle	○ - - -	The operator or polluter who damaged the environment must pay the cleanup costs, subject to certain exceptions, so the public is not burdened with costs.
Reclamation	○ - - -	Restore land to an equivalent land capability to use for commercial, industrial, agriculture or residential.
Reclamation certificate	○ - - -	A certificate issued by AER that signifies where land has been fully reclaimed to the applicable standards. Reclamation is a legal requirement of the <i>Environmental Protection and Enhancement Act</i> . A company can apply for a reclamation certificate when it can demonstrate to AER that the site is functioning similarly to how it did before it was disturbed, and no longer needs intervention. A reclamation certificate can be revoked by AER.
Remediation	○ - - -	Reducing, removing or destroying substances in soil, water or ground water through the application of physical, chemical or biological processes.
Sites	○ - - -	Refers to sites such as oil and gas wells and facilities, pipelines that form part of the energy infrastructure.

Background

Oil and Gas Activity in Alberta

Importance of energy industry and need to balance economic benefits and environment

Alberta has significant oil and gas reserves and is currently economically dependent on energy resource development. Energy development has risks and the potential to negatively affect the lives of Albertans, like hazards to public safety, harm to environment and the risk of imposing financial costs on the public to fix problems left by negligent and defunct operators. Albertans depend on an effective regulatory system to inspire trust and confidence that a proper balance between multiple interests and economic development is achieved.

Oil and gas infrastructure in Alberta

Outside the oil sands and coal mining sectors, various infrastructure is necessary to produce oil and gas, including wells, processing and storage facilities, and pipelines. Wells to produce oil and gas represent the most significant part of conventional oil and gas infrastructure. There are also facilities across the province and a vast network of pipelines. Oil and gas pipelines that cross provincial and international boundaries are regulated by the Canada Energy Regulator, a federal agency.

Oil and gas development life cycle

Oil and gas development goes through a life cycle from initiation to closure.

Initiate: When a company decides to start an oil and gas development project (for example, a well, a pipeline, or another facility), it must plan the project, engage stakeholders and obtain the regulator’s (AER) approval and receive a licence before any development can happen.

Construct: If a company receives AER’s approval, it can begin constructing the project. This stage is when the company builds infrastructure to extract resources and includes drilling wells and building pipelines and facilities.

Operate: Once oil and gas infrastructure is built, a company can start to extract the resource. This is known as “ongoing production” or “operations.” If productive activities cease for a period of time, suspension activities are required whether there are plans to reactivate or move to closure:

- **Suspension:** The process of maintaining the integrity of the infrastructure while it is inactive. Infrastructure is considered “inactive” after six to 12 months after it is not being used.

Activity and Infrastructure	Facility Counts and Number of Licensees (August 31, 2022)	Inactive Infrastructure (August 31, 2022)
Oil Facilities	28,000	12,000 sites
Gas Facilities	19,000	10,000 sites
Operating Wells	156,000	89,000 sites
Pipelines	442,000 km	76,000 km
Number of Licensees	~700	-

Closure: At the end of productive life, energy infrastructure must be permanently and safely closed. This stage includes suspending production, abandonment (also known as decommissioning), and remediation and reclamation:

- **Abandonment:** the process of leaving infrastructure in a safe and secure condition and can include permanently dismantling infrastructure where required, cutting and capping a well, or purging and isolation of pipelines
- **Remediation:** the process of cleaning up a contaminated site to meet specific environmental standards. Remediation efforts are also expected throughout the development life cycle.
- **Reclamation:** the process of replacing soil and re-establishing vegetation on a site so it can support activities like those it could have supported before it was disturbed

Risks Associated with Oil and Gas Infrastructure in the Closure Phase

Oil and gas infrastructure that is not promptly and properly cleaned up can impose several different risks to Albertans:

- **Human health**—oil and gas infrastructure that is not properly maintained or closed may leak contaminants that are harmful to human health. Potential contaminants include methane, brine, chemicals, heavy metals and naturally occurring radioactive substances.
- **Environment**—the air, ground water, surface water, and soil are all vulnerable to improper closure activities. Methane leaking from old wells is also a source of greenhouse gas emissions.
- **Economy**—economic risks associated with inactive oil and gas infrastructure can include licensees shifting costs to other industry participants, shifting costs to taxpayers and negative impacts to land use and values.
- **Reputation**—environmental stewardship expectations are growing for companies and governments. Proper cleanup is an important part of proving environmental standards are being met.

Liability Management in Alberta

Liability management is a system that includes programs and processes to ensure licensees meet their regulatory responsibilities to safely close their oil and gas sites. The system includes understanding the risks, analyzing licensee financial and operational capabilities, holding licensees accountable for proper closure work, ensuring sufficient financial security to manage risk, and evaluating and reporting on the results of liability management efforts.

Energy companies apply for a licence from AER to operate in Alberta. This licence carries a responsibility for licensees to ensure their infrastructure and sites are safely closed and cleaned up. The costs associated with this closure work—also known as end-of-life or closure obligations—are what is called “closure liability” for the purposes of this report.

Industry is expected to uphold the “polluter pays” principle, the philosophy that underpins laws and regulations related to environmental liabilities from industrial development. Under the “polluter pays” principle, the industry operator or the polluter must cover the costs of environmental cleanup, so the public is not burdened with the cost.

An important court decision in 2019 known as the Redwater Supreme Court decision⁵ reaffirmed the duty that companies must meet their legislative responsibilities for closure obligations before receivers and trustees can lay claim to assets in the event of insolvency proceedings. This decision significantly strengthened AER’s authority to hold licensees accountable for their closure obligations.

Roles and Responsibilities of Key Players in Liability Management

The success of liability management is dependent on responsibilities and accountabilities shared among multiple stakeholders including government, AER, operators, and the industry-funded Orphan Well Association. Laws and regulations exist that differentiate the roles and responsibilities between the government, agencies, and industry participants.

⁵ Based on the decision of the Supreme Court of Canada in *Orphan Well Association v. Grant Thornton Ltd.*, 2019 SCC 5 (a.k.a. Redwater). Redwater pertained to a constitutional challenge for aspects of Alberta’s liability management regulatory framework based on the argument that certain federal bankruptcy laws conflicted with Alberta’s framework and, pursuant to the doctrine of federal paramountcy, the federal laws were paramount to provincial environmental legislation. The majority of the Court held there was no conflict between federal and provincial laws in the circumstances. The regulator was not asserting any provable claim in bankruptcy but instead seeking to compel the trustee of the bankrupt estate to comply with environmental orders. The majority of the Court held that bankruptcy did not allow a licensee to ignore rules during the bankruptcy proceedings. Accordingly, the regulator was granted an order for proceeds from the sale of assets to be used to address end-of-life obligations.

The Alberta Energy Regulator

The *Responsible Energy Development Act* (REDA) together with the *Oil and Gas Conservation Act*, *Environmental Protection and Enhancement Act*, *Public Lands Act*, *Water Act* and part 8 of the *Mines and Minerals Act* sets out AER's legislated responsibilities for oil and gas development. AER is responsible for providing the efficient, safe, orderly and environmentally responsible development of energy resources in Alberta through its regulatory activities. In the context of liability management, this includes implementing policy, monitoring progress, and providing enforcement when needed.

AER has various systems and tools to carry out its mandate, exercise its authority and regulate activities. It uses manuals, directives, rules, and compliance processes and enforcement programs in performing its role. It employs practices such as issuing notices of non-compliance, warnings, orders, administrative sanctions, fees, administrative penalties, prosecution, and preparing declarations of named individuals disclosed on AER's website.

The departments of Energy and Environment and Protected Areas

Alberta Energy and Alberta Environment and Protected Areas set the overall policy for Alberta's liability management programs. Alberta Environment and Protected Areas implements provincial policies and sets standards for how the land is used and once any development occurs, how it is remediated and reclaimed.

The ministers of Energy and Environment and Protected Areas are responsible for working with AER to set its long-term objectives and its short-term targets and advise AER of any government policies applicable to AER or its activities or operations.

The Orphan Well Association (OWA)

OWA is an independent, industry-funded, non-profit organization that operates under delegated legal authority.⁶ OWA is overseen by an independent board of directors with industry, AER and government representatives (one voting member from AER and one non-voting member from Alberta Environment and Protected Areas). OWA's mandate is to close wells, facilities and pipelines that do not have a solvent owner and to remove the potential risk of unfunded liability for Albertans. When a company goes insolvent and there are no other viable responsible parties, the sites become "orphaned," and they may be transferred to the OWA for closure work. Recently enacted legislation under the *Liability Management Statutes Amendment Act*⁷ granted OWA expanded powers to expedite cleanup of sites and ensure that economic assets are not prematurely abandoned. OWA is funded by industry through a regular levy which is collected by AER and held in the Orphan Fund.⁸ Our Office is not the statutory auditor of the OWA, and this organization was not the subject for this audit. However, we have referenced it where appropriate as it is not possible to assess the systems of AER without consideration of AER's processes to assess information from OWA.

Oil and gas companies (licensees)

Oil and gas companies (licensees) in Alberta are responsible for ensuring their infrastructure and sites are safely closed and cleaned up. This includes complying with relevant laws, regulations, and AER directives. Licensees are also responsible for paying a levy to OWA.

⁶ The *Orphan Fund Delegated Administration Regulation* (OFDAR) delegates the powers, duties, and functions of managing the abandonment and reclamation of orphan wells, pipelines, and facilities from AER to the OWA.

⁷ Legislative changes to augment the OWA's authority were provided through Bill 12: *Liability Management Statutes Amendment Act*, 2020 passed on April 3, 2020, and OFDAR was proclaimed on June 15, 2020.

⁸ The Orphan Fund is a fund retained and administered by AER. AER collects the Orphan Fund Levy and the Large Facility Program Orphan Levy, and transfers the funds to the Orphan Well Association through the Orphan Fund. AER also transfers funds for first time licensee application fees, including regulator directed transfer fees, and forfeited security deposits through the Orphan Fund.

AER's Liability Management System and its Challenges

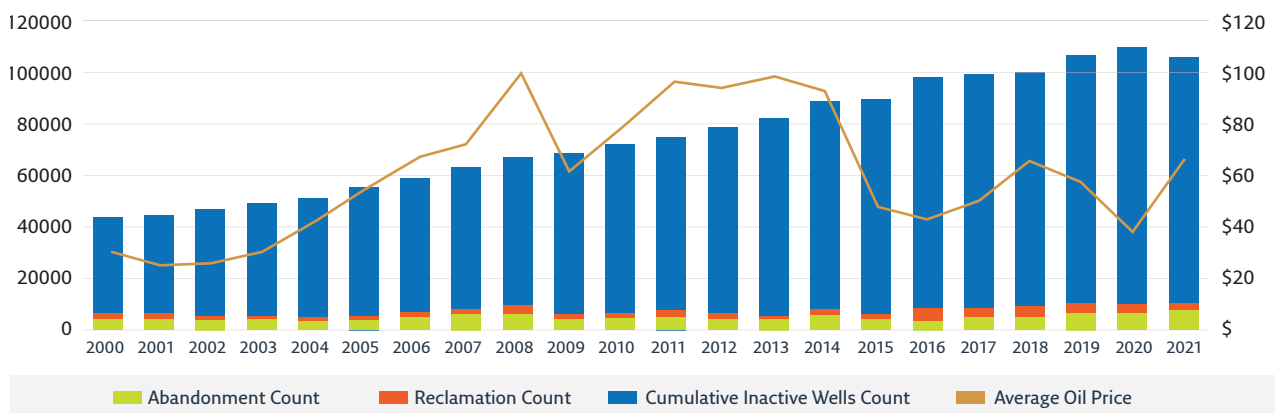
Liability management in Alberta is not a new concept and is part of the life cycle of an energy project. The provincial government has been operating a liability management system since the early 1980s when the Energy Resources Conservation Board (ERCB) began to be concerned about the number of inactive wells and orphaned wells in the province.

This liability management issue has been long standing and historic attempts to manage it have had limited success. Over many years, statistics from AER show closure work has not kept pace with the steady growth of the number of inactive wells. While economic and oil and gas industry downturns were a key factor in delaying closure at times, even during times of prosperity, the amount of closure work has

often lagged inactive well growth. Even when oil prices are relatively high, the inactive well count continued to climb and annual abandonment and reclamation work did not correlate with higher prices.

AER acknowledges the significant liability management challenge, the historically reactive approach, and the need for system improvements. Our engagement sessions with a wide group of stakeholders confirmed many long-standing issues and risks associated with the liability management systems. They include the lack of timely closure, proper closure, inadequate security collection, appropriateness of certain licence transfers and sustainability of OWA.

Closure Activity and Growth of Inactive Wells with Oil Price



Liability Management Framework Announced July 2020

In response to the liability management issues described above, the provincial government announced a liability management framework in July 2020 and directed AER to develop new programs to implement the policy. The framework is intended to shift the system to actively manage liabilities

throughout the entire development life cycle and acknowledge the maturation of the oil and gas sector. The aim of the framework is “to shrink the inventory of inactive and orphaned sites in the province, ensure more timely restoration of land to its original state, and protect future generations from experiencing a backlog of sites needing clean-up.”⁹ AER is currently implementing the framework.

⁹ www.alberta.ca/assets/documents/energy-liability-management-framework.pdf

About This Audit

Objective and Scope

For this audit, we had two audit objectives focused on the AER's oil and gas activities excluding oil sands and coal mining sectors:

1. to assess whether AER has an effective liability management system to mitigate the risks associated with the closure of oil and gas infrastructure
2. to assess whether AER's analysis of the oil and gas liability management system appropriately identified risks and gaps and whether AER prepared an implementation plan to effectively mitigate those risks and gaps in the design of its system changes

Our first audit objective covered the period from August 2018 to June 2022. For the second objective, our period covered from September 2020 to June 2022.

Our audit focused on AER's liability management processes including AER's processes to assess information from OWA. Our audit did not include the liability management systems related to oil sands and coal mining as there are distinct programs and processes in those areas.

At the time of writing, we understand that a potential pilot program to incentivize reclamation of certain inactive oil and natural gas sites is being explored. At the time of our audit, this program was not being implemented nor was it included in the new framework; thus, it is outside the scope and timing of this audit.

Criteria

To conclude on the objectives, we established the following criteria. AER should have:

1. an effective risk management system for liability management programs
2. a process to identify risks and gaps in its oil and gas liability management programs and have a plan for how the risks and gaps will be mitigated as AER continues to implement the new liability management framework
3. clearly defined roles and responsibilities for liability management programs
4. processes to evaluate and report whether liability management programs are effectively meeting their objectives
5. processes to demonstrate OWA's operations are meeting intended objectives, including ensuring sustainability of the Orphan Fund to meet the demands of oil and gas site closure costs
6. processes to ensure the timely suspension, abandonment, remediation and reclamation of oil and gas sites by operators
7. processes to ensure its security collection programs are designed to meet objectives and operate as intended
8. processes to ensure that licence transfers are being approved only when operators can fulfill closure obligations
9. processes to ensure licensees comply with legislation for industry to manage risks for suspended, abandoned, remediated, and reclaimed sites

Management of Alberta Energy Regulator acknowledged the suitability of the audit criteria.

What We Examined

We used the following methods to gather evidence and complete our work:

- examined relevant legislation that governs liability management activities, closure requirements and infrastructure integrity
- interviewed key staff involved in the liability management programs, executive level management, subject matter experts, and support staff
- reviewed policies, procedures, information systems controls and other documentation of AER for supporting evidence of control design
- examined records and historical information, including analysis of data (data analytics) to examine relationships and transactions
- assessed compliance and monitoring processes by examination of samples of inactive, abandoned, remediated and reclaimed sites
- completed site visits by accompanying AER staff
- interviewed other third parties including external stakeholders impacted by the systems—including academics, advocacy groups, professional associations, oil and gas companies, regulators from different jurisdictions, landowners, community members, and municipalities representatives
- tested relevant controls

Conclusion

We conclude—based on our audit criteria and findings—AER has a system to mitigate the risks for the closure of oil and gas infrastructure; however, parts of the system have not operated effectively.

Specifically, we found criteria were not fully met in the following areas:

- risk management practices
- goals, performance measurement and public accountability
- assessing information from OWA
- timely closure of inactive sites
- collecting sufficient financial security and minimizing risk of inappropriate licence transfers
- suspension, abandonment, remediation and reclamation regulatory processes

For our second objective, AER met the criterion, and we concluded that AER had appropriately analyzed the system to identify risks and gaps and established an implementation plan to respond to significant risks in the design changes to its liability management system.

Since the announcement of provincial government policy on liability management in July of 2020, AER has been working on the development of new programs to implement the policy. The two objectives of this audit are closely related in that identification of risks and gaps and devising implementation plans to deal with them, if appropriately executed, could resolve the key findings from our examination on the criteria noted above.

However, AER will need to continue to work with government to close existing gaps in the liability management system and ensure that risk management and performance measurement systems can demonstrate that significant recent changes to the liability management system are achieving objectives.



Why This Conclusion Matters to Albertans

Inactive oil and gas infrastructure that isn't properly closed can pose serious environmental, public health and economic risks to Albertans. Inappropriately abandoned wells, for example, can leak contaminants into the soil and into the air people breathe and the water they drink. Failure to ensure that operators and industry conduct and pay for the safe shut down of their infrastructure increases the risk that extensive closure costs could be shifted to the public. Albertans need an effective liability management system in place to hold industry accountable for meeting their environmental obligations to the province and to ensure that industry's liability management risks are being properly managed.

Detailed Findings and Recommendations

Risk Management and the New Liability Management Framework

Context

AER states a simple rule:¹⁰ “if energy companies are going to profit from the province’s energy resources, they must be responsible and properly abandon, remediate, and reclaim their sites.” AER acknowledges that as the regulator it must “manage the consequences of companies not being able to meet their responsibilities to safely abandon and reclaim their energy development sites.”¹¹ As a result, AER has a liability management system consisting of programs and processes intended to manage the risk that companies may not meet their responsibilities. In 2019 AER completed a historical analysis that identified significant problems with the liability management system. In response to this and stakeholder concerns, the Alberta government announced a new liability management framework (new framework) in July 2020.

The government has stated that the new framework AER is implementing will:

“...shrink the inventory of inactive and orphaned wells across the province, ensure more timely restoration of land to its original state, and protect future generations from experiencing a backlog of sites needing clean-up.”¹²

AER started to implement the new framework in 2020 and is continuing to design new programs and processes to resolve long-standing problems with the liability management system.

AER is also developing an enterprise risk management system (ERM) to identify and respond to risks at the corporate level. One of the greatest risks AER has identified is liability management of oil and gas infrastructure. AER’s ERM is intended to help the organization appropriately respond to changing liability management risks.

Criteria

AER should have an effective risk management system for liability management programs.

AER should have a process to identify risks and gaps in its oil and gas liability management programs and have a plan for how the risks and gaps will be mitigated as AER continues to implement the new liability management framework.

Our findings

Key findings

- AER completed a risk analysis of liability management and potential actions within the new framework.
- Future performance measurement and upcoming decisions will be critical to demonstrate whether objectives in the new framework are being achieved.
- Additional gaps identified by AER, like exclusion of pipeline liabilities, were not dealt with directly in the new framework.
- AER’s enterprise risk management system is under development, but not yet fully functional.

¹⁰ <https://www.aer.ca/regulating-development/project-closure/liability-management-programs-and-processes>

¹¹ Ibid.

¹² <https://www.alberta.ca/assets/documents/energy-liability-management-framework.pdf>

AER completed an analysis of liability management and potential actions within the new framework

AER has undertaken analysis of various challenges and opportunities of the liability management system. In 2019, AER presented the consolidation of multiple years of analysis. The analysis concluded that the liability management system was inadequate and highlighted three fundamental issues:

- lack of timely closure of inactive sites, including no legislation to enforce closure requirements
- unfunded liabilities such as legacy sites, where there is no industry-funded financial backstop like OWA to absorb the closure costs
- inadequate security collection due to inaccurate liability calculations and collection too late in the life cycle of oil and gas projects

Our examination found that the key issues identified by AER were well-supported. And the results of the analysis formed the basis for the new liability management framework announced in 2020.

Along with calls for improvement to several processes, the analysis also includes a request for the provincial government to provide policy direction. AER has sought direction in the following areas: enforceable spend targets and timelines; collection of more financial information from industry; funding sources for legacy sites; and changes to OWA's authority.

AER is currently carrying out its implementation plan for the new framework. The plan sets target dates to the end of 2024 for deploying key elements of the new system. AER informed us it will take years to fully implement the new framework. The framework includes several components, including:

- Licensee Capability Assessment—intended to replace the Licensee Liability Rating Program for assessing the capabilities of oil and gas operators to meet their regulatory liability obligations prior to receiving regulatory approvals
- Licensee Special Action—intended to provide guidance and proactive support for individual and/or distressed operators
- Inventory Reduction Program—establishes annual industry site closure spending targets to help reduce inactive inventories

- Legacy Sites—a panel to be established to consider how to ensure these sites are brought “up-to-date” with current environmental requirements
- Expanding the mandate of the OWA to better manage and accelerate cleanup

We saw evidence of good project management practices such as the use of project plans, project charters and regular reporting. We also saw evidence of board oversight of the plan through regular reporting on implementation of the framework.

Future performance measurement and upcoming decisions will be critical to demonstrate whether objectives in the new framework are being achieved

Whether the system changes arising from the framework will lead to better liability management will depend on how well recent and future adjustments to the system deal with the core issues AER identified in its 2019 risk analysis: the need for enforceable closure timelines; a resolution to the unfunded legacy site issue; and a more effective system for collecting security. When we cross-referenced the three key issues in AER risk analysis to what is included in the framework, we noted the following:

- **Reliance on industry spend targets to increase timeliness of closure work**
Enforceable timelines for closure are not part of the framework. Instead, AER is setting licensee closure spend targets through its new Inventory Reduction Program in an effort to increase timeliness of closure work. The expectation is that increased closure spending will lead to inactive sites being dealt with more quickly. However, this program does not require that higher risk sites be prioritized; thus, licensees could potentially focus spending on lower risk sites. Performance measurement of the effectiveness of this program will be key to ensuring that timeliness is being achieved and that closure work on higher risk sites is not being deferred. We discuss the Inventory Reduction Program later in this report in the “Processes to Ensure Timely Closure of Inactive Sites” section on page 27.

- \$215 million in unfunded legacy site liabilities**
 Unfunded liabilities of approximately \$215 million¹³ exist for legacy sites - sites where no standards existed at the time of closure and where there is no longer a responsible licensee.¹⁴ Legacy sites are not financially backstopped by the OWA. AER is awaiting policy direction from the provincial government regarding administration and funding for legacy sites. The province has established a legacy panel to review these issues. At the time of writing the panel's conclusions are pending. Currently, all mitigation, monitoring and emergency work completed by AER for legacy sites is being paid for through the administrative fee that AER levies on the energy industry to fund its operations.¹⁵ Who will pay for legacy site closure work and when the work will be completed is currently unknown.
- Legislative rules and enforcement processes holding "named persons" accountable to follow orders of—or debts to—the AER are subject to gaps**
 Section 106 of the *Oil and Gas Conservation Act* allows AER, where it considers it in the public interest to do so, to declare by name ("named person"), a director, officer, agent or other person to have committed a contravention of its orders.¹⁶ A director, officer, agent or other person who was in direct or indirect control of a licensee, approval holder or working interest participant that fails to comply with an order or outstanding debts can potentially be considered a named person. Being declared a "named person" prevents the named person from being involved in the operations of a licensee in the future in Alberta. Named persons can face prosecution for offenses and subject to penalties under the *Act*.

We reviewed an example where two directors of a company were not allowed to be included on the "named person" list because they resigned one day before AER issued an order to the company, thus, they were technically not directors at the time of the violation of the "order to comply."

At the conclusion of our audit, AER had not identified processes to mitigate the impact of the apparent gap in the legislative provisions. Instead, AER has asserted that the gap in the provisions of the OGCA means AER does not have the authority to remedy the problem.
- Future approach to financial security has not been established**
 The framework includes a new Liability Capability Assessment (LCA) to rate the ability of licensees to meet their liability obligations. But the framework does not provide direction as to when and how security should be collected. To inform security decisions throughout the development life cycle, AER expects the LCA system it plans to operate will collect additional operational and financial data from operators.

Additional gaps identified by AER, like exclusion of pipeline liabilities, were not dealt with directly in the framework

AER's risk analysis identified additional gaps that the framework does not resolve, including:

- Pipelines still largely excluded from liability management calculations**
 Environmental laws and AER directives apply to active and inactive pipelines. However, for purposes of AER directives, AER does not consider pipelines in liability calculations for security and the framework does not include direction on pipelines. Additionally, infrastructure associated with pipelines like pump stations, compressor stations, tanks farms, and loading/unloading terminals are also not considered in closure liability calculations.

AER asserts both of the above matters require policy direction outside of AER, and potentially legislative changes. AER has stated they plan to advance potential resolution of these gaps in the future, although a timeline for that is not yet in place.

¹³ AER's \$215 million estimate is as of November 2019.

¹⁴ In our June 2021 Report: *Processes to Provide Information About Government's Environmental Liabilities*, we found that there is a lack of clarity around the sources of funding for AER to manage legacy sites and we made a recommendation that the Department of Environment and Parks clarify who is responsible to do the required work when no responsible private operator exists and no backstop exists (for example, OWA).

¹⁵ The *Responsible Energy Development Act* (REDA) authorizes the regulator (AER) to levy an administration fee on the oil and gas, oil sands, and coal sectors. The fees represent most of AER's revenues and fund its operations.

¹⁶ <https://static.aer.ca/prd/documents/orders/ibo/NamedIndividuals.pdf>

AER's enterprise risk management system is under development but not yet fully functional

AER has implemented foundational ERM components, including a corporate risk register, a risk management policy (approved by the board in November 2021) and expectations for risk reporting to the board. We saw evidence of regular reporting on enterprise level risks is occurring and this information is being shared with the board. However, we found that AER has not developed a risk register specific to liability management, which increases the chances of AER not proactively dealing with emerging and changing risks or unresolved gaps in the system.

RECOMMENDATION:
Improve liability management risk management processes

We recommend that the Alberta Energy Regulator ensure that liability management risks and gaps are periodically identified, that risk responses are documented, and residual risk is determined.

Consequences of not taking action

AER's risk management processes are an important part of the liability management system, as they can help identify gaps in the system and where risk mitigation is not working as intended. Further, the likelihood and impact of liability management risks can change over time, and the ability to proactively respond with the right actions requires an effective risk management system.

Goals, Performance Measurement and Public Accountability

Context

To demonstrate to Albertans that changes to the liability management system, as well as enduring processes, are achieving objectives, AER needs to have clearly stated goals, targets and proper performance measurement that show what results are being achieved and where improvements are needed as the new framework continues to be implemented.

Criteria

AER should have clearly defined roles and responsibilities for liability management programs.

AER should have processes to evaluate and report whether liability management programs are effectively meeting their objectives.

Our findings

Key findings

- Roles and responsibilities for liability management are clearly defined.
- Public reporting and external performance measurement on liability management are insufficient to assess whether results are being achieved and risks are being effectively managed.
- AER has an industry-wide closure liability estimate but does not regularly update it or communicate it to Albertans.

Roles and responsibilities for liability management are clearly defined

In our audit, we examined legislation, the mandates of the key players noted in the background section of our report and other documentation, for example annual reports. We found that roles and responsibilities are clearly defined to demonstrate that the participants have clear responsibilities and accountabilities for ensuring the liability management program objectives are met.

Public reporting and external performance measurement on liability management are insufficient to assess whether results are being achieved and risks are being effectively managed

Specific goals to ensure accountability for results as it changes key parts of its liability management system have not been established. For example, what AER views as a reasonable and sustainable level of inactive closure liabilities given level of industry activity, economic factors, and other considerations? What is the current closure liability amount and what is an acceptable level? What does AER define as timely restoration of inactive sites and what is the goal for timeliness?

The Ministry of Energy and AER annual reports contain data about the amount of closure activity and spending in Alberta. However, they do not report on the total number of inactive sites in Alberta making it difficult for Albertans to assess if net progress is being made to reduce inactive sites.

AER lacks external performance measures to demonstrate whether its liability management programs are working. The lack of public reporting on performance measures with targets also makes it difficult for Albertans to know if risks are being adequately managed and that the cleanup being done is sufficient. Reporting on activity alone is not enough to effectively measure the performance and achievement, or lack thereof, of goals.

The absence of external performance measures dates back many years and has created a lack of public accountability for the performance of the liability management system. With the ongoing implementation of the framework, external performance measurement can demonstrate whether improvements to the system are working. Internally, AER has a reporting dashboard that includes a suite of liability management metrics, including data on well/facility life cycle status, orphaning and insolvency, and closure spend.

As part of the ongoing framework implementation, AER plans to identify measures, with targets, and track progress to determine whether programs are achieving desired results. As of June 2022, this work to develop new measures was still in progress.

AER has an industry-wide closure liability estimate but does not regularly update it or communicate it to Albertans

The costs associated with cleaning up oil and gas sites are referred to as closure liabilities. Estimating closure liabilities involves looking at many variables including the type of site, location, age, technology, extent of contamination and approaches available to do the work.

AER's most recent estimates, at the time of writing, for industry-wide (active and inactive) closure liabilities in Alberta ranges from \$30 billion for wells and facilities to \$60 billion if pipelines and more recent information are included. Recent inactive closure liability estimates are in the \$10 billion to \$13 billion range. As AER collects more current and relevant information (for example, recent actual cleanup costs), its estimate should continue to become more accurate. Presently, AER does not regularly update (i.e., annually) its liability estimate to include all key components and the best and most recent data. AER also has not defined what it considers to be an acceptable and sustainable level of closure liability.

An industry-wide active and inactive liability estimate represents the overall magnitude of closure liabilities in Alberta—the scope of what needs to be managed in a full life cycle approach.

It is also important to note that an overall liability estimate includes both active and inactive sites, where active sites may not need closure work completed for years. Contrasted with inactive sites that may require closure work sooner. Also, the potential financial risk to the public depends on who is responsible for the liabilities. For example:

- Legacy sites present the greatest financial risk because they have no owners or industry-funded backstop such as the OWA.
- Orphan sites are a lesser risk because they are the responsibility of the OWA. However, a large inflow of orphan sites into the OWA can create the need for greater industry levies and government loans.
- Financially challenged producers are the next level of risk; if they declare bankruptcy their liabilities may shift to the OWA.
- Financially secure oil and gas licensees present the lowest risk, although the risk of their closure work not being done increases the longer they defer cleanup work.

RECOMMENDATION:
Improve performance measurement and reporting

We recommend that the Alberta Energy Regulator improve its accountability processes by:

- developing relevant external performance measures, including targets, to ensure that Albertans can gauge whether AER’s liability management programs are meeting objectives and whether progress is being made
- periodically updating and publicly communicating an industry-wide active and inactive liability estimate using best available data, with accompanying explanation of the risks associated with that liability
- reporting more complete, integrated and useful information on liability management to provide a more complete picture of risks and the actions taken to mitigate those risks

Consequences of not taking action

Without specific goals, targets, and performance measurement, it is very difficult for Albertans to hold industry, AER and government, accountable for liability management. Whether or not liability management activities are successful is dependent on transparent disclosure of what AER expects industry to achieve and what has been achieved relative to those expectations. Without this information, AER will be unable to demonstrate whether industry’s activities are making a positive impact at the desired pace. And without a reliable and adequately explained total liability estimate, Albertans lack information about the overall scope, risk, and potential financial exposure.

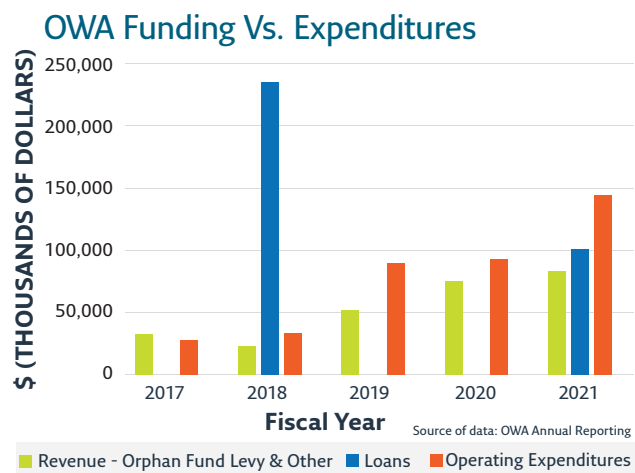
Processes to Assess Information From the Orphan Well Association (OWA)

Context

OWA is an independent, non-profit organization operating under a delegated legal authority¹⁷ with the mandate to close wells, facilities and pipelines that AER has designated as "orphans." OWA is meant to remove the potential risk of unfunded closure liabilities being shifted to Alberta taxpayers. OWA is overseen by an independent board of directors with representatives from industry, AER, and the provincial government.

OWA is funded by industry through a regular levy.¹⁸ The *Oil and Gas Conservation Act* prescribes how the levy is determined. The levy is based on the expected costs of OWA’s activities for the upcoming fiscal year, including the estimated cost of decommissioning, reclamation and other activities.¹⁹ AER, and the provincial government, are required to annually approve the levy amount. The levy is a regulatory tool used to ensure industry is held responsible for closure liabilities so that AER can focus security collection on higher risk companies.

In recent years, OWA has also received financing in the form of grants and loans from the provincial and federal governments. The interest-free loans are to be repaid over time through the levy collected from the energy industry. Other sources of funding beyond the regular levy include first-time licensee fees, regulator directed transfer fees,²⁰ interest and defunct company security deposits from AER.



¹⁷ *Orphan Fund Delegated Administration Regulation.*

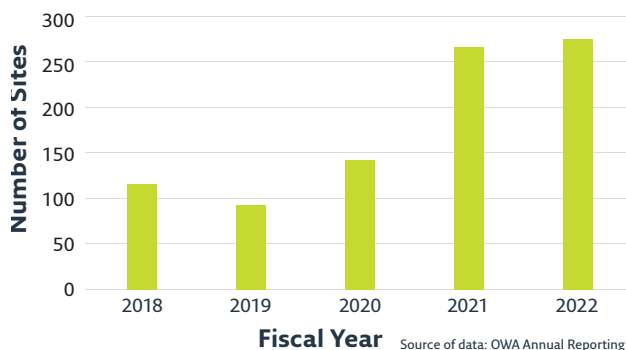
¹⁸ AER collects the levy from viable licensed operators and then transfers it to the OWA through the Orphan Fund.

¹⁹ Reimbursing working interest participant claims and funding the administration of receivership.

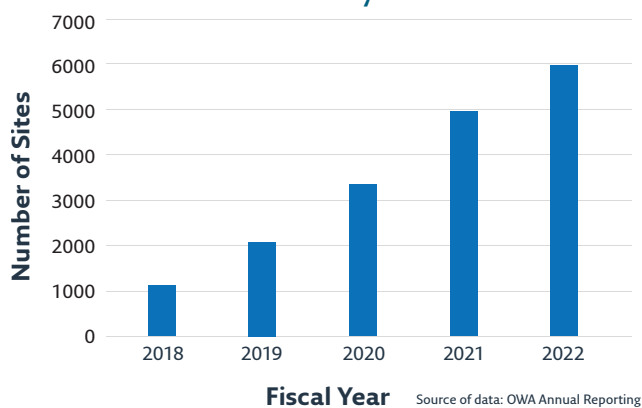
²⁰ AER collects the regulator directed transfer fees from an active company when it acquires a property licensed to a defunct company and then remits these fees to the OWA.

OWA holds an inventory of orphaned wells, facilities and pipelines that it reports on publicly. As of March 31, 2022, there were about 6,000 sites ready for reclamation (abandonment has been completed) and over 1,500 orphan wells where abandonment needs to take place.

Orphan Well Inventory



Reclamation Inventory



As part of the new framework, The *Liabilities Management Statutes Amendment Act* came into effect June 15, 2020. This legislation is intended to enable OWA to better manage and accelerate the cleanup of wells, infrastructure and pipelines that do not have a responsible owner. OWA received expanded operational powers, including the ability to enter into certain agreements, operate certain infrastructure, and appoint receivers.

Criteria

AER should have processes to demonstrate OWA's operations are meeting intended objectives, including ensuring sustainability of the Orphan Fund to meet the demands of oil and gas site closure costs.

Our findings

Key findings

- AER is receiving information from the OWA; however, the purpose of and approach to information reviewed is unclear.
- Before 2022, AER did not scrutinize the orphan levy proposed by the OWA and did not analyze the longer-term sustainability of the Orphan Fund. In 2022, AER began implementing a process to review the levy and sustainability.
- The risks to the “polluter pays” principle have increased in recent years.

AER is receiving information from the OWA; however, the purpose of and approach to information reviewed is unclear

Under legislation, AER has the authority to obtain business plans, annual reports and any other records, information, audits, reviews, or reports from the OWA. We confirmed that AER has been receiving this information but did not see evidence of analysis.

Under the Orphan Fund Delegation Administration Regulation, the OWA must provide AER with a business plan that indicates the OWA's goals, strategies and performance measures and contains a budget for each of the upcoming three fiscal years. OWA also provides AER with an annual report summarizing the activities of the fiscal year. OWA is also required to provide records and information, audits, reviews or reports to AER on request.

We did not see evidence that AER uses OWA information to inform AER whether the OWA is achieving its goals and objectives or is estimating industry's orphan liability. AER has some informal processes, such as bi-weekly meetings, that provide insight into OWA operations, but AER does not have measures to monitor OWA's performance.

AER has not documented its OWA information review process, including who is responsible for the review, what the review entails, and how the outcome of the review will be documented and reported internally.

AER is not required to approve OWA business plans and annual reports, but it does review annual OWA reports before they are published. We saw evidence of

this review through AER correspondence with OWA. While not documented, AER did inform us that the purpose of the review is to ensure accuracy of the roles and responsibilities of both organizations, as well as the regulatory framework and business processes.

Before 2022, AER did not scrutinize the orphan levy proposed by OWA and did not analyze longer-term sustainability of the Orphan Fund.²¹ In 2022, AER began implementing a process to review the levy and sustainability.

Before 2022, we did not see evidence that AER scrutinized the annual orphan levy proposed by OWA. There were no examples of AER suggesting modifications to the amount or evidence of AER doing an analysis of the proposed levy.

In 2022, AER provided evidence that it is currently developing an ongoing process to review and advise the OWA on its recommendation for the annual orphan levy. AER quantified, through a scenario-based model, industry's potential future liability for the OWA. As a result of this assessment, AER provided direction to the OWA regarding expectations of a levy increase and reviewed the OWA's recommendation for a levy of \$135 million, increasing it from the preceding years \$72 million.

Additionally, AER has begun to broaden its assessment of risk to include analyzing scenarios and potential increase to OWA's inventory of sites. For example, AER has analyzed the current OWA inventory, the number of active insolvencies and the number of high-risk/distressed licensees in Alberta. As of May 2022, AER estimates the orphan inventory liability to be \$650 million, distressed inventory to be \$356 million, where either the licensee or working interest partner is defunct to be \$290 million and active insolvencies to be \$519 million. While active insolvencies may not result in sites being transferred to OWA, and distressed licensees may not end up in insolvency, these numbers provide risk information on potential transfers to the OWA and future funding needs.

AER has not yet completed modelling to show how long it will take OWA to complete closure work on its current inventory of sites and it remains unclear, based on the evidence we collected, when OWA is expected to eliminate its backlog of orphaned sites. Also unclear was how many of OWA's orphan sites are considered high-risk in need of early intervention and how many are deemed low-risk and able to wait.

The risks to the “polluter pays” principle have increased in recent years

AER's liability management system is based on the “polluter pays” principle that an industry operator or “polluter” is responsible for conducting and paying for the safe closure of its sites. OWA is a backstop when a responsible licensee no longer exists to complete the required cleanup work. When processes to ensure proper liability management are not functioning as intended, the risk increases that industry—through the OWA—will have to pay more to fund the cleanup of defunct licensees.

In recent years, levy revenues have not been enough to keep pace with the increasing number of orphan sites being transferred to the OWA. Also, government has been lending OWA funds to deal with its rapidly growing inventory. OWA has received \$335 million in interest-free loans from the Government of Alberta since 2017-2018. AER asserted to us that it was not involved in determining provincial loan amounts and that it is not involved in monitoring provincial loan agreements. The interest-free loan agreement was arranged by the Department of Treasury Board and Finance on behalf of the provincial government.

The use of public funds to loan money has allowed additional work on orphan sites to take place; however, it does represent an opportunity cost (the public monies could be used for other purposes). Overall, how well orphan levies keep pace with funding needs for the necessary work on orphaned sites is an indicator of ensuring the “polluter pays” principle is upheld.

²¹ The Orphan Fund is used to pay the costs associated with OWA's activities to complete the necessary closure work for orphan sites. Industry orphan levies are deposited into the Fund. The Fund is retained and administered by AER.

RECOMMENDATION:

Improve processes to assess information from OWA

We recommend that the Alberta Energy Regulator:

- collect information that allows AER to assess whether the OWA is achieving intended objectives and to assess the long-term sustainability of the Orphan Fund
- assess sustainability by completing modelling on how long it will take OWA to complete closure work on its current inventory of sites and anticipated funding levels

Consequences of not taking action

If AER does not improve its processes to assess information from OWA, there is the risk that AER will not be able to sufficiently assess whether OWA is meeting its objectives. It also may limit AER's ability to sufficiently assess whether further actions are needed to mitigate the risks of untimely closure and financial burden being shifted to OWA and the public. AER holds responsibility for the Orphan Fund and has a critical role in ensuring that the Orphan Fund is sustainable to meet future needs and without sufficient and proactive analysis, the necessary closure work of orphan sites may not happen as intended.

Processes to Ensure Timely Closure of Inactive Sites

Context

At the end of its development life cycle, an energy well, pipeline, or facility must be permanently and safely closed. This final phase has several closure activities including suspending production, decommissioning (abandonment), and remediating and reclaiming sites (see Background, page 11).

The costs associated with cleaning up oil and gas sites are referred to as closure liabilities. While several factors contribute to industry's total closure liability in Alberta, one of the key issues has been the length of time that elapses between when a site requires closure and when it is safely closed. The longer work is deferred, the more liabilities accumulate and the greater the chances that health, environmental, and financial risks can become reality. As the number of sites requiring cleanup grows, the risk of cleanup costs being shifted to the OWA and the public also grows. AER estimates the cumulative liability for industry to be \$60 billion.

Criteria

AER should have processes to ensure the timely suspension, abandonment, remediation and reclamation of oil and gas sites by operators.

Our findings

Key findings

- There are no timelines for other closure activities like abandonment or reclamation, other than a timeline to suspend inactive sites.
- While inactive well sites have grown, abandonment work has remained flat, and licensees have focused more on low-risk and lower-cost sites.
- AER's new Inventory Reduction Program establishes targets for closure spending; however, whether the program encourages more timely closure is something AER will have to evaluate over time.

There are no timelines for other closure activities like abandonment or reclamation, other than a timeline to suspend inactive sites

Inactive wells must be suspended within either one year or six months of inactivity based on well classification. However, there are no restrictions on how long a well can stay in a suspended status before being abandoned. Once a well is suspended, it can be left in that state for an indefinite period. There are no timelines to complete abandonment.

While the *Environmental Protection and Enhancement Act* (EPEA) requires licensees to obtain a reclamation certificate, there are no requirements to ensure timely reclamation of sites.

While inactive well sites have grown, abandonment work has remained flat, and licensees have focused more on low-risk and lower-cost sites

The inventory of inactive wells increased from 60,000 to 93,000 over the past decade, a growth rate of about five per cent a year. The number of inactive wells decreased slightly in 2021–2022, assisted by

the one-time Site Rehabilitation Program,²² as well as government loans and increased industry levies.

While the number of inactive sites has grown over time, abandonments have stayed flat (meaning more wells sitting in “suspended” status). The average length of time a well is suspended is around eight years.

One economic reason given for not having a time limit on suspension is that licensees may choose to re-enter the inactive well if prices, technology, or other conditions make it favorable to do so. However, based on AER data, there is a low likelihood of wells being reactivated if they have been inactive for more than two years.

Our audit found that licensees tend to focus on completing low-cost well abandonment and reclamation activities. For example, 36 per cent of well licences abandoned by licensees and 74 per cent of reclamation certified well sites had never been brought into production. Hence, they were relatively easy and inexpensive to abandon or reclaim. The lack of timelines for abandoning or reclaiming sites makes it possible for licensees to focus on less costly sites, leaving more complex and contaminated sites in a suspended or abandoned state.

AER’s new Inventory Reduction Program establishes targets for closure spending; however, whether the program encourages more timely closure is something AER will have to evaluate over time

In 2022 AER introduced the Inventory Reduction Program to set an industry-wide mandatory minimum target for closure spending. AER anticipates the target, based on a review of historical closure spend, will reduce the number of inactive sites by encouraging more timely closure. In June 2022, AER announced the industry-wide annual minimum spend target would be increased to \$700 million,²³ with expected annual increases thereafter of nine per cent. Individual licensees will have targets assigned. At these anticipated minimum spending levels, AER estimates that closure costs on inactive sites could peak by 2027.

The Inventory Reduction Program is intended to reduce the need for regulated timelines and the collection of more financial security as licensees spend more to deal with closure liabilities. Whether the program does encourage timely closure, particularly for higher risk sites, is something AER will have to evaluate over the coming years.

According to AER, most of the companies will have to increase their closure spending to meet current targets. Thus, the ability for financially stressed companies to meet these targets and the consequences of not doing so will be important considerations for AER.

RECOMMENDATION: Monitor, enforce, and report on the Inventory Reduction Program

We recommend that the Alberta Energy Regulator ensures compliance with the Inventory Reduction Program by monitoring, measuring, taking corrective action and reporting on industry and licensee closure progress under the Inventory Reduction Program.

Consequences of not taking action

Without sufficient processes to monitor, measure, and ensure compliance with the Inventory Reduction Program, the intended outcomes of reducing the number of inactive sites and increasing the timeliness of closure of inactive sites may not be achieved. The success of this program is dependent on strong systems to monitor and measure its performance, take necessary enforcement actions to ensure spending is sustained, and report on whether it is achieving stated objectives.

²² The Site Rehabilitation Program launched on May 1, 2020, accessing up to \$1 billion from the Government of Canada’s COVID-19 Economic Recovery Plan. Funding was provided to eligible oil field service operators to perform well, pipeline, and oil and gas site closure and reclamation work. The program objectives were to support economic recovery by increasing employment in the oil field service sector and to enhance Alberta’s investment climate, while also decreasing the environmental liability associated with oil and gas development.

²³ Originally, the industry spending target was set to be \$422 million with five per cent annual increases. In June 2022, with higher petroleum prices and more favorable financial prospects, AER announced that the industry-wide spend target will be increased to \$700 million, with expected nine per cent annual increases.

Processes to Ensure Sufficient Financial Security and Minimize Risk of Inappropriate Licence Transfers

Context

Collecting financial security from companies is a tool that jurisdictions use to manage the risk of environmental liability arising from resource development. Financial security is sought for two key purposes: to encourage companies to complete timely closure work in accordance with regulations; and to protect the public from economic loss if a company is unable to meet its obligations.

Since financial security can require companies to provide financial capital they would otherwise be using for investment, security collection can potentially impact a company's cash flow and capital allocation decisions. To avoid collecting the full or significant amount of security up front, some jurisdictions use risk information about a company's financial condition to help determine how much security should be collected. This is fundamentally the approach that AER has applied for the past 20 years since the inception of the Licensee Liability Rating Program (LLR), which is used to calculate a company's deemed assets and liabilities.

The LLR has also been used by AER to measure the risk of closure obligations not being met if energy infrastructure is transferred between licensees. Prior to an operator being able to acquire or divest oil and gas infrastructure in Alberta, AER must approve the licence transfer. When reviewing an operator's application for a transfer, AER is responsible for assessing a licensee's ability to fulfil closure obligations to ensure the OWA and Albertans are protected from unfunded liabilities.

AER is also responsible for assessing potential impacts to public safety and the environment when evaluating a licence transfer application. If AER finds that the transfer presents an unreasonable risk, the application could be approved with conditions including additional security and risk mitigating actions, or AER could deny the application. While AER does regulate the transfer of licences, it does not control or regulate the commercial transfer of ownership interests.

Criteria

AER should have processes to ensure its security collection programs are designed to meet objectives and operate as intended.

AER should have processes to ensure that licence transfers are being approved only when operators can fulfill closure obligations.

Our findings

Key findings

Security

- The Licensee Liability Rating Program, which has historically failed to properly identify financial risks and to ensure sufficient security is collected, remains in place while AER determines a future approach to security.
- Under the new framework, AER is collecting more operator information to better evaluate risk; however, future changes to the security system have not yet been decided.

Licence transfers

- AER made improvements to its licence transfer review process after post-transfer bankruptcies increased.
- AER's licence transfer process lacks sufficient monitoring of licensee conditions.
- Risks remain where licences can be exchanged outside of AER's licence transfer application process via certain corporate transactions.

Security

The Licensee Liability Rating Program, which has historically failed to properly identify financial risks and to ensure sufficient security is collected, remains in place while AER determines a future approach to security

AER's security program is the LLR, which also encompasses the Large Facility Program (LFP) and Oil Field Waste Program (OWL). The objectives of the LLR program are to:

- prevent the costs to suspend, abandon, remediate, and reclaim a well, facility, or pipeline in the LLR program from being borne by the public should a licensee become defunct, and
- minimize the risk to the Orphan Fund posed by the unfunded liability of licensees in the program.

The security required from licensees is based on a Liability Management Rating (LMR), a formula that measures a company's ability to meet its obligations.²⁴

AER acknowledges that its current deemed liability calculations are not an adequate reflection of licensee liabilities, resulting in insufficient security collection. The calculation uses outdated information to assess liabilities and excludes significant liability components such as pipelines in the calculation.

The consequences of the ineffective security calculation were considerable given that AER found 54 per cent of companies entering insolvency proceedings had a ratio greater than 1.0 (deemed assets/ deemed liabilities) and as high as 29.9 thus exposing its limitations for identifying distressed operators. Further, our analysis of 10 operators with the largest difference between security owing and security held by AER found all but one of those companies was already either bankrupt or in receivership. The collective amount of security owed by these companies to AER was \$417 million.

AER did an analysis in 2019 that shows the considerable impact when updated information and pipelines are included in the calculation of deemed assets and liabilities. For example, at the time of the analysis, deemed assets would have dropped from

\$148 billion to \$93 billion, while deemed liabilities would have increased from \$30 billion to \$62 billion. Using these figures within the LLR program security calculation would have resulted in an increase of security owing to AER from \$475 million to \$17 billion, a 36-fold increase, further reinforcing the inherent flaws in the LLR program overall given the inability for the highest risk operators to post the necessary security to begin with.

AER has the regulatory authority to demand security throughout the life cycle of an energy project; however, it has historically tried to collect security only after negative financial conditions for a licensee appear. A fundamental flaw in the existing security process is that it often results in the need for AER to collect more security when the licensee lacks the financial ability to post more. Also, when more security is required due to an operator's weakening financial situation, it increases the likelihood the operator may divert resources for cleanup work to posting security. These dilemmas reinforce the need for AER to consider both the amount and timing of security.

How much security is necessary is dependent on several factors including the objectives of the security program, funds held by OWA, and whether other liability management programs are achieving desired results. For example, if licensees meet spend targets within the Inventory Reduction Program, that may reduce the amount of security necessary to properly manage liability management risks. Once again, performance measurement of programs and responsiveness to changing risks are critical success factors.

Under the new framework, AER is collecting more operator information to better evaluate risk; however, future changes to the security system have not yet been decided

We saw evidence that AER is working towards improving the accuracy and completeness of its liability calculations. AER is planning to gain a better understanding of industry liabilities and closure costs and to improve the accuracy of its liability calculation. AER plans to phase in improvements to the system between now and 2025.

²⁴ If a company's "deemed" liabilities in these three programs exceed its "deemed" assets (a ratio of deemed assets / deemed liabilities is less than 1.0), the company needs to provide the balance in the form of financial security. AER Directive 11: Licensee Liability Rating Program, last revised in 2015 and presently in effect, dictates how deemed assets and liabilities are to be calculated.

AER's historic approach to security has been reactive without considering a company's broader financial, compliance, operational or closure performance. Under the new liability management framework, AER is introducing a new holistic licensee assessment to consider these factors. AER anticipates the new approach will allow it to gain a better understanding of a licensee's ability to meet its regulatory and closure obligations. This will also increase the subjectivity involved in making decisions about the need for licensee security. However, AER has not defined how much security needs to be collected, when it will be collected or how security collection will be enforced under the new framework. AER is currently determining the objectives of the new security program.

Licence transfers

AER made improvements to its licence transfer review process after post-transfer bankruptcies increased

Licensees use the licence transfer process and submit applications to AER for final decision (approval or denial of the transfer application). The transfer of well, facility and pipeline licences are the main components within these types of transfers. When reviewing licence transfer applications, AER applies discretion and assesses the new licensee's ability to fulfil end of life obligations. Prior to 2016 AER primarily relied on an LMR ratio of at least 1.0 to conclude whether a licence transfer should be approved. Given the LLR program weaknesses with accurately estimating deemed liabilities, this increased the risk of problematic transfers being approved. There are situations in which the operator acquiring a licence revealed financial difficulties just months after the transfer had been approved.

To try and reduce this risk, in 2016 AER implemented a more stringent LMR ratio requirement of at least 2.0. The new requirement allowed AER discretion to approve a transfer where the LMR is below 2.0 if the transferee gives other evidence that they can meet their obligations.

AER risk management processes further improved after the Supreme Court of Canada's 2019 Redwater ruling.²⁵

Since the Redwater decision, AER has required that closure obligations be dealt with before creditors receive financial recovery. Closure obligations can be dealt with by the estate before creditors financial recovery through licence transfers, the completion of closure work, or the posting of security.

AER also strengthened its directives and processes to reduce the likelihood of related parties acquiring good assets for a new company, while leaving the bad assets behind. These efforts included requiring licensees to submit annual financial reports and reviewing licensee eligibility for unreasonable risk factors, such as compliance history, unpaid debts, and director/officer involvement in previous bankruptcies.

AER permits transactions between related parties in an insolvency sale where compliance with AER requirements can be demonstrated. One risk to be managed is when a newly formed company with the same ownership as the previous company can purchase "good assets" (high production/low liability) from the bankrupt company while leaving "bad assets" (non-production/high liability) with the old company. In 2018, AER amended Directive 67 to reduce this risk after AER tried, unsuccessfully, to block a transaction where directors of a company that was in receivership formed a new company that purchased the "good" assets of the original company, leaving assets with net liabilities behind. The courts ruled that AER did not have the authority to block the transaction.

Further, AER is developing a new Licensee Capability Assessment (LCA) process. AER intends to use the LCA to consider the following aspects for each licensee in a licence transfer application:

- Financial health—a licensee's capability to operate
- Compliance history
- Closure—the ability of a licensee to complete closure and sustain operations
- Operational details—assessments of a licensee's asset inventory and production details.

AER has already begun supplementing licensee transfer application information from the LCA to support the review and evaluation of transfer applications. The collection and analysis of more quantitative and qualitative information is needed to support broader decision-making on transfers.

²⁵ The court found that the estate (managed by receiver/trustee) remains responsible for closure obligations during insolvencies. Regulatory obligations, including closure ones, must be resolved before any funds are distributed to the insolvent party's secured creditors.

AER's licence transfer process lacks sufficient monitoring of licensee conditions

AER will exercise discretion in approving a licence transfer application and may accept closure plans relating to licence transfer applications. If there is an unreasonable risk, AER will require security instead of collecting a closure plan or may deny the transfer application. As part of this process AER monitors any conditions it may put on as a result of an approved licenced transfer application.

We examined AER's processes for reviewing licence transfer approvals with conditions and found:

- The process lacked proper tracking, monitoring, and reporting of licence transfer conditions and commitments approved as part of licence transfer discretion requests.²⁶ For example, the requirement for a licensee to complete well abandonments within a certain time after a licence transfer has been approved.
- AER has not evaluated whether post-transfer outcomes are acceptable when discretion is applied.

We also examined the approval process for licence transfers. AER's authority to approve a licence transfer is derived from the *Oil and Gas Conservation Act*.²⁷ AER also maintains a delegation of authority that specifies what level/position of employee can approve various decisions. We found that AER's delegation of authority does specify who can approve licence transfers, but does not specify who is authorized to approve discretion requests for licence transfers.

With the move away from using the LLR to LCA to inform review of licence transfer applications and broader qualitative and quantitative information being used, the level of discretion will increase, enhancing the need for a clear delegation of authority of who specifically can approve licence transfer requests where discretion is applied.

Risks remain where licences can be exchanged outside of AER's licence transfer application process via certain corporate transactions

After the Sequoia bankruptcy²⁸ in 2018, AER acknowledged it had limited legislated authority to oversee corporate transactions such as mergers and acquisitions. A key risk was that corporate transactions could result in AER licences changing hands without having to go through AER's transfer process. AER also acknowledged this could be used by some companies to avoid their obligations. AER plans to apply the concept of "unreasonable risk" within its existing directives to mitigate risks.

AER implemented a directive²⁹ to apply greater scrutiny to assess if licensees pose an unreasonable risk of not meeting their requirements and obligations. We found that AER has compliance processes, including ensuring licensees provide required information.³⁰ However, AER has not implemented a proactive process for the ongoing assessment of whether a licensee presents an unreasonable risk as specified in the directive.

RECOMMENDATION:

Determine how much security is necessary and how it will be collected

We recommend that the Alberta Energy Regulator determine how much security needs to be collected, when it will be collected, and how collection will get enforced with the transition away from the Licensee Liability Rating Program.

²⁶ AER can approve a transfer and apply conditions as part of a discretion request.

²⁷ Section 24: Transfer of licence.

²⁸ On October 1, 2016, through complex transactions, Perpetual Energy Inc. sold about 3,200 shallow gas wells with significant closure liabilities to Sequoia for a dollar. After the transaction, the acquired wells represented about 70 per cent of Sequoia's "assets." In March 2018, Sequoia declared bankruptcy. The licence transfers for these wells did not need to be approved by AER as the corporate transactions were considered outside the scope of AER's regulatory approval framework at the time.

²⁹ Directive 067: Eligibility Requirements for Acquiring and Holding Energy Licenses and Approvals.

³⁰ Declarations, attestations, government identification of directors and officers, proof of insurance and financial statements.

RECOMMENDATION:

Improve licence transfer application processes

We recommend that the Alberta Energy Regulator continue to improve its licence transfer processes by:

- updating AER's delegation of authority to clearly articulate who can approve discretion requests, and under what circumstances
- developing a system to track, monitor and report on the effectiveness of discretion requests, including transfer conditions and licensee commitments

Consequences of not taking action

The Licensee Liability Rating Program has been central to AER's liability management efforts. Timely correction of its shortcomings is critical for AER to ensure that future approaches to security collection actually meet the objectives of reducing the number of orphan sites transferred to OWA and minimizing the risk that the public will eventually have to pay to clean up sites.

If the liability management strategies do not focus on the development of improved measures to evaluate the effectiveness of the licence transfer system, lessons learned from previous decisions of licence transfers will not benefit future decisions.

Processes to Ensure Oil and Gas Site Closure Regulatory Compliance (Suspension, Abandonment, Remediation, Reclamation)

Context

Licensees are responsible for complying with various laws, regulations and AER-issued directives at all stages of the life cycle for oil and gas wells, pipelines and facilities (see Background, page 11). AER is responsible for monitoring and enforcing compliance at all stages.

A key part of liability management is the closure phase—abandonment, remediation and reclamation. If operators do not complete their closure activities according to regulatory requirements, there is increased risk to public safety and the environment, along with the potential of additional financial costs for bringing closure work up to standard.

Wells: Wells represent the most significant energy development activity and accordingly the largest contributor to closure obligations. AER regulates closure of well sites through legislation, directives, inspections, and compliance programs. AER also makes use of enforcement programs to ensure wells are brought into compliance through notices of non-compliance, sanctions, and orders.

Facilities: AER does not have specific suspension, abandonment, or reclamation directives for facilities; however, licensees are required to submit a decommissioning plan and a land reclamation plan for any facilities approved under the *Environmental Protection and Enhancement Act* (EPEA).³¹ AER has programs to inspect inactive and abandoned facilities to ensure they do not present an environmental or public safety risk. Examples of facilities include structures for processing, storage and waste management. Facilities may also include equipment on a well-site, for example, tanks.

Pipelines: Inactive pipelines are classified as discontinued or abandoned. Although the risk of environmental contamination from inactive pipelines generally is lower than for operating ones, licensees must follow regulatory requirements to ensure their safe closure. AER has inspection and audit programs to ensure licensees meet requirements. Licensees are also required to maintain pipelines through integrity programs that AER reviews.

Under the EPEA, companies have a duty to reduce land disturbances, clean up contamination (remediation), and revegetate the area (reclamation). The EPEA requires that all licensees reclaim the land they used and obtain a reclamation certificate from AER verifying the site has been returned to equivalent land capability³² and contamination is below acceptable guidelines.

³¹ EPEA is the primary act in Alberta through which regulatory requirements for air, water, land, and biodiversity are managed. The *Act* supports and promotes the protection, enhancement and wise use of the environment by designating proposed activities for which an approval or registration is required.

³² Equivalent land capability means that the land can support land uses after reclamation that is similar to the ability that existed prior to an activity being conducted on the land.

Criteria

AER should have processes to ensure licensees comply with legislation for industry to manage risks for suspended, abandoned, remediated, and reclaimed sites.

Our findings

Key findings

Suspension

- AER has not completed well-suspension compliance assurance activities for the past three years.
- In 2015, AER implemented a five-year program that resulted in 27,000 wells being brought into compliance; however, about 17,000 wells remain non-compliant.

Abandonment (Decommissioning)

- AER completes proactive inspections on abandoned wells; however, there is no assurance process to ensure routine abandonments are complying with directives.
- Inspections of inactive facilities are occurring. With less than three per cent of inactive facilities currently reclaimed, the number of inspections is considerable.
- Requirements exist for measuring fugitive greenhouse gas emissions from active wells; however, no similar requirements exist for inactive wells.

Reclamation

- AER has increasingly automated its approval process for reclamation certificates, but improvements are needed to ensure approvals are consistently valid.
- Manual reviews of reclamation certification are occurring; however, improvements are needed to ensure judgments and reviews are properly evidenced.
- AER lacks processes to ensure third-party professional declarations meet requirements.
- AER audits reclamation post-certification; however, the process has been inconsistent and there is a 16 per cent rate of non-compliance.

Remediation

- AER did not consistently complete reviews of remedial action plans.

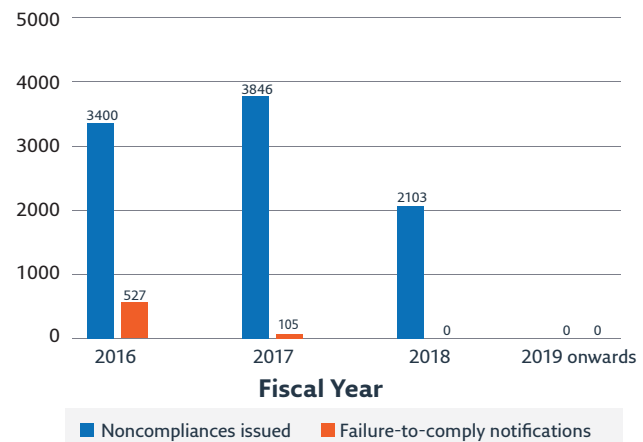
Suspension

AER has not completed well-suspension compliance assurance activities for the past three years

As of July 31, 2021, there were approximately 89,000 inactive wells in Alberta. AER data shows nearly 17,000 of those did not comply with suspension requirements, with 3,700 considered “low risk”, 7,500 “medium risk”, 43 “high risk”, and 5,600 not yet classified for risk. AER’s compliance assurance process for well suspensions focuses on wells known to be non-compliant. Based on AER’s monitoring, the average compliance rate from 2017 to 2019 was approximately 80 per cent.

When AER identifies a non-compliant well, it issues a notice of non-compliance to the licensee, followed by a failure-to-comply notification if the licensee fails to bring the well into compliance within a set time. The chart below shows the number of noncompliances and failure-to-comply notifications for 2016 to 2019 issued by AER.

Well Suspension Requirements Non-Compliance Issued by AER



In 2018 AER stopped issuing failure-to-comply notifications and in 2019 it paused its compliance assurance program. AER told us it paused the program because it was updating its well-suspension directive, making changes to its reporting system, and dealing with data issues for certain wells. We found AER had not evaluated the residual risk from this pause and did not have a timeline for restarting assurance activity.

In 2015, AER implemented a five-year program that resulted in 27,000 wells being brought into compliance; however, about 17,000 wells remain non-compliant

The Inactive Well Compliance Program was a five-year program introduced by AER in 2015 to reduce the growing inventory of non-compliant inactive wells in the province and to increase AER's efforts to ensure compliance with well suspension requirements. The program resulted in 89 per cent (27,352 out of 30,834) of the wells in the program being brought into compliance by March 2021. Overall, the objectives of the program—to reduce the backlog of non-compliant wells—were met.

However, after the program ended, about 17,000 inactive wells were non-compliant with suspension requirements. We did not see evidence of a plan to ensure these wells were brought into compliance.

Abandonment (Decommissioning)

AER completes proactive inspections on abandoned wells; however, there is no assurance process to ensure routine abandonments are complying with directives

The second phase in closure is abandonment or decommissioning, which means operators must leave their inactive oil and gas infrastructure in a safe and secure condition.

An operator must seek approval to abandon a well. If AER approves the application, the abandonment is considered “routine” and can proceed without the operator having to submit an abandonment plan to AER.

Currently, AER does not have an assurance process to verify that routine abandonments are completed in accordance with its directives. AER conducts proactive inspections on some abandoned wells to check for contamination; however, these inspections do not include verifying if the abandoned wells comply with closure requirements. AER conducted 539 proactive inspections of abandoned wells from 2015 to 2020. A total of 18,912 wells were abandoned between 2018 and 2020.

If an abandoned well leak is identified by the licensee or AER, the licensee must submit an abandonment plan for AER approval.

AER estimates there are around 200 abandoned wells that are currently leaking in the province. Most of these leaking wells were identified and self-reported by the licensees during site remediation and reclamation work.

Inspections of inactive facilities are occurring. With less than three per cent of inactive facilities currently reclaimed, the number of inspections is considerable

We found that AER receives and approves the required Decommissioning and Land Reclamation Plans for inactive oil and gas facilities. AER also inspects suspended facilities to ensure their potential risk to public safety and the environment is minimized. From 2015 to 2020, AER conducted 6,331 proactive inspections on inactive facilities, averaging more than 1,200 per year. According to AER, there are more than 90,000 facilities in the province, with the number of inactive facilities estimated to be 28,000. Because less than three per cent of the inactive facilities are fully reclaimed, those facilities will continue to be subject to inspections. Thus, the more facilities that get reclaimed there will be less strain on AER's resources needed for inspections.

Requirements exist for measuring fugitive greenhouse gas emissions from active wells; however, no similar requirements exist for inactive wells

One of the environmental risks associated with inactive wells is the leaking of greenhouse gases such as methane. AER has a Well Integrity Management Directive that requires operators to measure fugitive gas emissions from active wells. However, the directive does not apply to inactive wells. To better understand the gas emissions contribution from inactive sites, AER is working to collect more information on their magnitude and prevalence.

Reclamation

AER has increasingly automated its approval process for reclamation certificates, but improvements are needed to ensure approvals are consistently valid

In 2016, AER launched OneStop³³ to automate certain regulatory functions, including the processing of routine and lower risk applications for reclamation certificates. Programmed into OneStop are “business rules” (for example, does a site have contaminants?) and other validation checks (for example, are all necessary data fields completed?) to determine whether a manual review of the application is necessary. In many cases, applications through OneStop are approved (following a 30-day public notice period), provided a business rule is not triggered.

We completed testing of a representative sample of reclamation applications that were automatically approved through OneStop. We found that the various controls programmed into OneStop operated as designed; however, we did find key exceptions that indicate weaknesses in some automated controls:

- We found that OneStop approved incomplete applications. We noted multiple instances in which “key” required³⁴ data fields were blank, including professional declarations, missing allowed variances justification, and conclusion on the risk of contamination.
- We examined three cancelled reclamation certificates and two were not reflected on the OneStop public portal as cancelled, leaving users the impression the certificates were still valid.
- An automatically processed application should have been flagged for manual review as the licensee had a record of multiple reclamation certificates being cancelled for failing to meet reclamation requirements.

Manual reviews for reclamation certification are occurring; however, improvements are needed to ensure judgments and reviews are properly evidenced

A manual review of reclamation certification applications (or portions of an application) is required when certain business rules are triggered in OneStop. A licensee or their third-party expert may be required to provide a justification for why the application should be approved despite having triggered a rule. AER is supposed to review and approve these justifications.

We examined a representative sample of manually approved applications and noted key issues:

- In 20 per cent of applications, we found no documentation of AER reviewer’s assessment of risk or the reviewer’s rationale for approving the applications.
- In 25 per cent of applications that had pre-approved variance requests,³⁵ we found no evidence of review by AER. One of the requests was for a variance from reclamation criteria for areas with noxious weeds.
- We identified one instance where calculations completed were incorrect. AER reviewer referred to these calculations as support for the approval of a variance to allow contamination in proximity to a domestic aquifer. AER reviewer did not identify the error in the consultant’s assessment.

One step AER has taken to help improve documentation of review going forward is usage of the Structured Review Tool (SRT).³⁶ The tool has helped to formalize the review process and enables consistency across all AER reviewers and should reduce the likelihood of the issues noted previously. Applications that have not been processed under the new tool may be at greater risk of not having sufficient documented support of AER’s review.

³³ OneStop is AER’s application review technology that uses an integrated decision approach to streamline AER’s baseline review of applications for lower-risk activities and forwards applications for higher-risk activities to AER staff for a more detailed assessment. More recently, the application’s functionality was expanded to include other regulatory functions such as processing of reclamation certificates.

³⁴ The Specified Enactment Direction 002 (SED 002) details the application submission requirements and guidance for reclamation certificates for well sites and associated facilities.

³⁵ Variance requests apply to sites that do not meet the reclamation requirements, but it is of the opinion of a third-party certified professional that the site demonstrates the required ecological function, and that equivalent land capability is trending towards the required benchmarks; thus, the site is deemed to meet reclamation requirements. Variance request can either be pre-approved by AER prior to the submission of the application, or as part of the application submission. All variance requests are manually reviewed by AER.

³⁶ The Structured Review Tool (SRT) is an electronic review tool within AER. An SRT is required to be completed for every business rule that is triggered by the application. The tool was introduced on November 30, 2018 but did not become fully implemented until June 30, 2019.

AER lacks processes to ensure third-party professional declarations meet requirements

Licensees must have a certified professional sign-off on all reclamation and remediation work completed on the site. The professional is required to be in good standing with one of seven recognized professional organizations and have a minimum of five years of relevant experience. Professionals are required to sign AER's Professional Declaration for Reclamation Certificate Application form for all remediation and reclamation work.

We found the following in the process we examined:

- Our audit noted 20 per cent of applications in the representative sample did not include a signed Professional Declaration for Reclamation Certificate Application form, which is required prior to a reclamation certificate being issued.
- AER does not maintain a listing of pre-approved professionals or keep track of professionals associated with cancelled reclamation certificates and/or with operators that have a poor compliance history. For example, in one case, AER concluded a licensee provided false and misleading information to AER on 59 reclamation certificate applications. While AER flagged the third-party company who provided the professional declarations for the work completed, AER did not flag the individual professionals who signed off on all the work. Thus, there is an elevated risk AER could unknowingly be relying upon a declaration from a professional that was previously associated with false or misleading information.

AER audits reclamation post-certification; however, the process has been inconsistent and there is a 16 per cent rate of non-compliance

In conjunction with OneStop, AER developed the Reclamation Audit Program to ensure compliance with reclamation requirements. Within two years of being issued, reclamation certificates are subject to audits to assess compliance with standards.³⁷ Based on audit results, AER may revoke the reclamation certificate. After two years, sites are no longer monitored by AER but may be investigated if AER receives a complaint.

AER conducts several types of reclamation certificate audits: technical/administrative desktop audits; surface audits; and subsurface audits.³⁸ During our sample period, AER completed 782 desktop, 130 surface, and 75 subsurface audits. As a result of the audits, AER cancelled 154 reclamation certificates, for a non-compliance rate of 16 per cent. We found that 134 of these cancelled reclamation certificates were approved through OneStop's automated process.

In the 2017–2018 fiscal year, AER completed 75 subsurface on sites deemed high-risk because of their proximity to urban areas. As a result of the audits, AER cancelled 14 reclamation certificates—a non-compliance rate of 18 per cent—because it found the sites had contaminants exceeding environmental standards.

Management informed us that the pause in inspection was due to a lack of resources. Subsurface audits began again in fiscal 2020–2021 where AER completed nine subsurface audits, cancelling two for not meeting reclamation standards.

Our examination of a sample of desktop audits found 53 per cent of our sample where AER did not identify deficiencies in an application or where AER identified deficiencies but did not follow up on them. These were deficiencies that could have warranted cancelling the reclamation certificate. For example, some of the deficiencies included: missing professional declaration forms; detailed site assessments completed for the wrong site; and variances between the area of the lease and the reclamation area.

³⁷ Including quality of information, completeness of information, validation of surface requirements, and subsurface contamination.

³⁸ Administrative desktop audits are conducted to ensure that the information provided to AER via OneStop is complete. Technical desktop audits are conducted to determine if the quality of the information provided to AER meets the requirements for certification. Surface audits are conducted to confirm that the site conditions meet the requirements of the reclamation criteria. Subsurface audits require intrusive sampling and analyses to confirm that remediation guidelines are met.

Remediation

AER did not consistently complete reviews of remedial action plans

AER's Contaminated Sites Unit (CSU) is responsible for regulating contaminated active and inactive sites that require long-term management. An important part of CSU's responsibilities includes ensuring licensees are following remediation regulations. As of August 2020, the CSU team was responsible for regulating 1,997 sites.

On January 1, 2019, the *Remediation Regulation* came into effect, requiring licensees to submit a remedial action plan to CSU for sites that cannot be remediated to an acceptable level within two years of the operator becoming aware that there has been a release of contaminants. The remedial action plan must contain a specified timeline for completing the remediation.

We examined a representative sample of contaminated sites requiring remedial action plans. We found the licensees had completed and submitted the plans to CSU. However, for 66 per cent of the sampled sites, we found no evidence of CSU review and no supporting rationale for the assessment that the soil and water contamination risks were sufficiently understood and managed. For 60 per cent of the sites, we did not find evidence that CSU had assessed the specified timelines for remediation. For example, one submission included a remedial timeline of 45 to 80 years on a site AER classified as having inadequate contamination management and potential impacts to environment.

We found examples of inconsistent monitoring and followup by CSU of specified timelines for remediation. In one instance, the licensee had stated it would implement a long-term risk management strategy for its site in the fall of 2019. Although CSU initially followed up with the licensee about the strategy, dialogue ceased in January 2020. As of January 2022, there had been no further followup to check on implementation of the strategy.

In 2021 AER launched a dashboard, similar to OneStop, to allow for the automatic assessment of Record of Site Condition³⁹ forms against a set of business rules. Our audit did not include the system as it began operations after our audit period.

RECOMMENDATION:

Improve compliance and assurance processes for suspended and abandoned wells

We recommend that the Alberta Energy Regulator evaluate compliance assurance activities for suspended wells and routine abandonments and determine whether it is meeting AER's risk tolerance.

RECOMMENDATION:

Improve reclamation certification controls

We recommend that the Alberta Energy Regulator:

- improve the controls resulting in invalid approvals for reclamation certificate approvals
- retain documented evidence to support justifications and reviews as part of its manual reclamation certification process
- determine the necessary level of assurance work on post-reclamation certification and consistently complete it

RECOMMENDATION:

Improve oversight of remediation action plans

We recommend that the Alberta Energy Regulator ensure there is evidence of review of remedial action plans and demonstrate that timelines for remediation are being consistently monitored and followed up.

³⁹ As per AER's website: "The Record of Site Condition (RoSC) is used to track major environmental parameters for an assessed site. As per the Environmental Site Assessment Standard, an AER RoSC and its declarations must be included with all contamination management report submissions. AER's RoSC must be submitted through OneStop."

Consequences of not taking action

If weaknesses in regulatory compliance activities are not resolved, there is an increased likelihood that inactive oil and gas infrastructure is not properly closed within a reasonable amount of time, which potentially increases the risk to the environment or to public health and safety.

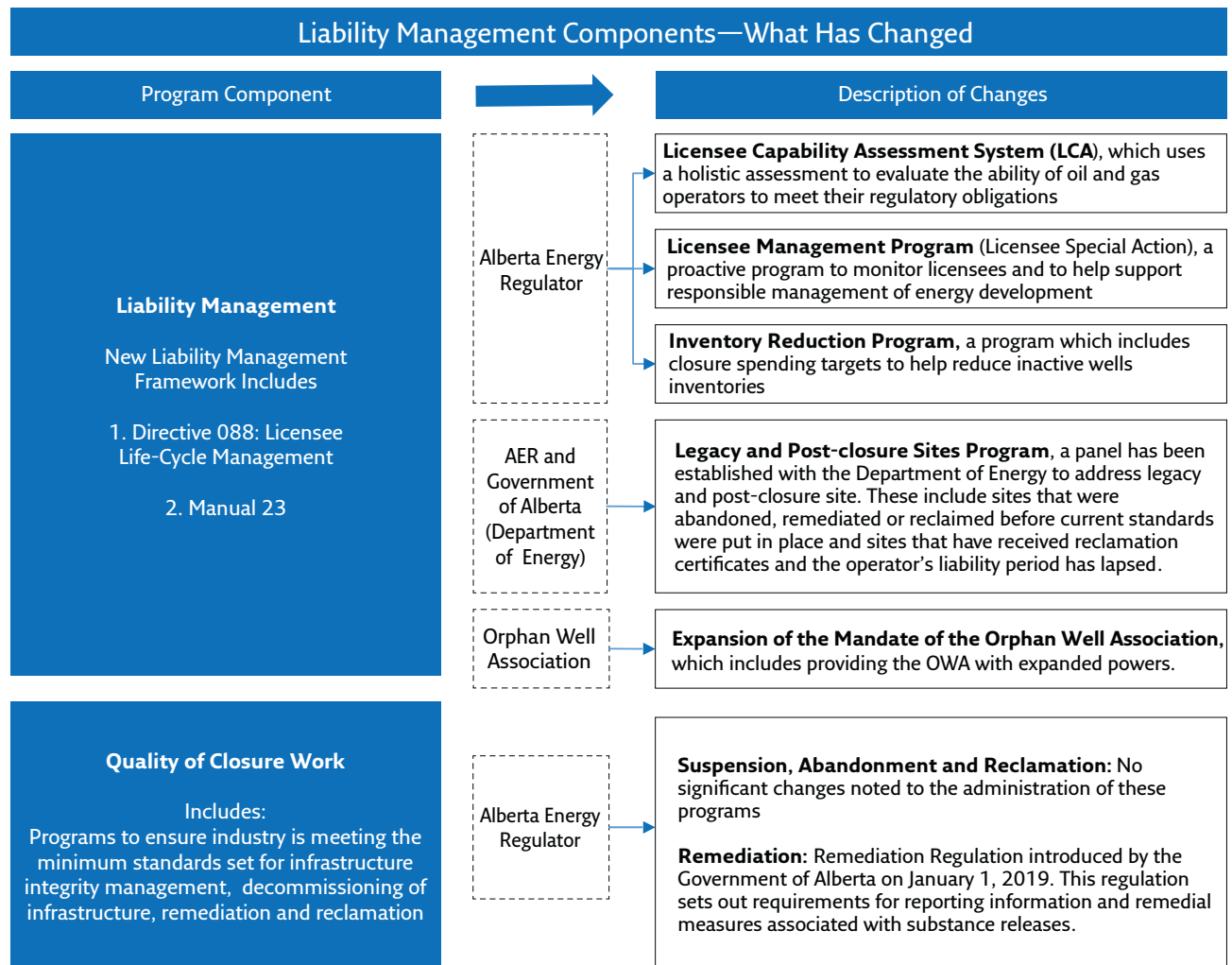
Audit Responsibilities and Quality Assurance Statement

Management of AER is responsible for the effectiveness of oil and gas liability programs at AER.

Our responsibility is to express an independent conclusion on the audit objectives.

All work in this audit was performed to a reasonable level of assurance in accordance with the Canadian Standard on Assurance Engagements (CSAE) 3001—Direct Engagements, set out in the CPA Canada Handbook—Assurance. The Office of the Auditor General applies Canadian Standard on Quality Management 1, which requires the Office to design, implement and operate a system of quality management, including policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. The Office complies with the independence and other ethical requirements of the Chartered Professional Accountants of Alberta Rules of Professional Conduct, which are founded on fundamental principles of integrity and due care, objectivity, professional competence, confidentiality and professional behaviour.

Appendix: Summary of Changes to Liability Management System



This diagram is not comprehensive of all liability management system components and how they are integrated with the new Liability Management Framework.



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