Chapter 4
Energy and Resources—Regulating Oil, Gas, and Pipeline Industry Incidents

1.0 MAIN POINTS

Saskatchewan has a significant oil and gas industry. Saskatchewan has over 35,000 oil wells, which produce in excess of 450,000 barrels of oil a day.

During the production and transportation of oil and gas (e.g., operating oil wells, moving products using pipelines) unwanted events occasionally occur, known as incidents. Incidents generally relate to the uncontrolled release of substances (e.g., spill, release of gas, leaks), fires, and damage to or malfunction of equipment. These incidents may contaminate the air, soil, or water, and pose a threat to human health, public safety, property, and the environment, as well as domestic and wild animals.

The Ministry of Energy and Resources is responsible for licensing and regulating the oil, gas, and pipeline industry. Regulating reportable incidents is one part of the Ministry's overall regulatory structure for regulating oil and gas activities in Saskatchewan.

This chapter reports on the results of our audit of the Ministry's processes to regulate that oil, gas, and pipeline industry operators resolve incidents to protect public safety and the environment. The Ministry needs to improve its regulatory processes in the following three key areas:

➢ Document its classification of risks of reported incidents, and its expectations on the nature and timing of its involvement to regulate reported incidents. A formal process to classify the risks of reported incidents fosters consistent consideration of the consequence of an incident, and the likelihood of it posing an increased risk to the environment, public health, and safety. Taking the right action at the right time reduces the risk that industry operators fail to resolve immediate safety risks to the public or environment or fail to complete required reclamation work.

➢ Consistently inform industry operators when it is satisfied that industry operators have resolved reported incidents. Having a consistent approach for informing industry operators as to whether the Ministry is satisfied with the resolution of the incident will promote consistent communication and reduce the risk that industry operators may assume incidents are resolved when they are not.

➢ Set expectations for documenting its key activities for regulating reported incidents. Setting clear expectations for staff to follow would help ensure the Ministry keeps sufficient and complete records of its actions and decisions to regulate reported incidents.

2.0 INTRODUCTION

This chapter sets out the results of our audit of the processes the Ministry of Energy and Resources (formerly the Ministry of the Economy)[1] uses to regulate reportable oil, gas, and pipeline incidents in Saskatchewan. **Section 6.0** is a glossary of technical terms used in this chapter.

2.1 Responsibility for Regulating Reportable Incidents

Saskatchewan was the second highest oil producer among Canadian provinces, accounting for 13% of Canada's oil production. In 2016, Saskatchewan had an estimated 900 million barrels of crude oil reserves and an estimated 1.7 trillion cubic feet of natural gas reserves.[2] The province had approximately 105,500 kilometres of pipelines and flowlines.[3]

The Ministry of Energy and Resources is responsible for licensing and regulating the oil, gas, and pipeline industry. The Ministry regulates these areas under *The Oil & Gas Conservation Act* and *The Pipelines Act, 1998*.

A primary purpose of *The Oil & Gas Conservation Act* is to protect the environment, property, and safety of the public with respect to the operations of the oil and gas industry.[4]

Regulating reportable incidents is one part of the Ministry's overall regulatory structure for regulating oil and gas activities in Saskatchewan. The Ministry's regulatory structure also includes:

➢ Licensing oil, gas, and pipeline industry operators for activities such as drilling and operating wells, and constructing and operating pipelines

➢ Inspecting licensed industry operations to monitor and determine whether industry operators operate consistent with licence requirements

➢ Regulating that industry operators reclaim sites to original condition once industry operations are finished

A reportable incident is an event that oil, gas, and pipeline industry operators must report by law. Reported incidents generally relate to the uncontrolled release of substances (e.g., spill, release of gas, leaks), fires, and damage to or malfunction of equipment.

Saskatchewan's regulatory structure places the onus on the industry operator of a well, facility, pipeline, or flowline to be the first to notify the public and/or landowners of immediate risks to public safety when such incidents occur (e.g., when the industry operator activated their emergency response plan).[5]

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[1] On February 2, 2018, the Government of Saskatchewan discontinued the Ministry of the Economy and created three separate ministries: the Ministry of Energy and Resources, the Ministry of Trade and Export Development, and the Ministry of Immigration and Career Training (Orders in Council #49/2018 to 53/2018 each dated February 2, 2018).
[2] www.capp.ca/canadian-oil-and-natural-gas/industry-across-canada/saskatchewan (14 February 2018).
[3] Ministry of Energy and Resources records.
[4] *The Oil & Gas Conservation Act*, section 3(1)(f).
[5] www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/oil-and-gas/environmental-protection/incident-management-and-reporting (14 February 2018).

Various laws require industry operators to notify and report incidents to the Ministry.[6] In addition, laws require the industry operators to remediate the impacted area to a state to which the Minister is satisfied.

The Ministry has four field offices located at Lloydminster, Kindersley, Swift Current, and Estevan, and a head office in Regina. Field offices are responsible for delivering programs and enforcing the requirements specified under the legislation and related directives including those related to regulating reported oil and gas incidents.

2.2 Importance of Response to Reportable Incidents

Oil, gas, and pipeline incidents have the potential to contaminate the air, soil, or water. They can pose a threat or risk to human health, public safety, property, and the environment, as well as domestic and wild animals.

Incidents that require reporting to the Ministry occur, on average, multiple times per day (see **Figure 1**). The source, nature, location, frequency, and severity of those incidents can vary.

Figure 1—Number of Incidents Reported to the Ministry from 2012-13 to 2016-17

Fiscal Year	Number of Incidents Reported to the Ministry	Number of Industry Operators Reporting Incidents
2016-17	657	66
2015-16	644	72
2014-15	802	82
2013-14	888	80
2012-13	847	118

Source: Ministry of Energy and Resources records, www.publications.gov.sk.ca/redirect.cfm?p=78193&i=87695 (14 February 2018).

Historically in Saskatchewan, incidents that cause significant damage (e.g., to the environment) occur infrequently. Such incidents can have significant consequences for human health, the environment, wildlife, and oil company profitability.

For example, the Husky Maidstone oil spill in July 2016 released an estimated 225 cubic metres of crude oil blended with condensate with about 60% of this volume contained on land and about 40% entering the North Saskatchewan River.[7] This affected the drinking water supply of nearby residents, as the North Saskatchewan River is the primary source of drinking water for the cities of Prince Albert and North Battleford. The Government is assessing and monitoring the oil spill's effect on the water, shoreline, fish, and other aquatic wildlife.[8]

Timely action and response to incidents helps protect people and the environment, and mitigate damage caused by the incident. Determining whether industry operators report and take appropriate actions as laws require helps limit damage to the environment (e.g.,

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[6] *The Oil and Gas Conservation Regulations, 2012, The Pipelines Act, 1998,* and *The Pipelines Regulations, 2000.*
[7] www.saskatchewan.ca/business/environmental-protection-and-sustainability/hazardous-materials-and-safe-waste-management/husky-maidstone-oil-spill (21 March 2018).
[8] Ibid.

air and water pollution) and reduce threats to human health and property when these incidents occur.

3.0 AUDIT CONCLUSION

We concluded that for the 12-month period ended September 30, 2017, the Ministry of Energy and Resources had, except in the following areas, effective processes to regulate that oil, gas, and pipeline industry operators resolve incidents to protect public safety and the environment.

The Ministry needs to:

➢ **Set expectations for documenting its key activities for regulating reported incidents**

➢ **Document its classification of risk of reported incidents and its expectations on the nature and timing of its involvement to regulate reported incidents**

➢ **Consistently inform industry operators when it is satisfied that industry operators have resolved reported incidents**

This conclusion does not extend to the Ministry's regulation of the July 2016 Husky Maidstone oil spill. As explained in **Figure 2**, our audit work on its regulation of this incident was limited as certain information related to this incident was with the Ministry of Justice. At the time of our audit, the Ministry of Justice was determining whether charges under the province's environmental protection legislation were warranted. In late March 2018, various charges were laid against Husky under *The Environmental Management and Protection Act* (Saskatchewan), the *Fisheries Act* (Canada), and the *Migratory Birds Convention Act* (Canada). As of April 9, 2018, these matters were before the courts.

Figure 2—Audit Objective, Criteria, and Approach

Audit Objective:

The objective of this audit was to assess whether the Ministry of Energy and Resources (formerly the Ministry of the Economy) had effective processes, for the 12-month period ended September 30, 2017, to regulate that oil, gas, and pipeline industry operators resolve incidents to protect public safety and the environment.

Audit Criteria:

Processes to:
1. Maintain guidance to regulate that industry operators resolve incidents
   1.1 Establish incident reporting requirements
   1.2 Establish criteria on what the Ministry considers as a satisfactory resolution to incidents
   1.3 Maintain risk-based framework to guide staff
   1.4 Use qualified and properly trained personnel

2. Monitor reported incidents
   2.1 Track key information about incidents
   2.2 Investigate concerns received other than incidents reported from industry operators
   2.3 Investigate incidents within a reasonable period
   2.4 Act based on documented results of investigation
   2.5 Co-ordinate with other regulating agencies when necessary (e.g., Ministry of Environment, National Energy Board, etc.)

3. Report impact of incidents timely
   3.1 Notify industry operator when incident resolved to the Ministry's satisfaction

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> 3.2 Report significant risks or implications to senior management and Minister within a reasonable period
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> 3.3 Report promptly to public when incidents pose a threat to public safety
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> **Audit Approach:**
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> To conduct this audit, we followed the standards for assurance engagements published in the *CPA Canada Handbook – Assurance* (including CSAE 3001*)*. To evaluate the Ministry's processes, we used the above criteria based on related work, reviews of literature including reports of other auditors, and consultations with management. Ministry management agreed with the above criteria.
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> We examined the Ministry's relevant strategies, policies, and procedures. We observed incident sites at two field offices and tested a sample of incident reports, complaints, and investigations completed by the Ministry. We consulted with an independent consultant with subject matter expertise. We also reviewed the Ministry's directives and reporting expectations for industry operators.
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> Our audit work to evaluate the Ministry's regulatory activities of the Husky Maidstone oil spill was limited to avoid impacting on the integrity of the judicial process. At the time of our audit, the Ministry of Justice was determining if charges under the province's environmental protection legislation were warranted. We considered information the Ministry made publicly available (e.g., updates, and reports on its website about the incident). We did not examine any records the Ministry gave to the Ministry of Justice related to the Husky Maidstone oil spill. This included detailed records that documented the results of the Ministry's investigation of this incident. Upon the advice of the Ministry of Justice, we did not interview any employees or contractors who may be a witness to the related prosecution about the incident. We obtained written evidence from the Ministry of Justice that all records the Ministry provided to the Ministry of Justice were confidential and could not be shared without risking the integrity of the judicial process.

4.0 KEY FINDINGS AND RECOMMENDATIONS

4.1 Qualified Staff Used to Regulate Incidents

The Ministry used qualified staff in its four field offices to regulate incidents, and clearly defined their roles and responsibilities.

The Ministry has approximately 30 field office staff. A manager leads each field office. Each field office is assigned a portion of the province. As shown in **Figure 3,** the number of incidents each field office handles varies.

Figure 3—Number of Incidents Reported to the Ministry by Field Office from 2012-13 to 2016-17

Ministry Field Office Location	Number of Incidents Reported to the Ministry				
	2016-17	**2015-16**	**2014-15**	**2013-14**	**2012-13**
Estevan	291	247	361	346	363
Swift Current	109	136	160	196	164
Lloydminster	91	131	164	194	177
Kindersley	166	130	117	152	143
Total	**657**	**644**	**802**	**888**	**847**

Source: Ministry of Energy and Resources records*,* www.publications.gov.sk.ca/redirect.cfm?p=78193&i=87695 (14 February 2018).

The Ministry clearly defined the qualifications expected, and roles and responsibilities of field office staff in job descriptions.

For example, it expected field office technologists to have a mix of formal training (e.g., University degree in Engineering or Geology), on-the-job experience (e.g., a thorough

knowledge of operations of area spill-response units), and certain industry certifications (e.g., CPR, H₂S Alive training).[9]

Field offices deliver programs and enforce laws and Ministry directives including those related to regulating reported oil and gas incidents. Some of their key tasks that relate to regulating incidents include the investigation and approval of: spill response and notification; regulating oil and gas site decommissioning and reclamation; developing spill prevention programs; establishing training priorities; and co-ordinating spill-responders training.

The Ministry primarily uses on-the-job training to develop critical skills and experience necessary to regulate incidents. It provides additional staff training and certifications to increase staff knowledge of the oil and gas industry.

For the qualifications and experience of 15 field office staff we reviewed, we found each had qualifications and suitable expertise to complete the work they were assigned. We found that, on average, field office staff had 11 years of experience with experience ranging from 0.5 to 38 years.

For training of 15 field office staff we reviewed, we found during the 12-month period ending September 2017, each had completed training in areas such as geotechnical training, thermal camera imaging, and incident command training, along with other relevant courses. In addition, each had up-to-date H₂S certification, as the Ministry expects.

Furthermore, we found the Ministry provided staff with the equipment required to complete their work (e.g., sour gas detection and monitoring equipment).

In addition, the Ministry may involve other agencies with regulatory responsibility in resolving incidents, depending on the nature of the incident. For example, the Ministry of Environment may be involved when an oil spill occurs near water (e.g., a river). Having processes to co-ordinate its response with other agencies, and leverage expertise of others helps the Ministry make sure industry operators resolve incidents satisfactorily.

4.2 Regulatory Direction about Incidents Sufficient

The Ministry, through directives, gives oil, gas, and pipeline industry operators sufficient and clear direction as to their responsibilities for reporting and addressing oil, gas, and pipeline incidents.

Directives have the force of law. The Ministry has four directives key to regulating reportable oil, gas, and pipeline incidents. They are:

➢ Directive PNG014 *Incident Reporting Requirements* - sets out the Ministry's requirements for regulating the notification and reporting of spills and other incidents related to wells, facilities, pipelines, and flowlines. For example, it identifies incidents that industry operators must report. It gives specific detail on when, how, and what

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[9] An industry certification required for any worker who may be exposed to Hydrogen Sulfide (H₂S, sour gas). It requires successful completion of a practical skills and written exam. The certification is valid for three years.

information to report. In addition, it defines consequences of non-compliance with these requirements (e.g., suspend well licence).[10]

➤ Directive S-01 *Saskatchewan Upstream Petroleum Industry Storage Standards* - requires industry operators to submit up-to-date copies of their corporate emergency response plans to the Ministry and be a member in good standing of an Area Spill Response Unit.

➤ Directive PNG001 *Facility Licence Requirements* - requires industry operators to submit up-to-date copies of their corporate emergency response plans to the Ministry and gives additional guidance on requirements for emergency response plans.

➤ Directive PNG016 *Acknowledgement of Reclamation Requirements* - provides requirements for reclaiming impacted areas (e.g., refers industry operators to specific guidelines of the Saskatchewan Petroleum Industry/Government Environmental Committee).

Besides directives, the Ministry gives industry operators further information and support. For example, it gives industry operators access to its online business IT system (Integrated Resource Information System [IRIS]) used to regulate Saskatchewan's energy and resources industry. It expects industry to report incidents through this IT system. Its IRIS help desk is available 24/7 to provide assistance. In addition, it provides detailed instructions on how to complete each report in IRIS. It makes its directives and guidance available on the Ministry website and has a Petroleum and Natural Gas Services support line.

We found the directives and further information understandable and readily accessible.

In addition, we found the Ministry requires industry to report similar types of incidents as Alberta and British Columbia.

We found the reporting it requires from industry operators provides the Ministry with sufficient information to assess the immediate impact of the reported incident (e.g., identify immediate hazards to the environment or public that need to be contained), and to determine the Ministry's next regulatory steps (e.g., visit the site of the incident).

Also, the Ministry consulted with industry operators when considering changes or revisions to the incident reporting requirements. For example, we observed it asked industry operators in September 2017 to give input on proposed changes to the Ministry's incident reporting requirements.

4.3 Incident Reporting Timelines Reasonable

The Ministry's incident reporting requirements set reasonable timeframes for industry operators to report incidents to the Ministry.

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[10] The Directive provides industry operators with specific guidance on actions required if the incident occurs at an industry operators' leased site or elsewhere.

The Ministry sets the following reporting timelines:

➢ Phone Notification – Immediate (for incidents meeting certain criteria in the incident reporting requirements)

➢ Initial Incident Notification – 5 days

➢ Detailed Incident Report – 90 days

➢ Incident Reclamation Report – 6 months from completion of reclamation

These reporting timelines give industry operators sufficient time to obtain detailed and accurate information to provide to the Ministry (e.g., spill volumes) about the incident. In addition, it gives industry operators reasonable amounts of time to complete the required reports.

4.4   Incident Reporting Thresholds Reasonable

The Ministry set reasonable incident reporting thresholds for releases of substances.

As shown in **Section 5.0**, for incidents involving substances like oil, salt water, gases, and wastes, the Ministry requires industry to report when escapes or releases of these substances exceed certain thresholds (i.e., concentration, volumes). We found these thresholds reasonable and consistent with the risks posed to the environment and human health.

We noted the Ministry improved, in 2015, its incident reporting requirements by requiring industry operators to report incidents where any volume of sour gas that poses a danger to human health, domestic animals, wildlife, or the environment is released from wells or facilities. This change expanded reporting required from industry operators. Before this change, the Ministry only required industry operators to report releases of sour gas concentrations that exceeded 1,000 parts-per-million.

Sour gas, a natural gas that contains significant amounts of H_2S, is associated with the production of oil and gas. It is poisonous to humans, animals, and the environment.[11] Gases containing concentrations of H_2S in excess of 100 parts-per-million are immediately dangerous to life and health.[12]

4.5   Guidance on Classifying Risks of Incidents Needed

The Ministry did not give its staff or industry operators guidance on classifying risks of reportable incidents or steps it expects staff to take to regulate reportable incidents. It expects staff to use their knowledge and experience to make these determinations. This results in inconsistent decisions on the nature and timing of Ministry involvement of incidents presenting similar risks.

In addition, the Ministry does not document its informal assessments of risks posed by incidents or decisions on its involvement. The Ministry does not require staff to do so.

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[11] www.ucalgary.ca/envirophys/sgimpacts2 (14 February 2018).
[12] https://ohsonline.com/articles/2011/09/01/monitoring-h2s-to-meet-new-exposure-standards.aspx (22 March 2018).

Based on discussions with staff and review of incident files, we identified staff informally carry out the following key steps when notified of an incident:

➢   Determine whether the reported incident fully falls within the Ministry's regulatory responsibilities, within Ministry of Environment regulatory responsibilities (e.g., where spill flows into a water body), or jointly.

➢   Identify and evaluate potential severity and risks of reported incidents. They use this risk assessment to determine the nature and level of their involvement.

Staff do this initially and then at varying stages throughout the regulatory process. They consider factors such as the proximity of the incident to water, type of substance released, and ability to contain and recover it. They use information received at each reporting stage from industry operators (via phone notification, initial incident notification, and detailed incident report) and from their own activities.

Our review of incident reporting guidance of other jurisdictions (e.g., Alberta) found they have a written risk assessment process to guide staff and industry in classifying incidents (e.g., high, moderate, low risk). High-risk incidents would be situations where the operator will likely need assistance to bring the situation under control, and address the consequences of the incident. These situations warrant faster action and a higher level of involvement of regulatory staff. Whereas low-risk incidents could be where a spill is contained and does not pose health or safety issues. These situations allow for lesser direct involvement of regulatory staff (e.g., monitor receipt of reports from industry and review them).

For all 30 incidents we tested, the Ministry did not document its risk assessment of the incident. From discussions with relevant staff (i.e., regional managers, technologists), we found they informally assessed the risk of each incident and used that assessment to determine their involvement. We found they were aware of the major risks incidents pose. For 16 of 30 incidents we tested, the Ministry did not investigate the incident in that it assessed the risk associated with those incidents as low. For 15 of those 16 incidents, we considered its assessments to be reasonable.

For 1 of the 16 incidents we tested with no on-site visits, we thought an investigation would have been useful given the nature of the incident (i.e., approximately 60 m^3 of oil spilt with at least 5 m^3 of that going into a slough). Due to the spill affecting a water body, we thought the Ministry would have conducted an investigation.

For 14 of 30 incidents we tested with investigations, we noted the timing of the initial on-site visits varied significantly even though staff had assessed the incident as presenting a similar level of risk. We found this variance often linked to the field office responsible for the incident. One field office frequently did initial on-site visits the same day or the day after the industry operator reported the incident. For similar incidents we tested, other field offices did initial on-site visits weeks or months after the incident was reported. Field office staff noted variances were due primarily to workload. As shown in **Figure 3**, the number of incidents reported in each field office vary significantly.

While the risks associated with each reported incident vary, use of a risk matrix helps industry and staff identify and classify risks on a more consistent basis. It does not replace staff using their knowledge and experience when making decisions about Ministry involvement. Rather it fosters consistent consideration of the consequence of an incident,

and the likelihood of it posing an increased risk to the environment, and public health and safety. Taking the right action at the right time reduces the risk that industry operators fail to resolve immediate safety risks to the public or environment or fail to complete required reclamation work.

In addition, documenting the classification of the risk of reported incidents, and decisions on Ministry involvement needed gives managers the ability to supervise whether staff make reasonable and supportable decisions.

1. **We recommend that the Ministry of Energy and Resources document its classification of risk of reported incidents in relation to oil and gas wells, facilities, pipelines, and flowlines, and its expectations on the nature and timing of Ministry involvement.**

At March 2018, we observed the Ministry had started to develop a process to guide initial responses to reported incidents. This draft process includes the use of a matrix to classify the risks of reported incidents.

4.6   Reclamation Standards and Guidelines Clear

The Ministry had clear reclamation guidelines for industry operators to follow when completing reclamation work resulting from incidents in Saskatchewan.

The Ministry, through its directives, requires industry operators to treat or dispose of any contaminated material and remediate, or where necessary, reclaim the impacted area to the satisfaction of the Ministry. It expects industry to use reclamation guidelines when completing reclamations of sites. Also, it requires a third-party expert to complete the reclamation report for any incident that occurs off-lease. Off-lease is outside of the area of a well or facility site that is surrounded by a berm or a dike, or is outside a contoured area that would contain a release of liquid, semi-solid, or solid. Use of a third party expert increases the likelihood that the reclamation work is appropriate and that the site is restored to its previous state.

In addition, the Ministry uses its involvement in the Saskatchewan Petroleum Industry/Government Environmental Committee to maintain documented reclamation guidelines for industry operators to follow.[13] The Committee consists of representatives from provincial agencies (e.g., ministries of Environment, Energy and Resources, etc.) as well as industry associations (e.g., Canadian Association of Petroleum Producers, Petroleum Services Association of Canada).[14] It establishes reclamation guidelines and keeps them current.

4.7   Industry Operators Generally Reporting to Ministry As and When Required

Industry operators are reporting incidents to the Ministry in the manner the Ministry expects and generally within the timeframes specified in directives.

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[13] The Committee was formed to respond to the need for government and industry to work co-operatively to resolve provincial environmental issues that the petroleum industry presents. Its overriding goal is to ensure the continued growth of the oil and natural gas industry with development proceeding in a manner that minimizes adverse environmental effects.
[14] www.environment.gov.sk.ca/Default.aspx?DN=e29a4131-5a56-481b-a4fa-5cfaabf218f5 (9 March 2018).

The Ministry uses IRIS to record key information about all oil, gas, and pipeline incidents and to manage its processes to regulate incidents. It gives the oil and gas industry access to IRIS. Industry operators can directly enter information into IRIS about their business activities and regulatory tasks including reports about incidents.[15]

IRIS had the capability, security features, and tools to track industry operators' incident reports. We noted that reports submitted into IRIS were consistent with directive requirements. These reports provided Ministry staff with the information necessary to monitor the status of reported incidents and to monitor reclamation work.

We found that IRIS had the tools and contained sufficient information to allow both Ministry staff and industry operators to view and edit work completed to resolve the incident as necessary. Our work found the Ministry's controls in IRIS to secure information operated effectively.

IRIS automatically monitors industry operators' submission of incident reports. When industry operators do not meet the incident reporting requirement deadlines, IRIS reminds the industry operator to submit outstanding reports. In addition, IRIS can automatically inform industry operators of missing information.

For almost all of the 30 reported incidents we tested, industry operators submitted required reports into IRIS within the timeframes specified in the Ministry's incident reporting requirements. For the 30 reported incidents we tested, industry operators submitted 27 of 30 initial reports, and 23 of 30 detailed reports within the Ministry's specified timeframe.

For all incidents we tested where industry operators did not submit the detailed reports on time (e.g., the report was not provided within the required 90 days after the incident occurred), IRIS sent a notification to the industry operator and the industry operator subsequently provided the missing reports.

For all 30 incidents we tested, the industry operator was a member of an Area Spill Response Unit as required. For the industry operators we tested, we found the Ministry had updated copies of operators' emergency response plans as expected.

4.8   Sites Affected by Incidents Reclaimed as Required

Industry operators are reclaiming sites as required.

For all 21 incidents we tested requiring reclamation, industry operators followed accepted reclamation standards or guidelines. For 20 of the 21 incidents we tested requiring reclamation, operators followed Saskatchewan Petroleum Industry/Government Environmental Committee #4 guidelines.[16] The other incident followed standards set by the Ministry of Environment (i.e., the Saskatchewan Environmental Quality Guidelines).

Also, 20 of 21 incidents we tested requiring reclamation had reclamation reports completed by a third party (i.e., external engineering firm or environmental reclamation expert). For the other incident, an employee of the industry operator completed the reclamation report. This was acceptable under the incident reporting requirements

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[15] www.saskatchewan.ca/iris (14 February 2018).
[16] www.publications.gov.sk.ca/details.cfm?p=75538 (12 March 2018).

because the spill occurred entirely on-lease (i.e., the spill was contained within a contoured area).

4.9 Documentation of Key Regulatory Activities Needed

The Ministry has not set expectations of what minimum information it expects staff to document about its regulatory activities related to reported incidents. It does not always keep records of its key activities to regulate reported incidents. Also, while IRIS is designed and readily available to document activities, the Ministry did not consistently use it to record them.

For reported incidents that Ministry staff assess as low risk to the environment, property, and the public, Ministry involvement and activities include monitoring the receipt of the required reporting from the industry operator (initial incident notification, detailed incident report, and incident reclamation report [as needed]), and reviewing the reports.

At each stage, staff decide whether on-site visits/investigations are warranted.

For incidents other than low risk, field office staff investigate on-site. During on-site investigations, staff interact with both industry operators and landowners. They may attend the site of the incident multiple times.

They may initially visit the site to gather additional information about the incident (e.g., volume and extent of a spill) or to corroborate information obtained from the site operator. They carry out additional on-site investigations depending on their informal assessment of risks the incident poses, the progress of the operator in containing and addressing the situation, and to confirm proper reclamation was done. They use on-site investigations to determine whether industry operators are taking appropriate and timely actions, and have satisfactorily resolved the incident.

For 14 of 30 incidents we tested, the Ministry completed an on-site investigation. For some of these incidents, the Ministry did more than one on-site investigation. For each of these incidents, we found the field office staff that completed the investigation had appropriate expertise and training. We found that the Ministry acted appropriately on the results of investigations (e.g., continued follow up until expected work was completed).

However, for these 14 incidents with investigations we tested, the documentation of these investigations varied significantly.

➢ For 5 of the 14 incidents we tested with investigations, the Ministry did not use IRIS to record the results of its investigations.

We found field offices did not always keep good or complete records of their investigation activities of incidents. For example, for one of these five incidents, initially in response to our query, the Ministry indicated it did not investigate the reported incident; it had accepted the operator's reports without carrying out additional steps as it had assessed the incident as low risk. Later, after our further inquiries, the Ministry gave us information on its investigation activities of this incident.

➢ For the other nine incidents we tested with investigations, the amount of documentation recorded in IRIS varied significantly. For example, for some incidents, IRIS simply indicated the investigation was complete and the industry operator's resolution of the incident was either satisfactory or unsatisfactory. For other incidents, IRIS included detailed notes of regulatory activities completed and the investigation results.

The Ministry does not provide staff with written expectations to guide them when completing on-site investigations and to assist them in determining what key information to document. Rather it expects staff to use their discretion and judgment. We found significant variances in documentation of investigations. Some were very detailed and easy to follow. Others had limited details (e.g., did not document who inspected, when, and/or the investigation results).

Also, use of IRIS to record incident regulatory activity varied by field office. We found certain field offices would use IRIS to primarily record satisfactory investigations (e.g., 87% of the Lloydminster field office investigations in IRIS were satisfactory), while other offices would use IRIS to only record unsatisfactory investigations (e.g., 100% of investigations the Estevan and Kindersley field offices entered in IRIS were unsatisfactory).

Setting clear expectations for all field office staff of what key regulatory activities the Ministry expects staff to document will help ensure it has sufficient and complete records of its regulatory activities. Not recording information about key regulatory activities (e.g., results of investigations) in a consistent way could result in information being lost (e.g., corporate knowledge may be lost in the event of staff turnover) and not completing key regulatory activities (e.g., if staff need to follow up on outstanding work).

In addition, using IRIS to record its regulatory activities would facilitate sharing of information within the Ministry and with industry operators. Capturing information about its key activities to regulate reported incidents and decisions reached may provide the Ministry with useful information to assist in its other regulatory activities (e.g., when planning annual inspections).

2. **We recommend that the Ministry of Energy and Resources set expectations for documenting key activities for regulating reported incidents of spills or other incidents relating to oil and gas wells, facilities, pipelines, and flowlines.**

4.10 Complaints Associated with Reportable Incidents Not Always Well Documented

The Ministry has not set expectations of what information it expects staff to document when handling complaints related to reportable incidents. Field offices did not always document the receipt and resolution of these complaints well.

The Ministry was unable to tell us how many complaints it received related to reportable incidents; it does not track that information.

Field office staff are responsible for handling all public or landowner complaints made to their offices. This includes complaints about incidents of oil and gas spills or in relation to

oil and gas wells, facilities, pipelines, and flowlines. We found each field office documents its receipt and handling of complaints differently.

For all eight complaints we tested related to reportable incidents, the Ministry completed sufficient work to resolve the complaint, and informed the complainant about the resolution. We found the documentation of the Ministry's activities varied significantly between field offices. One field office maintained separate files of complaints; others did not. Some field offices completed formal memos to the regional manager outlining the results of the staff member's assessment of the public or landowner complaint and actions taken. Some field offices used a standard template to document the complaint and resolution. Others used e-mails primarily with the public or landowner to document their work, with little or no reporting to the regional manager.

We found field offices inconsistently used a feature available in IRIS (i.e., feature available when recording an investigation in IRIS) to indicate that the source of the investigation was a public complaint and to record their related activities. Use of IRIS to record complaints related to incidents would enable the Ministry to track these types of complaints and their resolution.

Setting clear expectations for all field office staff of what key activities the Ministry expects staff to document with respect to complaints related to reportable incidents will help ensure it has sufficient and complete records. See **Recommendation 2** about expectations for documenting key activities.

4.11 Ministry Needs to Notify Industry Operators when it is Satisfied that Industry did Sufficient Work to Resolve Incidents

The Ministry did not consistently notify industry operators whether industry operators resolved incidents to the Ministry's satisfaction.

When industry operators finish incident reclamation work, the industry operator indicates in IRIS that it has fulfilled its reporting requirements to the Ministry (e.g., it submitted its reclamation report). Ministry field staff determine whether they are satisfied that the operators have taken sufficient and appropriate actions to treat or dispose of any contaminated materials and remediate, or where necessary, reclaim the area impacted by the incident. Ministry field staff do this through reviews of reports submitted and/or visits to the site to determine actions taken and their sufficiency.

Through our discussions with field office staff and testing of 14 incidents with investigations, we found that the Ministry did not always advise industry operators as to whether the industry operator had resolved the incident to the Ministry's satisfaction. In addition, when it did, it did not always document doing so.

For four of nine incidents we tested with investigations documented in IRIS, there was no record of the Ministry advising industry operators as to whether the Ministry was satisfied. Ministry staff from one field office indicated they call the operators but do not keep records of their calls. Staff from another field office indicated they take an exception basis approach; that is they only notify industry operators if they were not satisfied. Whereas, for five of nine incidents we tested with investigations, field office staff used IRIS to advise

industry operators that they were satisfied (e.g., entered information into IRIS about the satisfactory results of their investigation(s); IRIS then sends a notification to the industry operator).

Many industry operators have activities in more than one of the Ministry's field office regions. Having an inconsistent approach to informing operators as to whether the Ministry is satisfied with the resolution of the incident may cause confusion. It may cause operators to assume incidents are resolved (closed) when they are not.

Not formally informing industry operators as to whether industry operators had resolved the incident to the Ministry's satisfaction increases the risk that industry operators may not know the status of the Ministry's investigation of the incident and may leave incidents unresolved longer than necessary.

> **3. We recommend that the Ministry of Energy and Resources consistently inform industry operators that the Ministry is satisfied that industry operators have resolved reported incidents of spills or other incidents relating to oil and gas wells, facilities, pipelines, and flowlines.**

4.12 Senior Management Notified of Significant Issues

Ministry field office staff notify senior management and keep them informed of significant matters related to incidents. Senior management keeps the public informed of incidents.

We found Ministry field office staff used different methods to communicate to various senior management (e.g., phone call, e-mail), and who field staff communicated this information to varied. While significant matters related to incidents were infrequent, we observed that senior management received adequate information about the incident to determine if further Ministry action was needed (e.g., issuing a news release).

Setting expectations for field office staff to notify senior management of significant matters related to incidents will help ensure consistency. See **Recommendation 2** about expectations for documenting key activities.

None of the 30 reported incidents we tested posed an immediate risk to public safety. For four of these incidents, field office staff informed senior management of the risks posed by the incident, and appropriately kept them informed.

Each week the Ministry updates a public listing of all incidents within the province on its website.[17] This listing included basic information on each incident such as the type of infrastructure (e.g., pipeline, well, facility), type and volume of substance released (e.g., oil, gas), and status of the incident (e.g., whether reclamation work is ongoing or has been completed).

For incidents that the Ministry views as posing an immediate or on-going risk to health or as being more sensitive, it uses various mechanisms (e.g., website, news releases) to inform the public of any incidents.

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[17] www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/oil-and-gas/environmental-protection/incident-management-and-reporting (19 April 2018).

We found no discrepancies between the industry operator reports submitted in IRIS and the information the Ministry made public.

5.0 INCIDENTS SUBJECT TO NOTIFICATION AND REPORTING

The following table lists types of incidents that industry operators must report to the Ministry.

Type of Operation	Incident	Substance	Location	Description
General Field Operations	Fire	All	All	Any fires resulting from the operation of a licensed well, facility, pipeline, or flowline
	Release or Spill	Naturally Occurring Radioactive Materials (NORM)	All	Any volumes
		Oil by-products or oily produced sands	All	Any volume released that is not approved under GL97-02
	Blow-out	All	All	Any uncontrolled release of gases or fluid from a well
	Kicks	All	All	Any controlled diversion of gases or fluid from the well to a flare tank
Pipeline or Flowline Operation	Contact Damage	All	All	Any contact damage to a flowline or pipeline
	Break	All	All	Any break to a flowline or pipeline
	Leak, malfunction of any equipment, or a worker error resulting in the escape or release of a substance	Oil, salt water, condensate, or other product	Off Lease	Any volume
			On Lease	All releases that are > 2.0 cubic metres (m^3) of fluid
		Gas Containing Hydrogen Sulfide (H_2S)	All	Any volume at any concentration
		Natural Gas	All	Any volumes where: 1. The released volume exceeds 30,000 m^3; 2. The release is within a road or railway right-of-way; or 3. The release is within 150 metres of any dwelling
Horizontal Directional Drilling (Pipeline/ Flowline Installation)	Release, Spill or Frac-Out	Drilling Fluid	All	Any volume
Drilling or Fracturing Operation	Release or Spill	Drilling wastes	All	Any volume released that is not approved under GL99-01
		Fracturing Wastes	All	Any volume released that is not approved under GL2000-01
Well or Facility Operation	Break, leak, malfunction of any equipment, or intentional or unintentional action resulting in an escape or release	Oil, salt water, condensate, oil and gas waste, emulsion or product	On-lease	All volumes >=2.0 m^3 or 2000 litres requires reporting but only volumes >= 10.0 m^3 or 10,000 litres require notification
			Off-lease	Any volume
		Refined Chemical	On-lease	All volumes >= 0.5 m^3 or 500 litres

Type of Operation	Incident	Substance	Location	Description
	Escape or Release	Gas Containing H_2S	All	Any volumes where: 1. The concentration of H_2S exceeds 0.1 % or 1000 ppm or 1.0 mole H_2S/kilomole from solids, liquids, or gas during production or transportation (truck or transmission via pipeline/flowline); 2. The released volume poses a danger to human health, domestic animals, wildlife, or the environment.

Source: Ministry of the Economy, Directive PNG014 *Incident Reporting Requirements.*

6.0 GLOSSARY

Area Spill Response Unit – An oil and gas industry affiliated organization whose mandate is to provide communication, training, and contingency planning to minimize the risks and environmental damage in the event of a major oil spill.

Directive – Establishes requirements under the governing legislation (i.e., Act and Regulations). Directives are more technical in nature compared to associated Regulations.

Facility – *The Oil & Gas Conservation Regulations, 2012* defines a facility as any building, structure, installation, equipment, or appurtenance that is connected to or associated with the recovery, development, production, storage, handling, processing, treatment, or disposal of oil, gas, water, products, or other substances, that are produced from or injected into a well, but does not include a pipeline.

Flowline – Per *The Pipelines Act, 1998*, it is a pipeline connecting a wellhead with an oil battery facility, a fluid injection facility, or gas compression or processing facility, and includes a pipe or system of pipes for the transportation of fluids within any of those facilities.

Incident – Reportable spills or other events (e.g., unintentional release of substance, fires, damage to or malfunction of equipment, etc.) that are subject to notification and reporting requirements of Directive PNG014.

Industry – Refers to oil and gas production industry, which includes all operators.

Inspection – Routine well, pipeline, and facility site visits that Ministry staff complete as a part of daily operations. Distinction from investigations is that such site visits are not in response to a reported incident.

Investigation – The regulatory work completed by the Ministry in response to a reported incident. This involves visiting the incident site and regulating the cleanup and/or reclamation work.

Landowner – The legal owner of the property on which a well site or pipeline exists.

On-Lease – As defined in Directive PNG014, the area of a well or facility site that is surrounded by a berm or a dike or that is within a contoured area so that any release of liquid, semi-solid, or solid is contained within the described area. Also includes a pipeline terminal.

Off-Lease – Means any location that is not located on-lease.

Operator – As defined in Directive PNG014, means an operator of a well or facility as defined in *The Oil and Gas Conservation Regulations, 2012,* or the operator of a pipeline, including a flowline, as defined in *The Pipeline Regulations, 2000*.

Pipeline – Per *The Pipelines Act 1998,* is a pipe or system of pipes for the transportation of liquid hydrocarbons (e.g., crude oil, liquid petroleum products, natural gas liquids), gaseous hydrocarbons (e.g., natural gas), water, steam (used in the production of crude oil or natural gas), and carbon dioxide. It also includes the following, that are used in connection with the pipelines: tanks, tank batteries, loading facilities, etc.

Reclamation – Per *The Oil & Gas Conservation Regulations, 2012,* is the process of decontaminating, excavating, and removing the contaminants in the soil or water so that they no longer pose a threat or risk to human health, public safety, property, or the environment.

Sour Gas – A natural gas that contains significant amounts of hydrogen sulfide (H_2S). It is associated with oil and gas activities. It is poisonous to humans, animals, and the environment.

Well – Per *The Oil & Gas Conservation Regulations, 2012,* is any opening in the ground from which any oil, gas, or other hydrocarbons is, has been, or is capable of being produced from a reservoir.

7.0   SELECTED REFERENCES

Auditor General of Alberta. (2015). *Systems to Regulate Pipeline Safety and Reliability in Alberta*. Edmonton: Author.

Auditor General New South Wales. (2010). *Protecting the Environment: Pollution Incidents.* Sydney: Author.

Auditor General of Prince Edward Island. (2015). *Management of Contaminated Sites*. Charlottetown: Author.

IPIECA-OGP. (2014). *Incident management system for the oil and gas industry.* London: Author.

Provincial Auditor of Saskatchewan. (2015). *2015 Report – Volume 1, Chapter 18, SaskPower – Managing the Risk of Cyber Incidents*. Regina: Author.

Provincial Auditor of Saskatchewan. (2015). *2015 Report – Volume 1, Chapter 11, Environment – Regulating Industrial Wastewater Systems*. Regina: Author.

Provincial Auditor of Saskatchewan. (2014). *2014 Report – Volume 2, Chapter 33, Government Relations – Processes to Assess Public Concerns*. Regina: Author.

Provincial Auditor of Saskatchewan. (2012). *2012 Report – Volume 1, Chapter 5, Regulating Pipelines.* Regina Author.

Provincial Auditor of Saskatchewan. (2008). *2008 Report – Volume 1, Chapter 4, Regulating Contaminated Sites.* Regina: Author.