Draft Directive 077 (released July 2022)
What We Heard – And Our Response

We would like to thank all those who provided comments. We reviewed each one and consolidated comments covering similar issues. What follows is a summary of the issues raised and our responses.

Based on the feedback we received, we have made the following overarching revisions to *Directive 077*:

- We revised *CSA Z662-19* (year-specific standard edition) to *CSA Z662* to avoid having to revise the directive in the future when *CSA Z662* is updated. The latest edition of standard *CSA Z662* will apply.
- We received many comments concerning the jurisdiction between ABSA (the pressure equipment and safety authority) and the AER. We addressed this primarily through revisions to the interpretation diagrams in appendix 2 and by adding a decision flowchart in appendix 3 of the directive.
- In the directive, we replaced the term "operator" with "duty holder."

We acknowledge the many comments received concerning the need to balance environmental protection (risk) and water conservation and aspects of operational flexibility. The temporary surface pipeline (TSP) requirements as described in the revised *Directive 077* are a starting point would evolve as we collect information about how TSP are used and other operational information. We are always looking to improve our processes and achieve regulatory efficiency.

Comments on grammar, punctuation, and cross-referencing have not been summarized, but changes were made where needed.

A list of the respondents is provided at the end of this document.

Stakeholder Feedback – Issue	AER Response
1. Section 2, External Corrosion Prevention Coatings Under Pipeline Insulation	
As currently worded in section 2, the need for an operator to request an exemption to use a corrosion barrier may result in protracted application processing times and additional work effort for the AER. Furthermore, there are many situations where a coating is impractical (e.g., high-temperature pipelines). The scope of this section needs to be clarified to ensure it applies only to pipeline-related piping under the *Pipeline Act* and not piping under the *Oil and Gas Conservation Act*. The engineering assessment requirement should also apply to insulated lines not operating at high temperatures. Does the scope of this section apply only to new construction?	Section 2 has been modified to allow for variance in the corrosion barrier system or insulation system when supported by an engineering assessment. However, such applications will have longer lead times but should not require immediate approval. A request for review can be submitted before applying to avoid delays. These applications would be reviewed following nonroutine timelines. Also, section 2 now includes an exemption for elevated-temperature pipelines registered with ABSA. *Directive 077* only applies to pipelines under the *Pipeline Act*. Section 9 and appendices 2 and 3 describe the jurisdiction and applicability of the *Pipeline Act*. We agree that an engineering assessment requirement should apply to all insulated pipelines and have updated section 2 accordingly. Section 2 applies to new and modified steel pipelines other than elevated-temperature pipelines registered with ABSA.
It is unclear whether licensees are expected to file nonroutine *Directive 056* applications with an engineering assessment supporting "no coating" for each new insulated aboveground in situ surface pipeline (i.e., steam) within the same development area previously submitted as routine through OneStop (e.g., high-pressure/temperature steam pipelines in the same development areas are typically and consistently designed the same without coating). It is unclear if an engineering assessment is expected for small diameter aboveground in situ surface fuel gas pipelines on racks that are typically not insulated. We recommend that the AER consider area or company-wide engineering assessments to streamline review time for pipelines being designed, built, and operating in similar development areas.	An engineering assessment is required for each application for this type of pipeline and will follow the nonroutine application process. Section 2 does not apply to uninsulated pipelines (e.g., uninsulated surface fuel gas pipelines on racks). Section 2 only applies to insulated pipeline systems. We will consider approving blanket approvals for specific insulation systems for a defined area and scope of service.
Does section 2 apply to TSPs?	No, section 2 only applies to insulated pipeline systems that are permanent.

Stakeholder Feedback – Issue	AER Response
Clarify insulation requirements for repairs, resumptions, replacements, pipeline components, such as valves, which do not warrant coating (often have removable jackets), and small sections of replaced components in an existing system (e.g., blind, valve, drain nipple). If so, it may require blanket approvals rather than submitting multiple applications.	Incident investigation findings could require rework of existing insulation systems. There is no intention to modify insulation practices for components or fittings.
We suggest that corrosion prevention requirements only apply if stress-corrosion cracking is a relevant damage mechanism. We also suggest maintaining alignment with *CSA Z662* rather than one-off deviations in regulations.	We do not agree. *CSA Z662* requires the licensee to have an integrity management program (IMP), and stress-corrosion cracking needs to be considered in the licensee's IMP. As the regulator, we believe that *CSA Z662* does not go far enough and therefore, *Directive 077* has additional and overriding requirements that must be followed.
2. Section 4. Overpressure Protection for Pipelines Connected to Artificial Lift Equipment	
The 10% overpressure for the second protection device was removed from the previous version of *Directive 077*. Please highlight this change in the "What's New" section.	There has been a corresponding change in section 4, option 1, and the *Pipeline Rules*, where the first device cannot exceed maximum operating pressure (MOP), but the second device may be set to 10% or 35 kPa over the MOP, which agrees with *CSA Z662*. We noted this change in the "What's New" section of the directive.
Consider adding a list of example artificial lift systems.	In our opinion, providing examples is unnecessary. Artificial lift equipment is any method or device that enhances production flow from the well.

Stakeholder Feedback – Issue	AER Response
3. Section 5. Pipeline Pressure Testing Using Liquid Test Media Other Than Fresh Water	
Service testing or slight increases in pressure are often conducted on existing lines to check for integrity (e.g., service tests and leak detection tests). These requirements were not intended for those situations and would be exceedingly difficult to manage if they were. Limit the requirement to new pipeline construction or testing above a pipeline's MOP.	In our opinion, the requirements in this section are manageable and need not be limited to new construction or testing above the MOP. Pressure testing using liquid test media other than fresh water is frequently used for pressure testing in subzero temperatures. Where water alone is not suitable, and environmental risk is present, it would be prudent to consider that all pressure tests using a media other than fresh water follow the same criteria for qualification, requalification, or leak detection purposes. Service tests using produced fluids are also permissible if done in accordance with *CSA Z662* and the *Pipeline Rules*.
We have concerns with the definition of a pressure test. If pressure testing includes service or integrity testing below MOP, then the requirements proposed would be problematic.	This testing process could be used regardless of the purpose of the test. The requirements are in response to environmental risk and leak detection capability.
4. Section 6. Pipeline Pressure Testing Using Gaseous Media	
Requests for high-resolution pressure measurement are unattainable with conventional pressure chart recorders. We suggest using digital recorders for monitoring as 1% is very sensitive and may not be picked up on a conventional chart.	Digital recorders are allowed and, with proper selection, will achieve the required level of precision.
5. Section 7. Temporary Surface Pipelines for Well Testing or Temporary Bypass	
A TSP is not defined in the directive.	We added a definition in *Directive 077*.
The 60-day requirement to reclaim the pipeline right-of-way after the expiry of the approval may be difficult due to seasonal and incremental weather restrictions. (The previous requirement was 100 days from the start). We suggest that the previous allowance/equivalent or exemption process be reinstated.	We revised section 7 to allow for extensions.

Stakeholder Feedback – Issue	AER Response
6. Section 8: Temporary Surface Pipelines for Water Conveyance – general	
Section 1(7) of the *Pipeline Rules* refers to a "licensee," but the directive refers to an "operator" having to comply with the *Pipeline Rules*. This difference in terminology will create confusion as a temporary surface pipeline water (TSPW) should not require a licence under *Directive 056* unless it meets the criteria.	We revised *Directive 077* to refer to the duty holder. See section 1.2 of the directive for more information. We revised the clauses applicable to TSPWs in the new *Pipeline Rules* to include the "owner of an unlicensed pipeline."
We received the following concerns about the restrictive nature of the requirements and the need for a more outcome-based approach: • The proposed requirements need to be more risk-based and outcome-oriented. We understand the reason for the detailed requirements is due to the lack of information the AER has related to these operations as they pertain to pipeline specifics, procedures, inspection results, and release specifics; however, we respectfully submit that prescriptive requirements may not be the most effective approach to reach the intended goal or outcome. • As written, the directive will add red tape to the currently allowed conveyance of group 1 water by TSPWs and hinder operations. New requirements that will add administrative burden include documented procedures for deployment, commissioning, operations, surveillance, incident response plans, end-of-operations reporting, and a redundant landowner notification process. The surveillance procedure includes visual observation, pressure monitoring, and maintaining a record of all internal/external damage (whether water was released or not). Many of the requirements proposed in *Directive 077* exist already in the regulator temporary field (RTF) authorization process. The draft directive also requires spill reporting that is redundant with the *Release Reporting Regulation*. • Documented deployment procedure requirements should not apply to group 1 water and should be less prescriptive for group 2 water.	We took a somewhat conservative approach to developing regulations around the new activity of using TSPWs to convey poor-quality water. We endeavoured to balance prescriptive and outcome-based requirements and the need for data. We have revised the directive to provide flexibility to accommodate variable risk in TSPW operations. We plan to review TSPW performance information for all water groups after field experience and data are obtained with a view to "right-sizing" requirements. Our view is that the requirements for documented procedures related to deployment, commissioning, operations, surveillance, and incident response are part of responsible operations. We revised the TSPW requirements to align more with the risks associated with the water groups, allowing for flexibility based on the group of water and the actual water quality of that water. Lower-risk water may have less rigorous procedures as appropriate. However, requirements for documented procedures and reporting for group 1 water remain. Landowner consent and notifications need not be repeated unless the previous consent and notification activities did not include TSPW deployment and operations. We revised the directive to reflect existing processes and removed duplication wherever possible.

Stakeholder Feedback – Issue	AER Response
It is unclear if section 8 applies to TSPs supplying water for hydrostatic testing to a storage tank.	We added wording to indicate that section 8 applies to all TSPs conveying water, including those providing water for hydrostatic testing.
Please provide expected service timelines for group 2 or 3 water TSPW application approvals.	Directives do not usually include expected timelines for application approval. Processing times may vary until we gain experience with this new process. For more information on AER estimated timelines, see application processes.
Define "sensitive receptor."	We added a definition for sensitive receptors to the directive. For *Directive 077*, sensitive receptors are sites or structures that people or animals may frequently occupy, such as houses, playgrounds, childcare facilities, campgrounds, hospitals, feedlots, pastureland, etc.
The anticipated normal flow rate is not possible to define as this is a variable based on operations. Anticipated max operating pressure and anticipated normal operating pressure are not simply defined because topography changes over the length of the TSP will significantly affect lay-flat hoses.	We removed references to rates in the directive regarding group 1 TSPWs. Normal flow rate and operating pressure have been removed. The anticipated maximum operating pressure is required; the duty holder is expected to know this to ensure material limitations are not exceeded.
If there is a permanent land disposition (i.e., license of occupation) for a TSPW, it is unclear whether *Directive 077* applies. Also, timing restrictions should not apply to the TSPW. Provide guidance on the use of TSPWs on a permanent disposition.	A TSPW is a temporary operation and falls under *Directive 077*. A surface pipeline for water conveyance intended to be deployed for more than 24 months is not considered temporary, even if deployed on a permanent land disposition. We recommend that a permanent pipeline be licensed and constructed in such situations. Public land dispositions and pipelines are similar in the way they deal with temporary operations. For short-term water conveyance operations (i.e., 12 months or less), a temporary land disposition (i.e., RTF authorization) and TSPW notification or approval are applicable. Longer-term water conveyance operations require permanent land dispositions and a pipeline licence. A temporary land disposition and a TSPW approval are valid for a specified term.
The wording in *Directive 077* implies that security (personnel) is required at all crossings.	Security personnel are not required at crossings. We revised the wording to reflect that safe and secure operations are needed at all times.

Stakeholder Feedback – Issue	AER Response
The AER does not appear to reference or address in the draft *Directive 077* the applicability of *Bulletin 2014-38, Temporary Surface Water Pipelines for the Energy Resource Industry*.	We have archived *Bulletin 2014-038*. With the publication of this new edition of *Directive 077, it* is now the source of requirements for TSPWs.
Define operational activities that must be documented.	We state in the directive, "The duty holder must maintain a log of operational activities (e.g., pumping times, maintenance, repairs)." The duty holder is to have logs for maintenance, operating parameters, surveillance activities, unexpected events, repairs, deviations from procedures, incidents, near misses, etc.
7. Section 8: Temporary Surface Pipelines for Water Conveyance –duration of deployment	
The term "used" needs clarification. Does it include deployment or just transfer of water?	We revised the wording in the directive to reflect that the 12-month duration of a TSPW operation applies to the time the TSPW is on the ground (deployed) and extends from the start date of deployment to the date removal is completed.
How do existing long-term surface pipelines for water conveyance fit with *Directive 077*?	In these situations, the duty holder of the existing surface water pipeline should contact the AER for guidance. We recommend that any new or modified pipelines intended to operate for more than 24 months be designed for long-term water conveyance and licensed as permanent pipelines.
It is unclear why a pipeline licence is required for pipelines in operation for more than 24 months.	We established 24 months as the cutoff to consider a pipeline as temporary. We based this decision on feedback received in a 2020 public survey where respondents felt temporary infrastructure should not exist for more than 24 months.
Some conveyance options (e.g., lay-flat hose) cannot be licensed under *Directive 056* based on previous engagement with the AER. Would these be permanently licensed as environment code "surface crossing"?	We revised the directive to indicate that the AER recommends constructing a permanent pipeline if a surface pipeline is intended to be deployed for more than 24 months. If longer-duration operations are required (i.e., longer than 24 months), appropriate materials should be selected and licensed as described in *Directive 056*. The surface crossing code is not appropriate for TSPWs.

Stakeholder Feedback – Issue	AER Response
"In accordance with sections 6(3)(b) and 6(4) of the *Pipeline Rules*, TSPWs are exempt from requiring a pipeline licence." This statement contradicts requirement 24, which states the operator must apply for a licence in accordance with *Directive 056*.	We removed requirement 24 of the draft directive; it does not exist in this edition of the directive. We revised the wording in the directive to reflect that the AER recommends a permanent pipeline be constructed when a long-term water conveyance pipeline is needed. A surface pipeline for water conveyance intended for use beyond 24 months is not considered temporary.
Is the 12-month duration applicable if the line is drained and pigged? This situation is plausible if the same TSP is shared by multiple operators or the same company over multiple operations. There is little environmental effect if a line is left fully drained for more than 12 months.	We seek to minimize the proliferation of unused off-lease equipment. Unused equipment is an obstacle to human and wildlife activity; it can cause undue stress on vegetation and is prone to damage, weathering, or more. We added information in section 8.1 on duty holders sharing TSPWs. The duration for which a TSPW may be deployed will remain unchanged even when shared. However, a TSPW should not be left unused for more than 30 days.
8. Section 8: Temporary Surface Pipelines for Water Conveyance – water groups	
TSPW requirements do not support the goal of the *Water Conservation Policy for Upstream Oil and Gas Operations* (*WCP*), which is to use less high-quality nonsaline water in oil and gas operations.	We support the goals of the *WCP*. The risk-based approach adopted in the directive allows for poor-quality water conveyance through a TSPW, which supports the WCP. The TSPW requirements create a regulatory pathway for the short-term conveyance of poor-quality water, thereby facilitating a decrease in high-quality nonsaline water use. The risk-based requirements will mitigate the risks of potential spills of poor-quality water from TSPWs on the public and the environment. We seek to balance the goals of reducing the use of high-quality nonsaline water with public safety and protecting the environment.

Stakeholder Feedback – Issue	AER Response
The requirements for different groups of water do not align with the potential environmental risk of those waters. The AER's assessment of risk, however, should consider both the probability and severity of an adverse outcome. It is CAPP's view that many requirements were designed for worst-case scenarios that are highly unlikely to occur. This section of the directive must strike a balance between encouraging water reuse and mitigating potential risks to public safety and the environment for all uses of TSPWs.	We created risk-based requirements commensurate with the potential environmental risk of the water group that would apply throughout Alberta on public and private lands. Group 2 and 3 water may have a range of risk levels based on the actual water chemistry and the TSPW route. We acknowledge that the requirements reflect the worst-case scenario. However, flexibility is provided to account for risk variability by having plans and procedures appropriate to the water actually used within a water group. We expect a higher-risk group 3 produced water with high levels of total dissolved solids would have more rigorous plans and procedures than a lower-risk group 3 produced water with low total dissolved solids). We have revised the setbacks for group 2 water to reflect the lower risk.
The group 1 water criteria do not align with other regulatory documents (e.g., *Directive 055* and *Manual 025*). The electrical conductivity (EC) criterion is restrictive.	Although regulatory alignment is desirable, our priority is for us to achieve our mandate and specific goals for each regulation. Aligning water criteria with *Directive 055* is inappropriate because *Directive 055* relates specifically to releasing collected surface runoff (precipitation) onto an appropriate receiving land in a controlled manner and with landowner permission. A potential release of water from a TSPW would likely not meet these conditions; hence, the quality of group 1 (which may not be just surface runoff) must consider these differences. *Manual 025* is related to the *WCP* and is designed to influence the quantity of water used in energy development. A comparison is inappropriate, however, as TSPW requirements relate to protecting the public and the environment in the event of a water release and are not directly related to the quantity of water used. EC is a fast, inexpensive, field-based test that can identify waters that could affect the landscape if released. EC is an important screening criterion, particularly for nonsaline groundwater, which may naturally have EC levels that could cause adverse effects on surface waters or the landscape.

Stakeholder Feedback – Issue	AER Response
Clarify what chemical analysis the AER would like. The standard practice is a field screen.	TSPWs conveying group 1 water do not require chemical analyses beyond field screening; the notification submitted must confirm that group 1 criteria are met. For TSPWs conveying group 2 or 3 water, a general compositional analysis should be submitted, including parameters of significance in the event of a release of the conveyed water.
Additives may be needed for whirling disease control or to improve operational efficiencies and may be a limitation for using group 1 water. It is unclear whether group 2 or 3 waters may include additives.	Additives are not required to control whirling disease; however, equipment must be decontaminated to control the spread of the disease. Additives may affect the "negligible" environmental risk definition of group 1 waters. Additives may be added to group 1 water, but the regulatory path would follow a group 2 water TSPW. Yes, group 2 or 3 waters may include additives, which must be identified in the application.
Group 1 waters are low risk and should be exempt from most requirements and information submissions.	Although group 1 waters are low risk, they are subject to requirements commensurate with their risk level. The requirements ensure consistency across all TSPW duty holders and operations and provide confidence that operations are conducted responsibly.
Several of the waters in group 2 are allowed for release to the environment and do not have environmental effects. They should be moved to group 1.	We designed the water groupings and wording to be unambiguous to identify a clear regulatory path and allow for commensurate regulatory requirements for low-risk operations (i.e., group 1 TSPWs) and increased regulatory requirements for potentially higher-risk operations (i.e., group 2 and 3 TSPWs). Group 1 water has negligible environmental risk if released, whereas group 2 water *may* have associated risks, therefore following a different regulatory path. Group 2 water may have environmental effects if released in certain situations. For example, treated municipal drinking water contains chlorine at levels that may affect freshwater aquatic life; treated effluent is often released to flowing waters under an *Environmental Protection and Enhancement Act* approval with specific criteria for the effluent and receiving water body.
It is unclear what to do if the water chemistry changes.	We do not desire to prescribe a frequency of testing. However, if water chemistry changes to a degree at which the operation may be noncompliant, the duty holder must submit an amendment or contact AER for direction.

Stakeholder Feedback – Issue	AER Response
Additional definition of prohibited constituents is needed.	Prohibited waters contain constituents that may cause immediate human health risks. We have provided examples of such constituents in the directive. Decisions on safe levels of prohibited constituents in water conveyed through a TSPW should be documented. Information about the concentrations of harmful constituents and public and worker safety is available elsewhere.
9. Section 8: Temporary Surface Pipelines for Water Conveyance – overlap with other regulation or requirements	
Please remove overlap and duplication with other regulatory processes and authorizations (e.g., *Public Lands Act* dispositions and *Water Act* licenses and approvals).	Our practice is to eliminate duplication where possible. However, TSPW information submissions are specific to TSPW use; although other regulatory processes may require similar information, that information is specific to those processes (e.g., water diversion or public land access). Common TSPW processes across Alberta on public and private land and submission of similar information are required for smooth application and information processing. We will endeavour to eliminate redundancies. For example, the existing TSPW notification processes will be replaced by those outlined in *Directive 077*. If activities (e.g., obtaining consent) are completed or met for other purposes (e.g., RTF authorization), we do not require them to be repeated.
Proposed standard operating procedures should be used instead of the draft *Directive 077* proposed requirements.	We are unaware of any standard operating procedures for TSPW operations but may accept such standards if appropriate for the group of water conveyed and the quality. We expect plans and procedures to apply to individual operations. However, unique procedures may not be necessary where an existing procedure or set of procedures cover aspects of multiple TSPW operations.

Stakeholder Feedback – Issue	AER Response
TSP work is completed by third-party subcontractors using their deployment, commissioning operations, and surveillance procedures (as they are the experts of their own equipment). Operators may be unable to submit procedures at the time of application because the procedures will be contractor specific, and the selected contractor is many times unknown at the time of application or may change at the last minute.	We recognize that third-party contractors supply various materials and services to the sector; however, as the regulated party, the duty holder is responsible for all aspects of their operations and should be knowledgeable and able to provide information. The various procedure and plan documents must be submitted as identified in *Directive 077*. If submission is not required, the duty holder must be able to supply copies to the AER on request; we will accept electronic versions.
Furthermore, deviations or changes may be needed during the job in response to situations that may arise. Companies need the flexibility to manage change to their procedures; seeking AER re-approval for those would be extremely burdensome.	Companies will retain control over their procedures. We are asking to be notified of such change via the amendment form. An amendment may result in revised approval conditions or cancellation of an approval.
10. Section 8: Temporary Surface Pipelines for Water Conveyance – information submission and collection	
Please change the units of flow rate to m^3/second or m^3/min on the Group 2/3 Approval Request form.	The units for flow rate have been changed to m^3/min on the Group 2/3 Approval Request form.
Procedures and TSP material data are made and managed by third-party companies. It is exceedingly difficult for an upstream company to certify their accuracy, completeness, and technical content.	We revised the TSPW forms to require a declaration rather than a certification. The onus is on the duty holder to ensure the TSPW operation complies with *Directive 077*.
Recommend removing group 2/3 from the amendment form title so it is clear that the form applies to all water groups.	The form title has been revised as it applies to all water groups.
The AER is collecting information that appears unnecessary for authorizing a TSPW and in a format that does not allow for analysis.	The use of TSPWs to convey poor-quality water for energy development is a newly regulated activity in Alberta. As such, we require information to analyze the effectiveness of this new TSPW regulatory structure and TSPW performance and compliance. We will use web-based electronic forms accessible through OneStop for deployment notifications and information submission. The system will allow for trend and performance analyses.

Stakeholder Feedback – Issue	AER Response
The form names are unclear; we suggest using consistent form names to avoid confusion.	The full functionality of the forms was unavailable through the PDF document released for the public comment period. We made several adjustments to the forms based on the feedback we received. The form names have been revised in the new edition of the directive.
How are changes to TSPW operations identified to the AER?	We created a new form to identify amendments for submission whenever the initial application information changes (e.g., a change in start and end dates). An amendment may result in modifications or cancellation of group 2 or 3 approval.
The draft of *Directive 077* is unclear about how and to whom at the AER the operator notifies for closeout reporting for TPSWs.	Duty holders will provide all TSPW information submissions, including closeout reporting, using the new TSP forms in OneStop.
In what format should route maps be submitted?	We revised the directive to include examples of the various acceptable digital formats (e.g., PDF, SHP, DWG) for route maps.
11. Section 8: Temporary Surface Pipelines for Water Conveyance – authorization and notification	
How are changes to TSPW operations identified to the AER?	We created a new form to identify amendments for submission whenever the initial application information changes (e.g., a change in start and end dates). An amendment may result in modifications or cancellation of group 2 or 3 approval.
How does an approved TSPW get authorized to convey a higher-numbered water group?	The duty holder must apply to the AER to convey a higher-numbered water group and may convey the higher-numbered water group after receiving approval. An authorized TSPW may convey a lower-numbered water group under an existing authorization.
Clarify that public lands (i.e., municipal/county ditches) are exempt from notification (see section 8.3) unless they cross a landowner's access without using a culvert. Further clarification for group 2/3 is needed for what constitutes "experiencing effects."	Consent must be obtained from landowners, occupants, or entities on whose lands the TSPW is deployed. Landowners, occupants, or entities in the care and control of land adjacent to the TSPW must be notified if access to their land is hindered. Public lands authorization applies to public lands. Municipal ditches may also require county and Alberta Transportation approvals. We replaced "experiencing effects" with "hindering access" for clarity.

Stakeholder Feedback – Issue	AER Response
The condition for landowner consent in section 8.3 should not be required for group 1 water; this would be covered under the current RTF process. However, this needs to be clarified for freehold lands, as the RTF process is typically followed for freehold activities but not documented with the AER in the same manner.	This section has been retitled to "Landowner Consent and Notification" to reflect that consent or notifications are required, depending on the situation. Landowners of the land where the actual TSPW is deployed must provide consent; adjacent landowners who may experience hindered access must be notified. Consent is required for all TSPWs to avoid the risk of trespass. If on public land, consent is obtained during the RTF process and would not need to be repeated for the TSPW notification or application. The requirements are written to apply to public and private land. Consent from the landowner, occupant, or other entity in the care and control of the land where a TSPW is deployed is required for all TSPWs. For public lands, this could occur as part of the RTF process. When land access may be affected, adjacent landowners, occupants, or other entities in the care and control of the land shall be notified; access should be provided when necessary.
It is generally understood that the AER considers all entities as stakeholders. Landowners own the land with restrictions and caveats. A municipality is in the care and control of the road allowances, which are owned by the province. Generally, there is a definite distinction between a landowner, an occupant, and a municipality.	Appropriate consent is required from municipalities in the care and control of road allowances; the wording has been revised to reflect this.
12. Section 8: Temporary Surface Pipelines for Water Conveyance – technical requirements	
The requirement for couplers to include locking devices to prevent decoupling from vibration or movement is not possible when using Victaulic hose connections. Operators need flexibility if using Victaulic connections. We suggest adding "or as per manufacturer's specifications."	We removed the need for locking devices. All pipe connections must be designed to prevent separation caused by pipe vibration or movement or include other measures to prevent separation. Also, we added that we may authorize exceptions.

Stakeholder Feedback – Issue	AER Response
There are substantive differences between lay-flat-style pipes and solid/rigid-style piping. As the AER can appreciate, the deployment and decommissioning of solid/rigid-style piping is much more rigorous and costly than a lay-flat-style pipeline. The directive, or best practices document, should include clear definitions for each pipe style. How are these styles of pipe differentiated by the AER, and is further delineation between the two warranted?	We will not differentiate or define pipe styles or the materials used so as not to preclude possible material options. Pipe materials must be appropriate for the water to be conveyed. Information on materials is to be submitted, and we will evaluate it when considering TSPW approval.
Define "MOP."	We added a definition of MOP in the directive. The planned maximum pressure of the proposed operation will be provided by the applicant in a group 2 or 3 TSPW application, and the MOP will be identified in the TSPW approval documents.
Directive 077 should not limit the pressure rating of TSPWs. Technology at the time should determine the allowable operating pressure.	We have identified a maximum TSPW operating pressure of 3500 kPa. Although materials technology may allow for higher pressure in a pipe, we implemented a maximum pressure because TSPWs are deployed on the surface and could be more vulnerable to damage and risk to persons nearby in the event of a leak.
The directive in its current state would likely prevent hose deployment on cutlines and pipelines. We should not be denied using cutlines, which would cause additional waterlines and equipment, adding to line complexity.	Duty holders may deploy TSPWs on cutlines and pipeline rights-of-way. Such routing is preferable to placing a TSPW in an undisturbed area. The goal is to install TSPWs in locations that pose the least risk to public safety and the environment during all phases of use, particularly in the event of a release of conveyed water. We clarified the requirements around water body crossings, including frozen conditions and those expected to remain dry during the proposed operation.
Route changes may be needed quickly, especially if problems are encountered during deployment. Currently, modifications are well communicated with affected parties, making notification an unnecessary step. Restrict this requirement to group 3 water only.	We revised the 2 to 7 days to notify the AER of route changes to identify route changes before starting operations. Duty holders will identify route changes to AER using the amendment form.

Stakeholder Feedback – Issue	AER Response
The following sentence should be removed as it is not a technical requirement: "All TSPWs must be routed to minimize the risk of environmental damage, including any threats to the quality of soils, surface water, groundwater and the health of humans, animals, and plants during the deployment, operation and decommissioning of the TSPW" is general and subjective. Also, this requirement is operationally restrictive for group 1 waters.	We revised the statement to reflect that the need to minimize environmental damage is an expectation. As revised, it is now an expectation and not a requirement. It is unclear how the statement could be restrictive for group 1 waters as it is an expectation, not a requirement. Care must be taken in routing all TSPWs so that the potential risk of environmental damage is minimized, regardless of the group of water being conveyed.
The need to place a TSPW and its associated equipment as far as practical from water bodies and water wells is restrictive for group 1 water because pumps are placed into rivers, creeks, lakes, etc. Also, pumps are placed downhole in water source wells. For group 3 waters, this condition is relevant and should be clarified and included. As for group 1 waters, this condition will shut down using TSP.	It is unclear whether such action would prevent the use of TSPWs for group 1 water. The statement is not a requirement but a recommendation to route TSPWs away from water bodies as a general practice. Moreover, the statement applies specifically to a TSPW and the associated equipment used to operate it (e.g., booster pumps), not the equipment like pumps that need access or divert water from the source.
Clarify that the right-of-way maintenance applies to roadways and not the pipeline. We suggest rephrasing it as "…deploy a TSPW so as not to materially impair…." For example, placing a TSPW through a culvert may cause a very small non-material impairment in drainage. It's only when the TSPW blocks flow through the culvert (or causes significant pooling upstream of the culvert) that a material issue might arise. Remove "access points" from this requirement. It's already addressed in detail elsewhere (including 8-43 in certain circumstances allows for blocked access points and contradicts 8-42). Also, what type of vegetation? Is route deployment on certain types of vegetation prohibited?	The requirements have been revised to reflect the following: • Right-of-way maintenance along a roadway includes managing vegetation adjacent to the roadway and the surface. Required maintenance along other rights-of-way must also continue. • Non-material effects are permissible, recognizing that any TSPW through a culvert will affect drainage but may not have significant consequences. • Access points can be blocked, but alternative access must be provided if needed by the landowner or occupant. • Vegetation is maintained and managed along certain types of rights-of-way (e.g., roadways); TSPWs may not interfere with the maintenance and management of that vegetation unless agreed to by the party responsible for the maintenance and management of that right-of-way.

Stakeholder Feedback – Issue	AER Response
It is unclear what is meant by "elevated and supported above the highest water level expected during operation." Provide clarification on the expectation (i.e., would a floating system suffice). Please indicate if requirements to elevate and support are necessary under frozen conditions. *Directive 077* should be clear that large flowing rivers should be crossed using bridge infrastructure in place and would be exempt from using the equipment implied in this condition. Please indicate if there is a desired type of support mechanism (e.g., mats) and minimum height above the highest water level.	We revised the directive as follows to address the concerns: • A floating support system that allows for identification of leaks is acceptable. • Ice crossings may be considered if an acceptable mitigation plan is provided. • Crossing on existing bridges would be preferable. • Duty holders may determine the support mechanism suitable for their specific scenario.
Group 2 water has minimal environmental effects. Remove the restriction for secondary containment at pipeline connections within 10 m of a water body crossing for group 2 water. Remove secondary containment and use the wording spill control devices. It is not clear what is meant by "secondary containment." Is this a drip tray or containment that can hold a specific volume as per the pumping setup? Define secondary containment as other AER directives provide definitions which could be confused with AER intention for *Directive 077*. Provide a list of approved temporary secondary containment devices.	Group 2 water may cause environmental effects, depending on the specific water body it may spill into. We revised the requirement to allow for our authorization to adjust this requirement. We replaced the need for secondary containment with devices or containers to collect and contain leakage. The duty holder may identify the appropriate equipment. We do not approve or endorse any particular devices. The duty holder is responsible for identifying appropriate containment for their operation and being able to justify their decision.
Requirement 41 already specifies secondary containment when crossing a water body plus 10 m, and this requirement specifies if within 100 m. Remove the contradiction.	No contradiction exists because original requirement 51 refers to connections along the TSPW in proximity to the listed receptors, but original requirement 41 requires secondary containment for the entire section of a group 3 water TSPW crossing the water body and immediately adjacent to it.
Not all pumps are outfitted with automated shutdown when conveying group 1 water. The risk posed by a group 1 water spill is minor enough to warrant a manual pump shutdown in the event of significant pressure deviation. Remove this requirement for group 1 water.	We revised the requirement to exclude group 1 water from this requirement to acknowledge the negligible risk of group 1 water.

Stakeholder Feedback – Issue	AER Response
It is unclear whether required signage is to be part of a signage monitoring program or aerial surveillance and whether a standard template for TSP signage is followed like for permanently licensed pipe. Clarify expectations for maintaining signage. Also, please define expectations of an "appropriate location" and the frequency of signage.	TSPW signage does not need to be a part of a signage monitoring program or aerial surveillance. Signs do not need to follow a standard template but must display the required information and remain clearly visible and legible throughout the TSPW deployment, including maintaining signage in this state. We have provided an example in the directive. The intent of the signage is to identify the TSPW duty holder and contact information without travelling excessive distances. As such, we decline to provide a specific distance between signs.
Warning symbols are only applicable if fluid poses an environmental or human health risk. Group 2 water includes drinking water, so this requirement would not apply. Exclude group 1 water from the signage requirement. Clarify what warning symbols would be required on the signage. Is this tied to the transportation of dangerous goods (TDG)?	Signage is required to identify risks and other important information. Risks exist from fluid pressure, regardless of the TSPW contents. Signage requirements have been revised to provide identification of the duty holder, that the TSPW is a "Pressurized Water Pipeline," and the contents are "not potable." Because TSPWs will be on the surface, accessible and visible to the public, all TSPWs require signage. Transport Canada does not regulate water conveyance through TSPWs; TDG requirements do not apply.
We have concerns about the proposed commissioning procedures, including pressure testing of nonrigid materials, challenges with pressure testing in freezing conditions, and misalignment with the risk of the water being conveyed. The requirement should be adjusted to "pressure testing should be done as per manufacturers recommendations," as this will differ depending on the material being used. Winter operations with TSPW are common in Alberta and should not be viewed as a deviation from normal operations. State the type of documentation required to prove that the TSPW has been commissioned.	We revised the commissioning procedure requirements to better account for technical limitations with common TSPW materials while ensuring an appropriate level of rigour and providing confidence that potential environmental effects due to TSPW integrity issues are minimal, regardless of the time of year. We encourage the duty holder to follow the manufacturer's recommendations where they exceed the requirements of *Directive 077*. We have added words to this effect in section 8.5.4 of the directive. The duty holder must keep a log of commissioning activities, including sufficient information to confirm that requirements have been met.

Stakeholder Feedback – Issue	AER Response
Air pressure testing is not an industry standard as it is dangerous and unrealistic operationally due to seasonal variability. Remove this requirement.	Industry expressed interest in the option to use low-pressure air as a screening tool to identify leaks in a TSPW after deployment. We included this option in the commissioning section, but it is not a requirement.
What is the definition of a successful commissioning test?	Commissioning is successful when integrity testing confirms no leaks and monitoring equipment and systems function properly.
Using the "normally" transported pipeline fluids may be acceptable for pressure testing in certain situations. It is recommended that these fluids only be used when technical considerations make using fresh water with or without a freeze point depressant impractical.	We revised the commissioning requirements to allow some variability in the fluid used for integrity testing. Requests to deviate from the described procedures may be considered and should be identified and described in the application.
All TSPWs will deviate from the commissioning process outlined depending on the materials and TSP. This requirement invalidates the notion that group 1 water conveyance only requires notification. In the case of frozen conditions, the AER will need to approve via a separate and presently undefined process. This condition should only apply to group 3 water, where a deviation in the commissioning process can pose an environmental risk.	If a duty holder foresees challenges in meeting the commissioning requirements (e.g., during cold weather), it may request to deviate from the requirements in the group 2/3 application. If deviations are necessary after notification or an approval is issued, the duty holder must submit an amendment to notify the AER before starting operations. This process applies to group 1 water TSPWs and maintains its notification-only status.
Provide clarity for containment requirements beyond 10 m of crossing a water body.	Requirements for TSPW pipe connections beyond 10 m of a water body are as written in section 8.
Please confirm if the expectations of the surveillance program can be executed by a third-party service provider on behalf of the operator or if a representative from the operator company must complete this.	A designate of the duty holder may execute the surveillance program. The AER holds the duty holder responsible for its operations, regardless of who conducts the work.
Low-risk TSPs have the same requirements as high-risk permanent lines. Surveillance requirements should be based on risk.	Surveillance requirements are based on risk and appropriate to the water group conveyed. In recognition of variable water quality within a water group, we clarified this requirement to allow for risk-based surveillance based on the water quality of water conveyed. Although the wording of the requirements is the same for all water groups, surveillance plans may vary and are expected to be appropriate for the particular operation.

Stakeholder Feedback – Issue	AER Response
Clarify the requirements for intentional versus unintentional blocking, particularly concerning blocked access.	We removed blocked access from surveillance requirements as it is addressed in the routing.
The implied frequency of visual inspections should only apply to group 3 fluids where a release to the environment would be detrimental. There is a different level of surveillance required for group 3 water versus group 1 water. It should be clear what level is required for each. A visual inspection of lay-flat pipe (TSPWs) for group 1 is done, but the identification of some of the specifications of this condition are so common there will be little valuable data for the AER (e.g., drips, colour changes, slushing [common in winter operations], TSP movement [standard with topography changes]). Remove visual inspection conditions for group 1/2 waters. Do low transfer rates at small volumes with little to no pressure require the same surveillance as high-rate, high-pressure TSPs?	Many of the hazards listed apply to all TSPWs, regardless of the quality of water being conveyed, and must be monitored through the surveillance program. Duty holders may determine an appropriate surveillance frequency based on the risk of the planned operation. Although *Directive 077* does not prescribe the surveillance frequency, we expect that the frequency will increase commensurate with the risk of the water conveyed. We revised the recording and reporting of surveillance events to group 2 and 3 TSP operations.
Some of the surveillance requirements should be addressed at the time of deployment. For example, there is no qualified surveillance method for internal damage or tools or inspections to determine internal damage on a lay-flat TSPW. Specifically, external and internal damage is not defined, and many of the examples are not detrimental to pipe integrity. No pipe is ever in pristine condition and without imperfections. The internal and external damage requirements should be removed or clarified as to what damage would be considered detrimental.	In our opinion, many surveillance items can indicate impairment of TSPW integrity. Early identification of potential impairments of TSPW materials is important to prevent breaches, and such items should be included in regular surveillance of the materials. For example, internal damage could lead to weak points that can no longer withstand maximum operating pressures; internal blockages could lead to increased pressure above the maximum operating pressure. A combination of an internal blockage in a TSPW where there is internal or external damage could lead to undesirable consequences. We expect surveillance frequency for internal damage to meet the manufacturers' recommendations or be completed at some reasonable frequency on a reasonable number of connections (e.g., spot checks). Such surveillance could be opportunistic, occurring when the TSPW is out of service.
Define "joint." It is assumed it is the connection and not a stick of pipe.	We revised the wording to "pipe connections."

Stakeholder Feedback – Issue	AER Response
"The operator must be a member of local area spill cooperative if conveying Group 2 or 3 water." Clarify if this refers to an existing spill cooperative or if a new one is to be created.	We removed this requirement as it is addressed in section 8.2. of *Directive 071*.
When water transfer through a TSP is suspended for more than 24 hours, pressure must be relieved from the system. This situation occurs frequently due to operational issues on completions sites. Pigging and refilling lines add more safety and operational risks than monitoring the complete line and system. There should be different requirements for different water groups. A 24-hour suspension is operationally unachievable due to fracturing logistics (screening out, waiting on coil, etc.) and when we fire lines before operations. If the pumping equipment is off the system, it is not pressurized. This is a cyclic pressure event and is not ideal for a TSP, and it may degrade material further.	Risk is present in any pressurized TSPW. The requirement is to relieve pressure from the TSPW to remove unnecessary risk (including the risk of a pressure release) when not actively conveying water. If pressure is relieved when pumping equipment is off, this is an acceptable method of meeting this requirement. Draining and pigging are not necessary as part of this requirement. Our priority is to reduce the risk of using TSPWs on the surface. The duty holder must manage TSPW integrity.
What is the justification or rationale for pigging a line with no pressure and no risk to the environment or human activity drained after a defined period? Request to omit condition and replace with operational end date as per current processes and regulatory requirements under RTF conditions.	TSPWs are no longer required to be pigged except when purging the TSPW for decommissioning. RTFs authorize the use of public land for a specific purpose, where *Directive 077* TSPW requirements specifically relate to TSPW operation on the land. Furthermore, not all TSPWs will be placed on public lands where authorization is required under the *Public Lands Act*.
Please clarify if a visual inspection of the pipeline and connections immediately after depressurization applies to zero pressure or bleeding of hydrostatic pressure.	The requirement is for a visual inspection immediately after repressurizing the TSPW, not immediately after depressurization. We revised this requirement to apply to drained TSPWs conveying group 2 or 3 water, which must undergo a visual inspection after it is refilled and repressurized.

Stakeholder Feedback – Issue	AER Response
Requirements for timed depressuring and draining are very prescriptive and, in many cases, unmanageable. These should be left to the operator and based on risk and particulars of the setup used and included in the operating procedure. Remove prescriptive timed requirements and activities and include an outcome-based requirement that they need to define and include in the operating procedure. Allow flexibility dependent upon operational needs. Unplanned seven-day outage requirements are not stated. (Only planned outages.) Remove the requirement.	We provided time limits to mitigate the potential risk from infrastructure not in active service. The purpose of the requirement is to remove unnecessary risk when the TSPW is not in operation. If necessary, the duty holder would submit an amendment. We revised the requirement to drain an out-of-service TSPW after seven days to include any outage of seven days or more.
Is there a way to request an extension or waiver to the requirement to remove a TSP within one month of the end of the operation? A TSP frozen off in the winter may not be possible to remove in this timeline. The condition to remove a TSP one month after the end of operation does not consider operators sharing a TSP over multiple operations or permanent waterline dispositions.	If the duty holder cannot achieve the end-of-life requirements within the expected timeline, it may seek an extension using the amendment form. We added some words in section 8.1 concerning the sharing of TSPWs.
The requirement for site restoration of the TSPW route should include references to landowners, occupants, the Crown, and disposition holders.	We revised the requirement to include landowners, occupants, and entities in the care and control of land.
13. Section 8: Temporary Surface Pipelines for Water Conveyance – incidents and response	
It is unclear if the incident response plan must be included in the operator's overarching company emergency response plan as a subcategory for water transfer through TSPWs.	TSPWs must follow the requirements in AER *Directive 071*: *Emergency Preparedness and Response*. We revised this section to account for aspects covered in *Directive 071*.
The documented incident response plan should be appropriate to the conveyance of the water group. Who would be monitoring this?	The incident response plan must meet *Directive 071* requirements. A duty holder may choose to have incident response plans for each water group or operation or plans for all water groups or operations. The incident response plan must be available to AER on request. All TSPW operations are subject to AER compliance enforcement activities, such as audits and inspections.

Stakeholder Feedback – Issue	AER Response
It is unclear how water releases from TSPWs interact or align with existing processes.	Water releases and spills from TSPWs are subject to existing regulations, requirements and processes such as those included in the *Environmental Protection and Enhancement Act* (*EPEA*), Remediation Regulation, Conservation and Reclamation Regulation, and Directive 071. *Directive 077* requires incidents to be recorded and provided to the AER on the Operations Summary form.
14. Section 9. Elevated-Temperature and Steam Pipelines	
Integrity management program (IMP) requirements are typically managed under a pipeline integrity management system (PIMS), as requirements are more geared to pipeline systems versus piping systems covered in the PIMS.	Currently, IMPs for registered elevated-temperature pipelines are under ABSA jurisdiction, as determined by the Memorandum of Understanding (MOU) with ABSA. Any reconsideration would require consultation with ABSA and industry.
Also, ABSA integrity requirements are not well-suited for pipelines.	The interpretation diagrams in appendix 2 and the flowchart in appendix 3 will aid in determining the applicability of ABSA and AER requirements.
The AER references the decision tree drawing in *Directive 056* Pipeline Technical FAQ, but it is unclear where in the FAQ.	The decision tree (flowchart) has been updated and integrated into *Directive 077* (appendix 3).
Provide clarification if steam released at a gasket, seal, packing gland, or threaded fitting (GSPT) is to be reported.	For steam distribution pipelines that are ABSA-registered, a fluid release of a temporary nature caused by leakage at flanges, packing glands, and similar fittings that can be terminated by mechanical adjustments, such as the tightening of bolts, is not considered a failure. Hence, it does not need to be reported to the AER.
Clarify ABSA jurisdiction and reference requirements.	A pipeline licence being resumed would follow the pipeline resumption process under the AER licensing requirements. Please refer to ABSA for resumption requirements applicable to registered equipment. For questions regarding ABSA requirements, refer to ABSA and *IB10-006*. See also appendices 2 and 3 for more information on ABSA-AER jurisdiction.

Stakeholder Feedback – Issue	AER Response
Several aspects of section 9 raise concerns about changes and agreements between ABSA and the AER and alignment with *CSA Z662*: • The term "expansible fluid" is not an accurate means to determine the need to design to clause 14 and register the design with ABSA. • Pipelines containing steam do not require design registration or design to clause 14 unless it meets the definition of a steam distribution pipeline (steam from a boiler to wells at temperatures exceeding 120°C) or a design temperature exceeding 230°C and can be any type of pipeline. • Steam exists in production gathering pipelines at temperatures below 230°C and fits in clause 4 design but does not require design registration with ABSA.	We revised section 9 based on the comments received: • The term "expansible fluid" has been removed from section 9 of the directive. • The addition of the appendix 3 flowchart clarifies that only steam distribution pipelines or pipelines designed for temperatures exceeding 230°C must be registered with ABSA. • The appendix 3 flowchart provides options for design depending on the product carried and temperature. • The appendix 3 flowchart clarifies when clause 4 design is acceptable.
15. Section 10. Commingling of Oil and Gas in a Single Pipeline	
Why is commingling any substance containing H_2S not permitted? There are circumstances where pipelines are designed for sour service and should be allowed. Remove this requirement or allow for an engineering assessment and other mitigative measures to show suitability. We also allow the provision to make lines dual licensed. Controls and flexibility on gas-oil-ratio may be needed if feeding wells down and downstream oil effluent line is essentially gas. Clarify expectations.	Pipelines licensed for the same substance may be commingled (not prohibited) as long as the licensed downstream H_2S concentration is not exceeded. Section 10 allows the commingling of gas and oil effluent subject to the criteria, but only for non-sour products. The commingling criteria apply because of the difficulty in calculating emergency planning zones for the possible commingling scenarios. See section 6.6.17 of *Directive 056*. Expanding the commingling concept may be explored in the future.
Clarify timing expectations on relicensing. We propose allowing licensees to amend licences as systems are reviewed as part of a standard integrity program or when pipeline systems come up for modifications/amendments.	Amendments to licensing should be made when disparities are identified by the licensee. These should be addressed by the licensee as they are found and within a reasonable timeframe.
16. Appendix 1. Definitions	
CSA Z662 does not define corrosion barrier coating. We suggest adding a definition.	We added definitions for "corrosion prevention coating" and "alternative corrosion prevention system" to the directive.

Stakeholder Feedback – Issue	AER Response
17. Appendix 2. Interpretation of Jurisdictional Relationships for the Design of Pipelines, Pressure Equipment, and Pressure Piping	
Clarify jurisdictional boundaries and provide clear guidance for different pipeline systems (e.g., operations, ABSA lines, different components and fittings, on-lease/off-lease etc.).	Appendix 2 has been rewritten, and drawings updated to reflect possible variations in design and licensing.
Pipeline laterals crossing from a pipeline installation lease to an abutting mineral surface lease should be considered piping based on the *Pipeline Rules*.	Whether a lateral was considered a pipeline or piping depends on whether the two leases abut. This condition has always applied in making the determination. The *Pipeline Rules* have been amended to indicate that a pipeline installation lease is not a facility surface lease and that crossing this boundary makes it a pipeline and not piping. Appendix 2 has been rewritten, and drawings updated to reflect possible variations in design and licensing. A licensing exemption would not apply because a mineral surface lease is different from a facility surface lease.
Change the reference in example 13 from *PGCA* or *OGCA*.	We have corrected this reference to *OGCA*.
18. Miscellaneous	
The External Protection Code type(s) in OneStop require updating to include insulated aboveground in situ surface pipelines on racks that currently have mineral wool/aluminum cladding with an accepted and applicable coating.	This comment applies to *Directive 056* and OneStop; we will take it under consideration.
Add reference in the directive to the *Reference Tool for Interpreting Pipeline Pressure Control and Overpressure Protection Requirements – 2007*.	We will review the need for this reference tool and any future action.

Stakeholders Who Submitted Feedback (in alphabetical order)

Alberta Grazing Leaseholders Association

Alberta Justice and Solicitor General

Alberta Water Operators Group

ARC Resources Ltd.

Artis Exploration Ltd.

Birchcliff Energy Ltd.

Canadian Association of Petroleum Producers

Canadian Natural Resources Limited

Crescent Point Energy

Farmers' Advocate Office

Fox Creek Operators Group

Gibson Energy

Group 10 Engineering Ltd.

Husky Midstream General Partner Inc.

Land Stewardship Centre

Municipal District of Greenview No. 16

Ovintiv Services Inc.

Paramount Resources Inc.

Rural Municipalities of Alberta

South Duvernay Producer Group Water Committee

Synergy Alberta

Tourmaline Oil Corp.

Trans-Northern Pipelines Inc.

Upstream Pipeline Integrity Management Association

Vesta Energy Ltd.

Yellowhead Tribal Council