LOWER NICOLA INDIAN BAND

Response to

CANADA ENERGY REGULATOR: ONSHORE PIPELINE REGULATIONS REVIEW DISCUSSION PAPER

June 30, 2022

1. INTRODUCTION

Lower Nicola Indian Band ("**LNIB**") is submitting this response letter (the "**Response Letter**") to the Canada Energy Regulator ("**CER**") to provide input to shape the CER's review and revision of the *Onshore Pipeline Regulations* SOR/99-294 ("**OPR**"). We provide a general summary of our input in addition to specific comments in response to the questions set out in the Onshore Pipeline Regulations Review Discussion Paper dated January 12, 2022 (the "**Discussion Paper**"). We have addressed each question that we consider relevant to LNIB's inherent rights, title, and interests. However, our non-provision of a response to any question in this Response Letter is not to be taken as an indication that LNIB does not take a position with respect to the matters raised by that question, and LNIB may provide additional comments through supplementary submissions.

2. RESPONSES

Question 1: What's working well in relation to the OPR, and its implementation, and what could be improved?
N/A

Question 2: How can the OPR contribute to the advancement of Reconciliation with Indigenous peoples?
Reconciliation with Indigenous peoples under Canadian legal frameworks such as the *Canada Energy Regulator Act* and the OPR must be rooted in recognition for the inherent jurisdiction of Indigenous Nations, which may be expressed through their respective Indigenous legal orders. Accordingly, the OPR must implement comprehensive processes and decision-making frameworks that identify relevant roles and facilitate respect for the decision-making authority, rights, and value systems of Indigenous Nations that are impacted by regulated projects. In this regard, measures within the OPR that meaningfully implement the United Nations Declaration on the Rights of Indigenous Peoples ("**UNDRIP**") must be seen as a minimum standard for the OPR to contribute to the advancement of reconciliation with Indigenous peoples, including but not being limited to the following articles: • Article 18: The right to participate in decision-making regarding matters that could affect rights, as well as to maintain and develop Indigenous decision-making institutions; • Article 19: The requirement that States consult and cooperate in good faith to obtain free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect Indigenous peoples; • Article 21: The right to the improvement of Indigenous economic and social conditions, including, inter alia, in the areas of education, employment, vocational training and retraining, housing, sanitation, health and social security;

- Article 23: The right to determine and develop priorities and strategies for exercising the right to development, and to be actively involved in developing and administering economic and social programs through Indigenous institutions;

- Article 25: The right to maintain and strengthen the distinctive spiritual relationship with the traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources of Indigenous peoples and to uphold their responsibilities to future generations in this regard;

- Article 26: The right to own, use, develop, and control the lands, territories, and resources possessed by reason of traditional ownership or other traditional occupation or use, as well as those which that have been otherwise acquired;

- Article 31: The right to maintain, control, protect, and develop their cultural heritage, traditional knowledge, and traditional cultural expressions; [and]

- [NTD]

The following core principles are essential to giving meaningful expression to the Indigenous rights expressed under UNDRIP:

- The OPR must implement shared decision-making frameworks wherever government makes a decision concerning any authorization, permit, or undertaking that may impact ecological, cultural, spiritual, or social values relevant to any potentially impacted Indigenous Nation;

- Pursuant to the above, comprehensive processes intended to obtain the free, prior, and informed consent of each potentially impacted Indigenous Nation must be developed;

- Environmental management systems and environmental management plans for projects regulated under the OPR must be co-developed with, or otherwise meaningfully factor in, the inherent rights of land stewardship of potentially impacted Indigenous Nations;

- The particular governance practices exercised by Indigenous Nations must be duly respected within project assessment and decision-making processes under the OPR, including those practices set out under land code and other statutory frameworks that concern self-governance and land management, as well as internal governance policies concerning lands, resources, and cultural heritage;

- Potentially impacted Indigenous Nations must be provided adequate time and funding to support their meaningful participation in, or review of, decisions made under the OPR; and

- Decisions made under the OPR must seek out and consider Indigenous knowledge, where appropriate. A comprehensive protocol to manage, maintain, and protect Indigenous knowledge and to assure knowledge holders of the confidentiality and

ownership of Indigenous knowledge must be in place. These protocols must not extract Indigenous knowledge, but rather support the meaningful collaboration with knowledge holders to ensure that cultural knowledge and values are appropriately factored in decision-making processes under the OPR;

- [NTD]

In summary, meaningful processes that contribute to the advancement of reconciliation under the OPR must recognize Indigenous law and jurisdiction and increase procedural certainty that the decision-making and stewardship values of impacted Indigenous Nations will be adequately and appropriately factored in the implementation of the OPR.

Question 3: How can the OPR contribute to the protection of heritage resources on a pipeline right-of-way during construction, and operations and maintenance activities?

Heritage resources have critical importance for Indigenous peoples – they are a core part of Indigenous histories, cultures, and identities, and often form part of the evidence to which Indigenous Nations are required to turn by Canadian courts to support their territorial assertions and sovereignty. Any impacts to heritage resources caused by the construction, operation, and maintenance of pipelines can cause irreparable damage to Indigenous histories, cultures, and identities. For example, if the operation of a pipeline restricts access to a cultural site, the affected Indigenous Nation may no longer be able to engage in practices that are normally conducted at that site and so experience cultural loss. Such impacts may also prejudice the ability of Indigenous Nations to support their territorial assertions. For example, if pipeline construction impacts an archaeological site, information about the use and occupation of the area by an Indigenous Nation may be irretrievably lost.

For the OPR to properly protect heritage resources that could be affected by the construction, operation, and maintenance of pipelines, including cultural sites (archaeological sites, presently used and traditional use sites, petroglyph and pictograph sites, resource gathering sites, spiritual sites, and others), artifacts, and culturally modified trees, it must expressly recognize and give effect to Indigenous rights to maintain and protect those resources. Article 31 of UNDRIP states that:

> "Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions…They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions."

Article 11.1 of UNDRIP states that:

> "Indigenous peoples have the right to practice and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature."

This means that the OPR must be structured to ensure that Indigenous Nations are able to exercise their rights to maintain, control, and protect their heritage resources.

To do so, the OPR must require that proponents engage with all Indigenous Nations who will or may be impacted by a pipeline project and seek out, become versed in, and adhere to those Indigenous Nations' cultural heritage laws and policies, such as LNIB's Cultural Heritage Policy. These policies are expressions of Indigenous law that must be respected as such, and which must guide proponents' operations.

The OPR must allow for Indigenous Nations to have full and meaningful involvement in any decision that would or could have impacts for their heritage resources and require that the consent of Indigenous Nations be obtained for decisions that would affect their heritage resources. As part of this, the OPR must require that Indigenous Nations be involved from the outset of all projects in identifying a project's potential impacts to heritage resources. Indigenous perspectives and knowledge are essential to this process, as non-Indigenous proponents and regulators are unlikely to identify all or the same potential impacts. This requires early, thorough engagement and sharing of all relevant information with all Indigenous Nations involved.

The OPR must also impose monitoring requirements wherever a project's activities could affect heritage resources and allow Indigenous Nations to require that their field crews or monitors be present during any such activities. This will reduce the potential for impacts to heritage resources and allow projects to proceed smoothly. The OPR must further require that chance find procedures empower site monitors to ensure that heritage resources can be protected when they are located, including the ability to suspend work and require alterations to work plans.

Finally, the OPR must require that, wherever an assessment, survey, or other work concerning heritage resources is to be conducted, priority for contracts to undertake such work will be accorded to the appropriate Indigenous Nation, either to their own consulting firm or heritage resource team, or to a consultant of their selection. The OPR must require for the provision of the funding and support necessary for all such work, as well as for the conservation or any heritage resources recovered.

Question 4: How can the OPR contribute to the protection of traditional land and resource use, and sites of significance for Indigenous peoples on a pipeline right-of-way, during construction, and operations and maintenance activities?

The OPR can contribute to protecting traditional land and resource use by Indigenous Nations and protecting sites of significance by respecting and giving effect to Indigenous peoples' rights to continue their control, management, and use of these lands, resources, and sites. Article 32.1 of UNDRIP states that:

> "Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources."

Article 11.1 of UNDRIP, referred to in response to Question 3, states that Indigenous peoples have the rights to protect and develop their archaeological and historical sites. Further, Article 12.1 of UNDRIP states that:

> "Indigenous peoples have the right to manifest, practice, develop and teach their spiritual and religious traditions, customs and ceremonies; the right to maintain, protect, and have access in privacy to their religious and cultural sites; the right to the use and control of their ceremonial objects; and the right to the repatriation of their human remains."

As discussed in the response to Question 3, the OPR can uphold and give effect to these rights by requiring proponents to engage with all Indigenous Nations who will or may be impacted by a pipeline project and seek out, become familiar with, and adhere to those Indigenous Nations' cultural heritage laws and policies, such as LNIB's Cultural Heritage Policy, as well as applicable land use plans. These policies are expressions of Indigenous law that must be respected as such, and which must guide proponents' operations.

The OPR must allow Indigenous Nations to have full and meaningful involvement in any decision that would or could have impacts for their traditional lands, resources, and sites of significance and require that the consent of Indigenous Nations be obtained for decisions that would affect their lands, resources, and sites. As part of this, the OPR must require from the outset of all projects that Indigenous Nations be involved in identifying a project's potential impacts to traditional lands, resources, and sites of significance. Indigenous perspectives and knowledge are essential for this, as non-Indigenous proponents and regulators are unlikely to identify all or the same potential impacts. This requires early, thorough engagement and sharing of information with all Indigenous Nations involved.

The OPR must also impose monitoring requirements wherever a project's activities could affect traditional lands, resources, and sites of significance and allow Indigenous Nations to require that their field crews or monitors be present during any such activities. This will reduce the potential for impacts and allow projects to proceed smoothly. The OPR must empower site monitors to ensure that significant sites, traditional use areas, and traditionally used resources can be protected when they are located, including the ability to suspend work and require alterations to work plans.

The OPR must require that projects be designed to have the lowest level of impacts to and interference with traditional lands, resources, and sites of significance. Where Indigenous Nations identify potential impacts, altering project routes and other avoidance measures must be considered as primary, viable solutions. Indigenous interests must not be sacrificed in the name of expediency and convenience. Where impacts are unavoidable and consented to by the affected Indigenous Nation, the OPR must require mitigation measures that include setting aside lands or access to lands, as selected by the impacted Indigenous Nation, as a replacement for loss of lands or loss of access to lands. Avoidance must be preferred where there would be impacts to any areas, as identified by the impacted Indigenous Nation, that are particularly sensitive or important.

Where there may be impacts to an Indigenous Nation's traditional lands, resources, and sites of significance, but there is a limited understanding of the use or some other aspect of those

lands, resources, and sites, the OPR must require that Indigenous Nations receive support for traditional use studies and surveys in terms of funding and capacity, and other assistance required as identified by the affected Indigenous Nations. This is critical to ensure that, in the event of impacts to those sites or resources, information is recorded about them that can inform mitigative responses to such impacts. The OPR must also mandate support for Indigenous cultural revitalization and development initiatives to mitigate impacts to practices that may be affected by projects.

Question 5: How can the use of Indigenous knowledge be addressed in the OPR?

In addition to requiring that Indigenous Nations be fully involved in any decision-making that may affect their rights, lands, resources, sites, or other interests on a consent-seeking basis, the OPR must require that Indigenous Knowledge be appropriately factored into such decisions. Ensuring that consistent and adequate principles are in place to provide procedural certainty for the use of Indigenous Knowledge within review and implementation of projects is a pathway toward implementing UNDRIP. The OPR must therefore require that proponents and the CER seek out and consider Indigenous Knowledge where appropriate.

The OPR must provide that Indigenous Knowledge holders are directly involved in the use and consideration of Indigenous Knowledge, as Canadian decision-makers are not appropriately equipped to synthesize and apply Indigenous systems of knowledge or Indigenous Knowledge. The meanings found in Indigenous Knowledge can only be appropriately applied by the Indigenous peoples who hold the respective cultural knowledge and who may express it within the Indigenous traditions and laws from which it was generated. Such knowledge holders must be fully informed and provided with all the details necessary to facilitate the application of their Indigenous Knowledge. This requires early and full engagement with all affected Indigenous Nations.

The OPR must also recognize and give effect to Indigenous rights with respect to their Indigenous Knowledge. Indigenous Nations hold jurisdiction and authority over their own Indigenous Knowledge, as illustrated by Article 31 of UNDRIP, which states that:

> "Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions... They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions."

The OPR must provide that Indigenous Nations will retain full control and ownership over their Indigenous Knowledge. Indigenous Knowledge cannot merely be extracted and used by proponents or the CER for their own purposes and without the necessary cultural context. The OPR must require that Indigenous Knowledge and its holders enjoy the respect that is due and the protections that are necessary to ensure it is not misappropriated, misapplied, misused, or accessed by unauthorized individuals or entities. This may include requiring the use of confidentiality agreements where necessary and clarifying that intellectual property protections apply to any Indigenous Knowledge shared or used in the context of a project regulated by the OPR. Indigenous Knowledge holders are best suited to identify the

necessary protections, and the OPR must require that they be identified, consulted with, and that their recommendations be accepted.

Further, the OPR must require that proponents and the CER seek out, become familiar with, and adhere to Indigenous Nations' applicable policies and protocols relating to Indigenous Knowledge and its use. Ensuring respect for the Indigenous laws that govern Indigenous Knowledge is a critical element of respecting Indigenous sovereignty and implementing UNDRIP and will support meaningful collaboration with holders of Indigenous Knowledge.

Finally, the OPR must be structured to ensure that the integrity of Indigenous Knowledge is maintained throughout its interaction with and use in reviewing a project. Canadian regulatory processes and Indigenous Knowledge and legal orders do not integrate seamlessly, and it is key to ensure that Indigenous Knowledge is not reshaped or altered through its use under the OPR. This again requires that Indigenous Knowledge holders be directly involved in any use of and decision involving Indigenous Knowledge, and also requires that Indigenous Knowledge not be forced into a form or used for a purpose that is incompatible with its *sui generis* nature.

Question 6: How can the OPR address the participation of Indigenous peoples in pipeline oversight?

From the outset, the OPR must recognize and give effect to the following Indigenous rights, as recognized by UNDRIP, in the context of pipeline oversight:

- Article 18: Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions;

- Article 19: States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them;

- Article 23: Indigenous peoples have the right to determine and develop priorities and strategies for exercising their right to development…; and

- Article 26: Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess…

The OPR must be structured so that decision-making power with respect to pipeline oversight is shared with all affected Indigenous Nations in a manner that seeks to obtain their free, prior, and informed consent and respects their decision-making institutions. This shared decision-making must be based on meaningful involvement, with Indigenous Nations being provided with all the information, time, and resources necessary for their full participation. Indigenous Nations must be recognized as self-governing entities possessing inherent authority, and whose consent is required for any decision made under the OPR.

The OPR must require early identification of and engagement with all Indigenous Nations that may be affected by a project and ensure their involvement throughout the project's entire lifespan at all levels. It must also require that any issues relating to, or gaps in, capacity or funding be addressed so that Indigenous Nations are able to participate in shared decision-making in a meaningful way. This includes building capacity so that Indigenous Nations have the ability to address and be involved in every aspect of pipeline oversight.

The OPR must also support shared development by Indigenous Nations, proponents, and the CER of management plans and strategies designed to address impacts to Indigenous interests resulting from the construction, operation, and maintenance of a pipeline. It must also support the full involvement of Indigenous Nations in the implementation and oversight of such management plans or strategies. This requires the incorporation of Indigenous Knowledge, perspectives, and priorities, in a manner consistent with the response to Question 5.

Finally, the OPR must ensure there is Indigenous involvement in pipeline oversight at all levels, from monitoring on the ground to involvement at the highest levels of the CER. Wherever there are decisions relating to pipeline oversight, Indigenous Nations must be

involved on the same basis as set out in this section – that is, full participation in all decision-making on a consent standard, with the provision of all necessary information, capacity and support, throughout the lifespan of a project.

Question 7: How can the OPR support collaborative interaction between companies and those who live and work near pipelines?

The OPR must require that proponents become familiar with and develop strategies to implement UNDRIP in conducting their activities. Given that, under Article 26 of UNDRIP, Indigenous Nations have the right to own, use, develop, and control their lands, territories, and resources, proponents should be required to understand the scope of Indigenous rights when interacting with Indigenous Nations and operating on Indigenous lands.

The OPR must require that proponents identify and engage with all Indigenous Nations who will be affected by their projects, and that such engagement must begin early and endure for the entire lifespan of the project. Companies must be required to establish relationships with all affected Indigenous Nations in order to identify, respond to, and resolve Indigenous Nations' concerns, and create collaborative solutions that respect and materially incorporate or are rooted in Indigenous Knowledge and perspectives. Proponents should be required to take the time necessary to meet with the leaders of Indigenous Nations and engage with them in a meaningful manner so that both groups understand each other's perspectives, priorities, and responsibilities.

Further, the OPR must require proponents to provide timely and fulsome referrals to Indigenous Nations about proponents proposed activities. Such referrals must contain all information necessary for Indigenous Nations to make informed decisions about such activities, as Indigenous Nations must be involved in making decisions on proposed activities as equal participants under the OPR. Full, transparent disclosure by proponents is necessary.

Additionally, proponents must be required to provide preferential employment, contracting, training, procurement, and other economic opportunities to Indigenous Nations affected by project. This accords with Article 21 of UNDRIP, which provides that Indigenous peoples have the rights to improve their economic and social conditions, including, inter alia, in the areas of education, employment, vocational training and retraining, and that States must take effective measures to ensure these improvements. The OPR must ensure that all benefits associated with and derived from projects that are located on Indigenous lands are shared with the appropriate Indigenous Nations.

Finally, the OPR must establish mechanisms by which companies are held accountable for adhering to these requirements and any commitments they make to Indigenous Nations. For example, Indigenous Nations and proponents should be able to submit to the CER lists of commitments that a proponent has made, and if a proponent fails to uphold its commitments it should have its operating permit suspended or cancelled or face other penalties. The OPR must ensure that commitments made to Indigenous Nations are honoured.

Question 8: How could communication and engagement requirements in the OPR be improved?

The OPR must require proponents to identify and engage with all Indigenous Nations that could be affected by a regulated project. This identification and engagement must begin early and persist throughout the entire lifespan of the project. Proponents must be required to develop clear lines of communication with affected Indigenous Nations and to ensure that they are responsive and respond to requests from and concerns raised by Indigenous Nations. The OPR should require proponents to develop and publish communications strategies that set out their commitments and expectations for communication and engagement with Indigenous Nations.

The OPR should also be structured to allow Indigenous Nations to report communication and engagement issues with proponents to the CER, and the CER should be empowered to direct proponents to engage and communicate with Indigenous Nations in the event that their efforts to do so are lacking. All communications must be transparent, fulsome, and timely.

Further, the OPR should require that Indigenous Nations receive capacity funding and support to engage with proponents and the CER if any capacity gaps exist. Meaningful engagement is impossible if Indigenous Nations lack the resources necessary to respond to referrals or to review proposed activities.

Question 9: How could the CER improve transparency through the OPR?

N/A

Question 10: Gender and other intersecting identity factors may influence how people experience policies and initiatives. What should the CER consider with respect to:

a. those people implementing the OPR; or

b. those people who are impacted by the operational activities addressed in the OPR?

a. The CER must consider how the perspectives and experiences of those implementing the OPR may influence their understanding of how others will be impacted by a project regulated under the OPR, or even recognizing certain issues as impacts themselves. Ensuring that the human composition of the entities implementing the OPR is diverse and includes a wide array of voices, especially Indigenous voices, is essential to ensuring that implementation of the OPR is carried out in a sensitive, thorough, and respectful manner. A broad set of perspectives is essential to ensuring that issues are not missed or glossed over as unimportant because of unconscious biases that may be present within a group of individuals with homogenous backgrounds and experiences. Diversity brings with it different focuses on different priorities, resulting in a more well-rounded and holistic outcome.

b. The OPR must make space to factor in how projects will affect people with different genders and other intersecting identities. For example, the CER must consider how the effects of a pipeline would be experienced by an Indigenous woman compared to an Indigenous man, based on different cultural roles, experiences, responsibilities, and rights. Additionally, the CER must consider how different individuals experience the impacts of projects based on things like vulnerabilities related to gender and other identities. For example, considering the potential impacts of increased levels of, predominantly male, resource workers in and around Indigenous communities on women, transgendered, and two-spirited individuals. Another example is considering the impacts of activities on elders and youth, such as preventing the transmission and learning of cultural and traditional knowledge and engagement in cultural and traditional practices. The OPR should require holistic engagement with all members of affected Indigenous Nations and ensure that there are sufficient opportunities and avenues for individuals to express their concerns and raise questions.

Question 11: How can the OPR support a predictable and timely regulatory system that contributes to Canada's global competitiveness?

A key element to ensuring Canadian competitiveness in global markets is creating project outcome certainty. Investors will prefer low-risk projects in order to best protect their capital and try to guarantee returns on their contributions. Part of this calculus involves assessing the applicable regulatory regime for predictability and timeliness. If, under a regulatory regime, projects are reviewed, approved, constructed, and operated smoothly, investors will gain confidence in that regulatory regime and be more likely to invest.

Central to the question of whether a regulatory regime is predictable, timely, and stable is how that regime engages with, and identifies and responds to concerns raised by affected Indigenous Nations. Awareness about this issue has grown enormously in public and investor and lender consciousness in recent years and continues to grow as recognition of and concern about the disproportionate impacts of natural resource and resource-related projects on Indigenous peoples increases. Projects that have strong Indigenous partnerships are increasingly becoming the standard and the OPR should support this.

Investors and lenders have seen that Indigenous peoples will vigorously resist projects that infringe their rights and titles and oppose proponents and regulatory regimes that do not adequately engage with them and meaningfully address their concerns. This leads to expensive project delays and cancellations and damage to industry and government reputations, which in turn reduce project certainty and investors' appetites to apply their capital to projects that are subject to such regulatory regimes.

Strong relationships with impacted Indigenous Nations increase regulatory certainty, which can be further incentivized within a regulatory scheme that recognizes Indigenous jurisdiction through shared decision-making practices. For the OPR to support project certainty in Canada and thereby encourage investment in Canadian companies and projects, it must be structured to fully address Indigenous concerns and involve affected Indigenous Nations in the regulatory process. Only by achieving Indigenous support for projects regulated under the OPR can project certainty be enhanced. Obtaining Indigenous Nations' consent to a

proposed project is a powerful sign to investors and lenders that a project is likely to proceed without opposition and delay. The OPR must be structured so that it seeks Indigenous Nations' consent to projects, which can be obtained by ensuring Indigenous Nations are included as equal partners in project assessment, review, approval, and oversight.

The OPR must be structured so that Indigenous Nations' concerns about any given project can be fully addressed to those Nations' satisfaction, thereby generating support and social "buy-in". This can be enhanced by structuring the OPR so that project proponents are required to share the benefits derived from their projects, economic or otherwise, with affected Indigenous Nations, in addition to sharing decision-making power and fully addressing concerns.

The OPR should be oriented towards removing barriers that prevent Indigenous Peoples from supporting OPR-regulated projects. Ensuring that the OPR is a regulatory regime that actively seeks – and consistently obtains – Indigenous consent and support for projects will help secure project certainty, reduce project risk, and increase investors' willingness to bring their capital to bear in support of Canadian projects.

Question 12: How can the OPR support innovation, and the development and use of new technologies or best practices?

The OPR can support the use of industry-specific best practices by requiring that proponents seek out and implement available best practices and innovative project systems. The OPR should be structured to ensure that proponents have an ongoing and iterative process by which they adopt newly-available best practices where applicable. In so doing, the OPR will promote innovation and ensure that proponents and projects are consistently at the cutting edge with respect to technologies and processes. The CER should review and assess other regulatory regimes to determine how this has been approached or achieved in other contexts. Focus should be given especially to how proponents and regulators in other jurisdictions are engaging with Indigenous Nations and giving effect to their rights and titles. Doing so has the potential to create an industry-leading regulatory environment.

The adoption of best practices and innovative technologies or processes must be carried out in full engagement and collaboration with affected Indigenous Nations. Articles 18 and 19 of UNDRIP recognize Indigenous Peoples' rights to participate in any decisions that would affect their rights or interests and set out the requirement that States and their regulatory entities seek Indigenous Peoples' consent to the adoption of measures that may affect them. Engaging with Indigenous Peoples also has the potential to drive further innovation and the creation of additional best practices, such as by incorporating Indigenous Knowledge into project reviews and assessments (in a manner that protects the integrity and confidentiality of such Indigenous Knowledge). The implementation and application of the OPR has the potential to be a productive and collaborative exercise between the CER, Indigenous Nations, and proponents. This is an opportunity that the CER must not ignore.

Question 13: What company-specific or industry-wide performance metrics could the CER consider to support enhanced oversight and transparency for CER-regulated facilities?
N/A

Question 14: Are there opportunities within the OPR for data and digital innovation that could be used by the CER and by companies regulated by the CER?
N/A

Question 15: How can the OPR be improved to address changing pipeline use and pipeline status?
N/A

Question 16: What further clarification, in either the OPR (e.g. structure or content), or in guidance, would support company interpretation and implementation of management system requirements?
The OPR must surpass minimum standards and require that management systems have strong and early engagement with impacted Indigenous Nations. Rather than merely requiring proactive communication, the OPR must target meaningful relationship building between proponents and impacted Indigenous Nations, so that proponents' accountability to Indigenous Nations is increased and Indigenous Nations have confidence that their concerns will be accommodated. The OPR must require that all proponents share their management systems with any affected Indigenous Nations and accept comments and questions about the content and form of those management systems. Affected Indigenous Nations should be empowered to share their comments and concerns about a proponent's management system with the CER, and accountability processes must be developed to ensure that any comments and concerns are addressed. As the OPR regulates the entire lifecycle of a pipeline, a lifecycle approach to management systems must also be applied to the design, construction, operation, and abandonment stages of a pipeline. Requiring the CER and proponents to forge strong relationships with Indigenous Nations at the outset creates a forum for meaningful dialogue that will endure through all stages of the pipeline project. Indigenous Nations and proponents will be able to work together to innovate and develop management systems that best address their unique circumstances. This position is consistent with the following Articles of UNDRIP:

- Article 18: The right to participate in decision-making regarding matters that could affect rights, as well as to maintain and develop Indigenous decision-making institutions;

- Article 19: The requirement that States consult and cooperate in good faith to obtain free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect Indigenous peoples;

- Article 23: The right to determine and develop priorities and strategies for exercising the right to development, and to be actively involved in developing and administering economic and social programs through Indigenous institutions;

- Article 25: The right to maintain and strengthen the distinctive spiritual relationship with the traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources of Indigenous peoples and to uphold their responsibilities to future generations in this regard;

- Article 26: The right to own, use, develop, and control the lands, territories, and resources possessed by reason of traditional ownership or other traditional occupation or use, as well as those which that have been otherwise acquired;

- Article 32(1): Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources; and

- Article 32(2): States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.

These rights require that the OPR be structured to ensure that each potentially impacted Indigenous Nation is consulted in good faith to obtain their free, prior, and informed consent to any management system.

The OPR must also allow for Indigenous Nations to have full and meaningful involvement in any decision that could have adverse impacts on their lands, territories, and resources. The environmental stewardship values and responsibilities of impacted Indigenous Nations should be supported and given effect to by the CER. Environmental management systems and environmental management plans for projects regulated under the OPR must be co-developed with, or otherwise meaningfully factor in the inherent rights of land stewardship of potentially impacted Indigenous Nations. As part of this, the OPR must require that Indigenous Nations be involved in identifying a project's potential impacts to traditional lands, resources, and sites of significance. Indigenous perspectives and knowledge are essential for this, as non-Indigenous proponents and regulators are unlikely to identify all or the same potential impacts. This requires early, thorough engagement and sharing of information with all Indigenous Nations involved, which is facilitated by strong relationship building at the outset of the company-Nation relationship.

Question 17: How should information about human and organizational factors, including how they can be integrated into a company's management system, for both employees and contractors, be provided in the OPR, and/or described in related guidance?

In terms of human and organizational factors, for both employees and contractors the OPR must include proactive employment policies such as cultural sensitivity and harassment related training to address discrimination that CER Indigenous monitors and members of the Indigenous Advisory and Monitoring Committees have experienced while conducting work on CER-regulated projects.

As stated in the Discussion Paper, the CER only recently became aware of such harassment taking place. In response, the CER issued a letter to all companies reminding them of their legal obligations with respect to protecting employees and preventing occurrences of workplace harassment and violence. The CER states that they have an expectation that companies will have policies and processes in place to meet the requirements of the Canada Labour Code and its regulations. However, these reactive and expectant measures are at or below the minimum standard required and do not adequately advance reconciliation with Indigenous Peoples and the implementation of UNDRIP.

An expansion of cultural sensitivity education and harassment policies is consistent with UNDRIP, including but not limited to the following articles:

- Article 2: Indigenous peoples and individuals are free and equal to all other peoples and individuals and have the right to be free from any kind of discrimination, in the exercise of their rights, in particular that based on their indigenous origin or identity;

- Article 7(1): Indigenous individuals have the rights to life, physical and mental integrity, liberty and security of person;

- Article 17(1): Indigenous individuals and peoples have the right to enjoy fully all rights established under applicable international and domestic labour law;

- Article 17(2): Indigenous individuals have the right not to be subjected to any discriminatory conditions of labour and, inter alia, employment or salary;

- Article 21(1): Indigenous peoples have the right, without discrimination, to the improvement of their economic and social conditions, including, inter alia, in the areas of education, employment, vocational training and retraining, housing, sanitation, health and social security;

- Article 32(1): Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources; and

- Article 32(2): States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.

These articles require the OPR to ensure that Indigenous Nations and their members enjoy substantive equality and are free from any kind of discrimination. Indigenous Peoples must enjoy full rights under domestic labour law and may not be subjected to any discriminatory conditions of labour, employment or salary. The OPR must do more than react to discriminatory situations after they arise. It must establish proactive measures that involve training for all proponent employees and contractors in greater cultural sensitivity and anti-harassment. Additionally, the OPR must establish or require policies aimed at diversity and inclusion, and education around UNDRIP and reconciliation.

Increasing diversity in CER Inspection Officers, continuing to support CER Indigenous monitors, and expanding the Indigenous Advisory and Monitoring Committees is another necessary step under the OPR review process. Ensuring that the composition of the entities implementing the OPR is diverse and includes a wide array of voices, especially Indigenous voices, is essential to ensuring that implementation of the OPR is carried out in a sensitive, thorough, and respectful manner. Diversity brings with it different focuses on different priorities, resulting in a more well-rounded and holistic outcome.

Question 18: How can the OPR improve the connection between company safety manuals and the overarching Safety Management Program, for both employees and contractors?

N/A

Question 19: How can respect and personal workplace safety be assured at CER regulated sites?

N/A

Question 20: How should the CER be more explicit about requirements for contractor management?

The CER requires proponents to be responsible for their contractors and to communicate with and oversee all personnel to ensure they adhere to all safety and environmental protection requirements and obligations. However, the use of contractors can create risks, as contractors may be unfamiliar with the relevant facility, project, territory, parties and affected Indigenous Nations involved in the work for which they have been contracted. Moreover, as contractors are not usually involved in the essential process of building relationships and

communication strategies with impacted Indigenous Nations, it is necessary to demand higher standards for their expertise, training, and cultural sensitivity.

As a starting point, proponents should seek the free, prior and informed consent of any impacted Indigenous Nations before employing contractors, and engage with impacted Indigenous Nations to discuss plans for retaining contractors, including the identity and performance history of the proposed contractors.

Contractor management systems must filter for candidates based on more than just technical capabilities. The OPR must mandate that contractors have high-quality safety programs and records, environmental stewardship experience, and a proven willingness to engage with impacted Indigenous Nations' and to respect their customs and protocols. Orientation and training of contractors must be conducted before even beginning work and must include identifying a project's potential impacts to traditional lands, resources, and sites of significance, based on Indigenous Knowledge, perspectives, and involvement. Contractors must be trained in environmental stewardship and anti-discrimination. Responsibilities for this training must be clearly defined and must be co-developed with impacted Indigenous Nations.

Proponents must be required to conduct ongoing monitoring and periodic auditing of contractor adherence to protocols in collaboration with impacted Indigenous Nations. At the end of each contract period, the proponent must consult with the impacted Indigenous Nation to determine whether that particular contractor may be considered for future work. The OPR must also establish mechanisms through which impacted Indigenous Nations are able to report contractor issues to the proponent and CER, and such reporting mechanisms must also contain accountability measures to ensure reports are responded to in a fulsome manner.

Co-development of contractor protocols with any impacted Indigenous Nations should include, at minimum:

- The creation of a list of qualified candidates, with preference to candidates selected by the impacted Indigenous Nation;
- The selection of specific contractors with strong safety programs, environmental stewardship, and cultural sensitivity training;
- Implementation of any Indigenous contracting and training practices;
- Any appropriate documentation for the contractor screening and selection process, protocols for monitoring contractors' adherence to guidelines, and any other issues relevant to the evaluation of the contractor; and
- Any additional protocols that an impacted Indigenous Nation considers necessary.

These requirements are consistent with UNDRIP, including but not limited to the following articles:

- Article 18: Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions;

- Article 19: States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them;

- Article 20: Indigenous peoples have the right to maintain and develop their political, economic and social systems or institutions, to be secure in the enjoyment of their own means of subsistence and development, and to engage freely in all their traditional and other economic activities;

- Article 23: Indigenous peoples have the right to determine and develop priorities and strategies for exercising their right to development. In particular, indigenous peoples have the right to be actively involved in developing and determining health, housing and other economic and social programmes affecting them and, as far as possible, to administer such programmes through their own institutions;

- Article 26(1): Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired;

- Article 26(2): Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired;

- Article 29(1): Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination;

- Article 29(3): States shall also take effective measures to ensure, as needed, that programmes for monitoring, maintaining and restoring the health of indigenous peoples, as developed and implemented by the peoples affected by such materials, are duly implemented;

- Article 32(1): Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources; and

- Article 32(2): States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.

Question 21: How should the OPR include more explicit requirements for process safety?
N/A

Question 22: How can the OPR drive further improvement to the environmental performance of regulated companies?
Indigenous peoples have been stewards of the land and environment for millennia. Indigenous Knowledge and understanding of their territories, and Indigenous perspectives, are invaluable resources in protecting the environment. Proponents stand to benefit significantly from partnerships with Indigenous Nations with regards to environmental management systems, as noted in the preamble of UNDRIP, which states: "Recognizing that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment". The OPR must require that Indigenous Nations be involved from the outset in identifying a project's potential environmental impacts. Indigenous perspectives and knowledge are essential for this, as non-Indigenous proponents and regulators are unlikely to identify all or the same potential impacts. This requires early, thorough engagement and sharing of information with all Indigenous Nations involved. Meaningful engagement and partnership with Indigenous Nations is a precursor to shared decision-making between the CER and Indigenous Nations to ensure environmental standards are set and upheld. The OPR must establish shared decision-making on these matters as a minimum requirement. These shared decision-making processes must be comprehensive and require the free, prior, and informed consent of each potentially impacted Indigenous Nation. Environmental management systems and environmental management plans for projects regulated under the OPR must also be co-developed with and meaningfully factor the inherent rights of land stewardship of impacted Indigenous Nations. This deep engagement with Indigenous Nations is required by Article 29 of UNDRIP, which states: "Article 29.1: Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination." The OPR can support the improvement of environmental performance by providing effective mechanisms for redress for Indigenous Nations when environmental standards are not met.

Environmental standards and management plans, co-developed with Indigenous Nations, must be enforceable to be most effective. This also aligns with UNDRIP:

> "Article 32: States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact."

In addition, these shared decision-making processes must duly respect the governance practices exercised by each impacted Indigenous Nation, including those practices set out under land code and other statutory frameworks that concern self-governance and land management, as well as internal governance policies concerning lands and resources and cultural heritage. Again, this standard aligns with UNDRIP:

> "Article 18: The right to participate in decision-making regarding matters that could affect rights, as well as to maintain and develop Indigenous decision-making institutions."

Question 23: How can the connection between the Environmental Protection Plan, specific to an individual pipeline, and the company's Environmental Protection Program, designed for a company's pipeline system, be improved?

At present, the Environmental Protection Plan Guidelines - March 31, 2011 make no reference to Indigenous peoples. This indicates that there is significant room for improvement in this area, to bring the guidance in line with reconciliation, consent-base standards, and UNDRIP.

An Environmental Protection Plan engages the specific considerations for each pipeline. The specific and detailed nature of the plan increases the importance of involving Indigenous Nations in identifying a project's potential impacts to traditional lands, resources, and sites of significance. Indigenous perspectives and knowledge are essential for this, as non-Indigenous proponents and regulators are unlikely to identify all or the same potential impacts. This requires early, thorough engagement and sharing of information with all Indigenous Nations involved.

Similar to the responses in Question 22, Environmental Protection Plans must be co-developed with Indigenous Nations. This deep engagement with Indigenous Nations is required by Article 29 of UNDRIP, which states:

> "Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination."

Engaging with impacted Indigenous Nations in the co-development process at both the Program and Plan stages will help ensure that the two products are aligned with the impacted Indigenous Nation's perspectives, priorities, and address their concerns, as required by UNDRIP.

Further, the CER Environmental Protection Plan Guidelines should, for Environmental Protection Programs, provide effective mechanisms for redress for Indigenous Nations when environmental standards are not met. Environmental standards and management plans, co-developed with Indigenous Nations, must be enforceable to be most effective. This also aligns with Article 32 of UNDRIP:

> "States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact."

Both Environmental Protection Plans and Programs should clearly outline and require shared decision-making with impacted Indigenous Nations to ensure environmental standards are set and upheld. These shared decision-making processes must be comprehensive and require the free, prior, and informed consent of each potentially impacted Indigenous Nation.

In addition, these shared decision-making processes must respect the impacted Indigenous Nations' governance practices, including those practices set out under land code and other statutory frameworks that concern self-governance and land management, as well as internal governance policies concerning lands, the environment, resources, and cultural heritage. Again, this standard aligns with UNDRIP:

> "Article 18: The right to participate in decision-making regarding matters that could affect rights, as well as to maintain and develop Indigenous decision-making institutions."

In summary, similar engagement, inclusion, and participation of impacted Indigenous Nations should occur in the Environmental Protection Program stage as at the Environmental Protection Plan stage. This will ensure greater harmonization and alignment with basic standards as established in UNDRIP.

Question 24: How can contaminated site management requirements be further clarified, in the OPR or in guidance?

Indigenous Peoples have stewarded the land and environment for millennia. Indigenous Knowledge, perspectives, and understanding of their territories is invaluable in protecting the environment and managing contaminated sites.

The OPR's contaminated site management requirements can be further clarified by ensuring that they are developed based on consultation and in conjunction with impacted Indigenous Nations. This requires that impacted Indigenous Nations be involved in identifying a contaminated site's potential impacts to the environment, traditional lands, resources, and sites of significance. The OPR must require the inclusion of Indigenous Knowledge and perspectives to identify additional considerations than a proponent's research may not include. This requires early, thorough engagement and sharing of information with all Indigenous Nations involved.

Requirements for contaminated site management under the OPR must be co-developed with impacted Indigenous Nations on a consent-seeking standard, and meaningfully factor the inherent rights of land stewardship of potentially impacted Indigenous Nations. This deep engagement with Indigenous Nations is required by Article 29 of UNDRIP, which states:

> "Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination."

The OPR's contaminated site management requirements must allow impacted Indigenous Nations to impose monitoring requirements. Impacted Indigenous Nations must be empowered to ensure that proponents adhere to contaminated site management standards and report incidents of non-compliance to the CER. Such reporting mechanisms must be supported by enforcement and accountability measures to ensure that any non-compliance by proponents are meaningfully addressed.

The OPR must also impose remediation requirements for contaminated sites on proponents, which must be co-developed with impacted Indigenous Nations on a consent-seeking standard, and meaningfully factor the inherent rights of land stewardship of potentially impacted Indigenous Nations. Impacted Indigenous Nations must also be empowered and involved in implementing, overseeing, and enforcing remediation requirements. This is consistent with Article 28 of UNDRIP, which states that:

> "Indigenous peoples have the right to redress, by means that can include restitution or, when this is not possible, just, fair and equitable compensation, for the lands, territories and resources which they have traditionally owned or otherwise occupied or used, and which have been confiscated, taken, occupied, used or damaged without their free, prior and informed consent."

Question 25: Are there any matters related to the Emergency Management Program in the OPR that require clarification? If so, what are they? Are there any matters for which further guidance is required?

N/A

Question 26: How could the requirement for a Quality Assurance Program be improved or clarified in the OPR?

N/A

Question 27: How can the OPR incorporate the key issues identified in the Safety Advisory regarding the strength of steel and the relative strength of the weld area?

N/A

Question 28: What are your recommendations for compliance promotion at the CER?

The CER should not merely promote compliance, it must require and enforce it. A proponent's commitments made in advance and as part of the regulatory review process – such as to adhere to project conditions, maintain communication and engagement with Indigenous Nations, or to address Indigenous Nations' concerns – are rendered meaningless if they are not given effect to or are deviated from. Proponents must be motivated by whatever means are necessary to ensure compliance with all established project requirements, whether through incentives, deterrence, or some combination thereof.

Proponents could be incentivized to ensure compliance with preferential or fast-track treatment throughout the regulatory review process if they establish a proven record of compliance with regulatory requirements and fulsome, productive engagement and partnerships with impacted Indigenous Nations. This would require endorsement from those Indigenous Nations with whom proponents have engaged and built relationships, which would need to be demonstrated by such things as agreements for co-management of projects, the provision of equity interests to Indigenous Nations, and investment in Indigenous Nations.

Conversely, non-compliance must be met with enforcement measures that are sufficiently forceful to command proponents' immediate attention and require them to alter the conduct of their activities to return to compliance. Half-measures that are merely inconvenient to proponents or that they can absorb as part of the cost of doing business are neither adequate nor acceptable. Suspending proponents' permits to operate projects until compliance is achieved should be a primary means of ensuring adherence to regulatory requirements. Any fines or financial penalties levied against proponents must be of a magnitude that the costs of non-compliance are greater than the costs of compliance.

A key effect of non-compliance is to undercut the OPR's regulatory regime, which can result in impacts to the rights of Indigenous Nations and creates project uncertainty that may impact investors' willingness to support Canadian projects. The CER must ensure that, in addition to a robust regulatory system, it is equipped to enforce such non-compliance. Penalizing proponents for inadequate engagement with, mistreatment of, and creating negative impacts for Indigenous Nations is required to ensure that the Crown, through the CER, upholds its responsibilities to and relationship with all Indigenous Nations.

Question 29: How do you want to be engaged by the CER in the development of technical guidance?

Meaningful processes that contribute to the advancement of reconciliation must recognize Indigenous law and jurisdiction and increase procedural certainty that the decision-making

and stewardship values of impacted Indigenous Nations will be adequately and appropriately factored in the implementation of all CER activities.

In developing technical guidance, the CER must implement comprehensive processes and decision-making frameworks that identify relevant roles and facilitate respect for the decision-making authority, rights, and value systems of Indigenous Nations that are impacted by regulated projects. For the development of technical guidance, this must include:

- The implementation of shared decision-making frameworks concerning any technical guidance that may impact ecological, cultural, spiritual, or social values relevant to any potentially impacted Indigenous Nation;

- The development of comprehensive processes intended to obtain the free, prior, and informed consent of each potentially impacted Indigenous Nation for the development of technical guidance. Those processes must respect the impacted Indigenous Nation's practices set out under land code and other statutory frameworks that concern self-governance and land management, as well as internal governance policies concerning lands and resources and cultural heritage, and Indigenous laws and legal orders;

- The processes developed must provide impacted Indigenous Nations adequate time and funding to support their meaningful participation in, or review of, technical guidance developed by the CER;

- Any decisions related to developing technical guidance made by the CER must seek out and consider Indigenous knowledge, where appropriate, and a comprehensive protocol to manage, maintain, and protect Indigenous knowledge and to assure knowledge holders of the confidentiality and ownership of Indigenous knowledge must be in place. These protocols must not extract Indigenous knowledge, but rather support the meaningful collaboration with knowledge holders to ensure that cultural knowledge and values are appropriately factored in decision-making processes under the CER; and

- Indigenous Nations must be provided with capacity funding to support their participation in the development or review of technical guidance by the CER.

The above requirements align with UNDRIP, including the following articles:

- Article 18: The right to participate in decision-making regarding matters that could affect rights, as well as to maintain and develop Indigenous decision-making institutions;

- Article 19: The requirement that States consult and cooperate in good faith to obtain free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect Indigenous peoples; and

- Article 23: The right to determine and develop priorities and strategies for exercising the right to development, and to be actively involved in developing and administering economic and social programs through Indigenous institutions.

Additional Submissions

Indigenous Capacity Building

The CER must support greater training and capacity building for impacted Indigenous Nations to further their involvement in all aspects of pipeline project assessment, review, approval, and oversight, over the entire lifecycle of a pipeline project. Supporting greater involvement for Indigenous Peoples will increase their ability to engage in the regulatory process and involvement in project management and operations, which supports increased project certainty. Increasing the quantity and quality of partnerships with Indigenous Peoples on pipeline projects is a cornerstone to ensuring that Canadian pipeline projects meet the highest environmental, social, and technical standards. It further supports the advancement of reconciliation and the implementation of UNDRIP.

Non-Indigenous Capacity Building

The CER must also support greater capacity building and training in Indigenous cultural competency for non-Indigenous participants who are involved in pipeline assessment, review, operation, and oversight processes at all levels. This is critical to ensure that non-Indigenous individuals have an increased understanding of Indigenous perspectives and concerns about pipeline projects, which will support the collaborative management and shared decision-making processes that are required by UNDRIP.

Further Implementation of Indigenous Advisory Monitoring Committee

LNIB was a central part of building the framework for the Indigenous Advisory and Monitoring Committee (the "**IAM Committee**") that was established in 2015/2016. While the IAM Committee has been functioning, its ability to make impactful recommendations has been severely diluted. The CER must revisit this committee and the important role it has to play in providing advice and guidance on pipeline projects. We have attached key documents for the IAM Committee to this Response Letter (**Appendix A**) for your re-consideration and to ensure that it is not relegated to obscurity. LNIB insists that the CER provide progress reports on how the IAM Committee's recommendations have been implemented and, if they have not been implemented, detailed reasons as to why and how these recommendations will be implemented in the future.

Follow Up to Submissions

LNIB requires that the CER engage with us to follow up on these submissions and maintain a dialogue throughout the OPR review process. If the CER is committed to advancing reconciliation with Indigenous Peoples and ensuring inclusive participation, the CER must engage in an ongoing discussion with LNIB about how these submissions will influence

changes to the OPR and how our recommendations will be implemented. The CER must also provide substantive progress reports that include objective measures to demonstrate progress on these matters.

APPENDIX A

Key Documents – Indigenous Advisory and Monitoring Committee

MEMORANDUM

LGL LIMITED
Est. 1971
environmental research associates

Prepared for:	Lower Nicola Indian Band	**Date:**	June 30, 2022
Prepared by:	Dr. [redacted] Dr. [redacted]		
Re:	Canada Energy Regulator – Onshore Pipeline Regulation – Discussion Paper Review	**Project:**	EA4305

The Canada Energy Regulator (CER) implements and oversees a regulatory framework focused on the safe and efficient delivery of energy to Canada and the world, protecting the environment, and recognizing and respecting the rights of the Indigenous peoples of Canada.

The CER's Onshore Pipeline Regulations (OPR) provides the rules that companies with authorizations to build and operate these pipelines must follow. The OPR was issued under the National Energy Board Act and has been in place since 1999. The CER is now conducting a comprehensive review of the OPR under the CER Act to update the regulations. The CER's objective for this review is to deliver a regulation that supports the highest level of safety, security and environmental protection, advances Reconciliation with Indigenous peoples, addresses transparency and inclusive participation, provides for predictable and timely oversight and encourages innovation.

Indigenous people regard themselves as inseparable from the land, the waters and the animals with which they share the world. They regard themselves as custodians of the land, which is for their use during their lifetime, and which they must pass on to the next generations. Pipeline companies are responsible for meeting the requirements of the OPR to manage safety, security and environmental protection, but there has been a noticeable gap in providing a holistic perspective of the Canadian energy regulatory landscape.

As stewards of the land, the LNIB is committed to finding a sustainable balance between safety of its members, environmental conservation and resource and economic development. Therefore, ensuring environmental and safety concerns and Aboriginal rights are recognized and protected is of utmost priority. This Discussion Paper contains six sections with questions seeking your input. We have provided responses to these questions; although, Indigenous knowledge, values and perspectives can be addressed in the monitoring, regulation, compliance verification, and performance of pipeline projects to minimize impacts to Indigenous rights and interests.

Section 1. OPR – Lessons Learned

1. ***What's working well in relation to the OPR, and its implementation, and what could be improved?***

The inclusion of a meaningful consultation process in relation to the OPR could be improved. Section 3.4 of the Filing Manual states that "*The CER expects an applicant to have a company-wide Engagement Program that establishes a systematic, comprehensive and proactive approach for the development and implementation of project-specific engagement activities* (page 16)." While engagement is important, we suggest the OPR be updated to require companies to conduct a meaningful consultation process that fully respects Aboriginal and treaty rights. This would generally include:

- Gathering information to test policy proposals;
- Putting forward to Indigenous groups, project proposals that are not finalized;
- Seeking Indigenous groups' opinion on proposals;
- Informing Indigenous groups of all the relevant information upon which those proposals are based;
- Giving Indigenous groups sufficient time to research, consider and respond to the proposal;
- Listening with open mind to what Indigenous groups have to say;
- Being prepared to alter the original proposal to eliminate or minimize impacts upon Aboriginal or treaty rights; and
- Providing feedback both during the consultation process and after the decision process.

It is expected that consultation in this manner would allow for a better understanding of project risks (see comments on safety below) and allow the company to work with Indigenous groups to take a proactive approach in the development of environmental and cultural protection programs for projects.

Also, Section 3.3 of the Filing Manual reiterates the importance of a systemic approach to improve safety culture and risk reduction: "A carefully designed and well-implemented management system supports a strong culture of safety and is fundamental to keeping people safe and protecting the environment. SS. 6.1 to 6.6 of the OPR detail the required elements of a company's management system. It must be a systematic approach designed to effectively manage and reduce risk through necessary organizational structures, resources, accountabilities, policies, processes and procedures, and must include measures to evaluate effectiveness and promote continual improvement." (p. 16). Clear and practical steps as how to implement elements and evaluate the efficacy of such a "systemic approach" should be further delineated.

Finally, the "Dissuasion Paper, Section 1. OPR – Lessons Learned" states: "With this performance-based approach, the goal is for companies to strive to do better than a minimum requirement…[T]he OPR and other regulations, and conditions on authorizations, using a risk-based compliance verification approach. The CER focuses its compliance verification on those things that pose the highest risk of harm to people and the environment." The rationale, assumptions, and process/method for arriving and estimating the level of such "risk" should clearly be explained, in full transparency and objectivity. [We have questioned and expressed serious concerns about the estimation of human error in the Trans Mountain Expansion Project's risk analysis in the past.]

Enforcement of regulation when it comes to Indigenous values can be improved; therefore, the role of Cultural or Indigenous inspectors will be a key component moving forward.

Section 2. Reconciliation with Indigenous Peoples

2. ***How can the OPR contribute to the advancement of Reconciliation with Indigenous peoples?***

With respect to specific communities and Indigenous groups, the OPR and its guidance documents should not treat for aggregate information for all Indigenous groups, based on their lowest common denominator, but rather, it must require specific references to each Indigenous community who will be differentially impacted by a pipeline. We recommend the CER work with Indigenous groups to develop a definition of reconciliation that can be added to Section 1 of the OPR.

3. ***How can the OPR contribute to the protection of heritage resources on a pipeline right-of-way during construction, and operations and maintenance activities?***

The OPR can contribute to the protection of heritage resources by directing companies to abide by specific cultural heritage policies adopted by Indigenous groups. For example, the Lower Nicola Indian Band has developed a Cultural Heritage Policy that provides a framework for the protection, preservation, promotion, respect and revival of Nłeʔkepmx cultural heritage. This policy provides a specific process for conducting cultural heritage work within LNIB's Traditional Territory. It is intended to provide clarity and to promote a collaborative working relationships with businesses, governments, researchers, proponents and other people or entities who wish to conduct cultural heritage work in the Traditional Territory. Anyone planning to undertake work in LNIB's asserted Traditional Territory must be aware of and adhere to this Policy. By taking this collaborative approach, a much improved pre-development baseline assessment can be completed; thereby improving the project design and development plans and ultimately reducing impacts on heritage resources.

The OPR can also include a stipulation that companies participate in cultural awareness training, which is provided by the various Indigenous groups that over that a specific project, prior to finalizing a project proposal. This can help to ensure cultural and heritage resources are fully understood and considered as project plans are prepared.

4. ***How can the OPR contribute to the protection of traditional land and resource use, and sites of significance for Indigenous peoples on a pipeline right-of-way, during construction, and operations and maintenance activities?***

Given the magnitude of the direct impact on traditional lands from pipeline developments, a full analysis and understanding of realistic risks to safety and environmental is required to allow Indigenous groups to manage ancestral lands according to traditional laws and values. As stewards of the land, Indigenous groups are committed to finding a sustainable balance between safety of its members, environmental conservation and resource and economic development. Therefore, ensuring environmental and safety concerns and Aboriginal rights are recognized and protected is of utmost priority.

A company must understand and appreciate the components of traditional land and resource use as much as the other components (e.g., engineering and economic) of the project. Stipulations regarding the

protection of traditional land and resource use must be implemented early in the planning stages of a project so that they are viewed as an integral part of pipeline construction and operation. These specific stipulations must be written into contracts and tender documents to ensure their value is highlighted to all contractors involved in a project.

The protection of traditional land and resource use along a pipeline right-of-way must also consider the cumulative impacts. The courts have found that governments are required to consider the incremental, cumulative effects of a proposed development on Aboriginal and Treaty rights; therefore, a clearly specified approach to cumulative effects assessment that takes into account the cumulative, incremental effects of a pipeline on the ability of an Indigenous group to exercise of its Aboriginal and Treaty rights is a critical component.

5. How can the use of Indigenous knowledge be addressed in the OPR?

Section 6.1 of the OPR outlines the provisions for management systems that integrates a company's operational activities and technical systems with its management of human and financial resources. The requirements for the use of Indigenous knowledge can be incorporated into these management system provisions. Part of this provision should stipulate that traditional use studies be mandatory for any project. Further, these traditional use studies should be led by the Indigenous groups; however, capacity funding is to be provided by the company.

Moreover, Indigenous knowledge could be a major recourse and can leverage requisite knowledge for identification of potential hazards and their risks, as stipulated in the OPR sections 6.3 ["(a) a policy for the internal reporting of hazards, potential hazards, incidents…"] and 6.5 ["(c)establish and implement a process for identifying and analyzing all hazards and potential hazards;" "(e) establish and implement a process for evaluating the risks associated with the identified hazards and potential hazards, including the risks related to nor- mal and abnormal operating conditions"]

6. How can the OPR address the participation of Indigenous peoples in pipeline oversight?

It is duly noted that "The CER has worked with the IAMCs to develop an Indigenous Monitoring Program where Indigenous monitors are trained and participate in CER inspection and other oversight activities for several pipeline systems and projects." (p. 5). And according to CER's *Indigenous Monitors enhance CER activities* (2021-08-12), "Indigenous Monitoring program has come a long way in the past four years… Many Indigenous Monitors go further, sharing knowledge and experiences with their Inspection Officer colleagues… Training for Indigenous monitors and CER inspectors." OPR should envision provisions for providing Indigenous monitors with rigours training in key technical expertise needed to conduct realistic risk analysis, such as human factors, job hazards/safety analysis, etc.

Mechanisms should be in place to ensure that companies, who are implementing projects under the OPR, and Indigenous groups participate in the project review process in good faith, which results in the

engagement of a construction resolution process that identifies and addresses issues and concerns relating to the proposed project. This process should include adequate capacity to Indigenous groups to be involved in the process and community support.

Project reviews should focus on potential impacts to valued components that form the basis of a sustainable environment for participating Indigenous groups. Interactions amongst parties within the review process can be characterised by the consensus nature of Indigenous society in which the exchange of ideas and information occurred in a semi-formal manner and where opportunities for mutual education and the sharing of knowledge occur. Interactions can primarily occur at the technical level, but when consensus cannot be reached, the responsibility to remedy the situation gets elevated to the leadership level of each party.

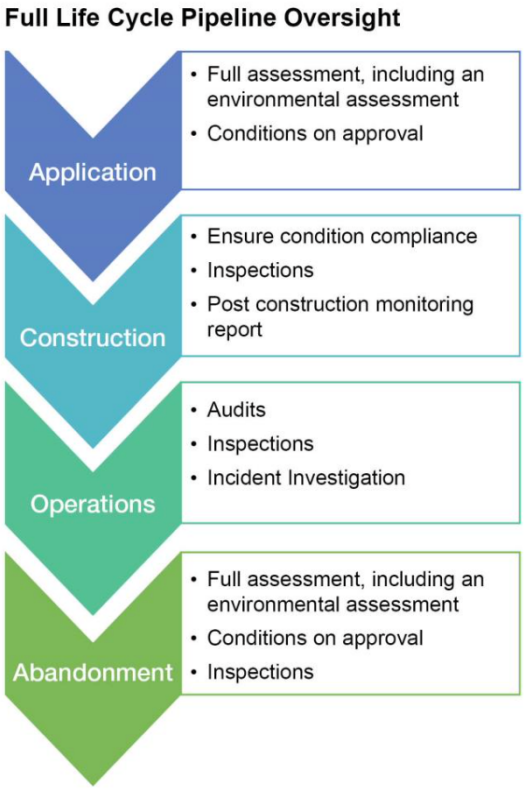
Moving forward, as a project undergoes construction and operation, Indigenous cultural monitors or guardians must be part of the team. In this regard their involvement can be stipulated in environmental monitoring and protection plans.

Section 3. Engagement and Inclusive Participation

7. ***How can the OPR support collaborative interaction between companies and those who live and work near pipelines?***

The OPR can recognize that Indigenous people have a relationship to the land and have taken the inherent responsibility to care for this land, since it is part of their identify, culture and in some cases food security and food sovereignty. The OPR must provide a mechanism to ensure companies take the time required to establish and maintain trust with Indigenous groups. This trust is essential to forming good working relationships that allow collaborative projects to thrive. At the outset of a collaborative project, all parties should agree on the values and goals. There must be recognition of Indigenous priorities and assurances that these are addressed throughout the project.

Furthermore, there should be an objective roadmap/guideline in the OPR for collaborative interaction with those who live and work near pipelines, especially Indigenous peoples, throughout its life cycle -- design, construction, operation and maintenance, and abandonment/decommissioning. The items in the boxes of the following figure, which is from the CER *Full Lifecycle Pipeline Oversight* fact sheet, are categories of the issues which could define and delineate the extent of the intended collaborative oversight process.



8. How could communication and engagement requirements in the OPR be improved?

Companies should be required to produce a communication plan, in collaboration with Indigenous groups, that outlines the expectations and commitments regarding communication and engagement. Companies must share all motivations, intentions, and information with Indigenous groups from the outset.

Communication is a key element in emergency response planning and execution. Indigenous peoples and other stakeholders should be engaged in planning, drills and updating such plans in addressing different spill scenarios.

9. How could the CER improve transparency through the OPR?

Certain guiding principles can be applied to ensure transparency, such as: being responsive to Indigenous values; applying scientific rigor; and embracing collaborative problem solving. The CER can specifically provide oversight to ensure these principles are being applied by company. This can involve direct engagement between the CER and Indigenous groups so that direct feedback can be provided and addressed.

For the sake of transparency and trust-building, OPR should develop a transparent systematic mechanism and forum for CER-regulated companies to share their incident and root-cause analyses, with Indigenous peoples.

10. ***Gender and other intersecting identity factors may influence how people experience policies and initiatives. What should the CER consider with respect to:***
    a. ***those people implementing the OPR; or***
    b. ***those people who are impacted by the operational activities addressed in the OPR?***

People with gender and other intersecting identity factors may have different physical and psychological expectations, needs, limitations and capabilities. These issues should be understood, identified and addressed in scientifically-rigorous manner with an open mind, free from bias and prejudice.

Section 4. Global Competitiveness

11. ***How can the OPR support a predictable and timely regulatory system that contributes to Canada's global competitiveness?***

To support a predictable and timely regulatory system, the OPR must be able to facilitate the proactive engagement with Indigenous groups to ensure any issues and concerns related to impacts, reconciliation and Indigenous knowledge are addressed early in the project development and review process.

In order to contribute to Canada's global competitiveness, the OPR should take advantage, adapt and adopt the most advanced performance-based regulations and global best practices in regulatory oversight, such as California OSHA's revamped and updated "Process Safety Management for Petroleum Refineries" (Title 8, Section 5189.1, effective date, October 1, 2017), and the (rather new) "Safety Case[i]" regulatory regime, respectively.

[California's Process Safety Management for Petroleum Refineries, which probably is the most comprehensive PSM standards, include some new elements such as human factors (element s), safety culture (element r), management of organizational change (element t), and root cause analysis (a new section to the old incident investigation, element o). When this CAL OSHA PSM regulation was released in 2017, a senior safety official in the US characterized it as "the single most important safety regulation that has been introduced and implemented in the last 25 years in the United States".]

12. How can the OPR support innovation, and the development and use of new technologies or best practices?

The OPR can prudently support integration of innovative new algorithmic-based technologies, such as Artificial Intelligence and Machine Learning (AI/ML) for pipeline operation, monitoring and leak detection. However, at the same time, the OPR should explicitly acknowledge that oil and gas pipeline operation is a safety-critical system, where failures have significant consequences.

This "criticality" is a serious issue that must be taken into account for AI systems and their operational environments, and the risk management aspects are designed with respect to the criticality assessment; a-) With safety-critical systems, there is always at least a human operator who has received special training in how the system works, how to handle unexpected situations, and how to avert a potential failure of possibly high and catastrophic consequences. The identification of the qualifications and training of operators is crucial in safety-critical systems, and so it should be for AI systems that are safety-critical systems; and b-) No existing safety-critical systems in any sector have been fully autonomous and without a human operator. In contrast, AI systems that can be considered safety-critical systems are already being deployed without full consideration of safe operations with human oversight. Careful consideration and rigorous oversight should be given to the use of AI in any safety-critical systems where any level of autonomy is allowed.

Moreover, when supporting new AI/ML-infused and enabled technologies, the OPR should be cognizant about the alignment between Technology Readiness Level (TRL) and the Human Readiness Leve (HRL)[ii]. The problems with assuming and asserting that any technology is at a higher TRL when it is actually at a lower level can be quite serious; also the larger the gap between TRL and HRL, the higher the risk to the system.

13. What company-specific or industry-wide performance metrics could the CER consider to support enhanced oversight and transparency for CER-regulated facilities?

Criteria to be considered to help facilitate enhanced oversight and transparency for CER-regulated facilities and companies can include: 1) whether the physical and/or meaningful exercising of traditions, customs and practices of Indigenous cultures would be negatively influenced; 2) the performance history of the company and its respect for traditional governance and Treaty rights; and 3) the quality of relations a company has with Indigenous groups from other regions. Section 6.5 (Management System Processes) of the OPR can be updated to includes these types of factors.

14. Are there opportunities within the OPR for data and digital innovation that could be used by the CER and by companies regulated by the CER?

Collect all the data concerning what the pipeline system operator has to do, in terms of information processing and decisionmaking, above and beyond what is readily available to her/him via SCADA system and Computational Pipeline Monitoring (CPM), which is considered as "being the primary leak detection method."

15. How can the OPR be improved to address changing pipeline use and pipeline status?

A mechanism must be in place to address legacy effects of past pipelines (e.g., Trans Mountain Pipeline), particularly where there remains ongoing concerns about past project approvals. Until these past impacts and current effects are addressed.

The decision to "leave to abandon" or decommissioning is not typically made instantaneously. Indigenous peoples should be involved in deliberations or receive minutes of meetings concerning "leave to abandon"; they should also be actively engaged in the environmental impact study of decommissioning.

Section 5. Safety and Environmental Protection

16. What further clarification, in either the OPR (e.g. structure or content), or in guidance, would support company interpretation and implementation of management system requirements?

[redacted]

As stated in the *CER Management System Requirements and CER Management System Audit Guide*, "The OPR uses both performance and prescriptive-based requirements. For additional information on what performance based and prescriptive based requirements are, refer to section 5.2 below. Where the requirements are performance-based, companies have the flexibility and scalability to customize its management system approach based on their unique operational requirements and company needs." (emphasis added, p.7). Performance-based safety requirements, puts the onus on CER-regulated companies; it runs the risk and unintended consequence of reverting to minimalism. Whereas they – CER-regulated companies – should demonstrate that a system is critically safe and that the risks associated with it is reduced to "As Low As Reasonably Praticable (ALARP)". This implies that the industry has to demonstrate that all appropriate "measures have been taken to reduce the likelihood of hazards, and to mitigate their consequences". This process is built upon the assumption that the industry is responsible to provide necessary analysis and supporting details in proving that they have lowered the associated risk as low as possible and obtained CER's agreement on the document. The success of this complex and delicate process of ensuring an adequately acceptable safe pipeline system depends heavily on the matured safety culture of the regulated company[iii]. This fact and the instrumental role of Indigenous peoples are also reiterated in the CER's *Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture (2021)*:

> "Path Forward - The CER, [Canada-Newfoundland and Labrador Offshore Petroleum Board] C-NLOPB, and [Canada-Nova Scotia Offshore Petroleum Board] C-NSOPB remain committed to promoting and advancing safety culture through engagement with industry members, Indigenous peoples, subject matter experts, and other interested parties…Conclusion - The CER, CNSOPB, and C-NLOPB put safety and environmental protection at the forefront of their responsibilities. Safety culture remains a subject that requires greater understanding and consideration in the prevention of catastrophic incidents." (p. 14 & 15).

17. ***How should information about human and organizational factors, including how they can be integrated into a company's management system, for both employees and contractors, be provided in the OPR, and/or described in related guidance?***

[redacted]

Human and organizational factors should be integrated into every component or subsystem of a company's management system. A good starting point will be following the strategic guidelines of the *Human and Organizational Factors for Optimal Pipeline Performance*, by Canadian Standards Association (EXP16:22, March 2022) concerning pipeline life cycle – design, construct, operate, maintain, decommission - and integration into management system (p. 16 and 17).

A sample of more specific approved and regulatory-driven human and organizational factors-related guidelines which can be provided in the OPR and/or described in related guidance is in the aforementioned CAL OSHA's *Process Safety Management for Petroleum Refineries*, that deal with evaluating the following: "staffing levels; the complexity of tasks; the length of time needed to complete tasks; the level of training, experience, and expertise of employees; the human-machine and human-system interface; the physical challenges of the work environment in which the task is performed; employee fatigue and other effects of shiftwork and overtime; communication systems; and the understandability and clarity of operating and maintenance procedures."

The US regulator, Pipeline and Hazardous Materials Safety Administration (PHMSA), enacted the Control Room Management/Human Factors regulations in 2011, which include issues such as shift change, fatigue mitigation education and training, change management, operating experience, training, and alarm management.. However, it should be noted that these regulations are mostly address pipeline control room operations and focused on pipeline control system operators.

18. ***How can the OPR improve the connection between company safety manuals and the overarching Safety Management Program, for both employees and contractors?***

[redacted]

One of the major sources of misalignment between company's safety management system and its prescribing manuals and contractors safety practices is the gap between "work as imagined" versus

"work as planned". "There will always be a performance gap between "work-as-planned" and "work-as-done" work performance gap (ΔWg) because of the variability in the execution of every human activity."[iv] A participative process should be the basis for coordinating and aligning company's safety efforts with its contractors, which could include Indigenous staff. This process can be augmented by frequent updating and continuous monitoring

19. How can respect and personal workplace safety be assured at CER regulated sites?

[redacted]

Respect, personal workplace and system safety are inseparable and intertwined. In fact, a "respectful work environment" has been reconized as one of the pillars and essential traits of a healthy safety culture by many industries[v]. The onus and responsibility for creating a respectful work environment is on organizational leaders, as "leaders monitor for behaviors that can have a negative impact on the work environment and address them promptly, and leaders ensure policies and expectations are enforced fairly and consistently for individuals at all levels of the organization."[vi]

The OPR should directly and explicitly address/mandate CER-regulated companies leaders' important and ultimate responsibility for initiating and maintain a respectful work environment, esp for Indigenous peoples.

20. How should the CER be more explicit about requirements for contractor management?

[redacted]

The CER can use the aforementioned CAL OSHA's *Process Safety Management for Petroleum Refineries* and possibly explicitly adopt its paragraph (h) concerning Contractors, with its subparagraphs that delineate detailed guidelines for the company and contractor safety responsibilities.

21. How should the OPR include more explicit requirements for process safety?

[redacted]

It is suggested that the CER and the OPR consider requirements of the aforementioned CAL OSHA's *Process Safety Management for Petroleum Refineries*, which could be considered the market standard and, with input from Indigenous peoples and other stakeholders, modify and adopt them for oil and gas pipeline operations in Canada.

22. How can the OPR drive further improvement to the environmental performance of regulated companies?

[redacted]

A realistic risk assessment process in the OPR, as mentioned in the *OPR Discussion Paper*, is key to a strong Environmental Protection Plan and environmental performance of any company.

Stability, risk and the efficient operation of a complex, safety-sensitive technological systems, such a pipeline system, as well as their ability to tolerate environmental disturbances, is a function of the interactions among their human (i.e., personnel and organizational) and engineered subsystems. In other terms, the survival of technological systems is dependent upon the nature, formation and interaction of their Human, Organizational, and engineered (Technological) [HOT] subsystems (Meshkati, 1992 and 1995). The connection of these three (HOT) subsystems, in the context of the total system, is represented in the following Figure 1. This simplified and symbolic demonstration depicts only one critical system's reality - the role of each subsystem as a link in a chain - in the integrity of the whole system. It does not, of course, show all the needed subsystems' interactions and interrelationships.

The chain metaphor is also helpful in understanding the effects of the output or produced service by the system, on its individual subsystems. Any increase in the output level or the capacity utilization rate imposes strain on all subsystems.

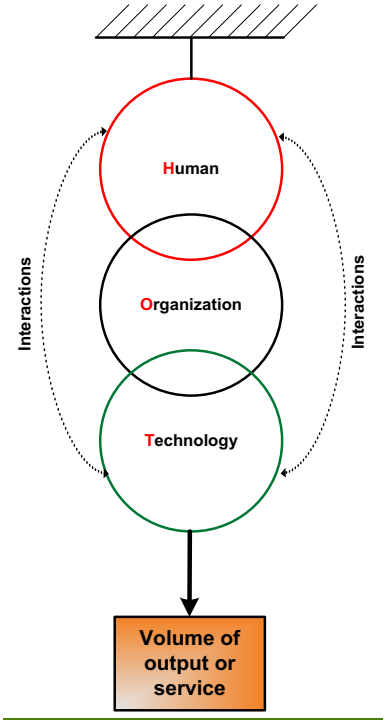


Fig. 1. Major subsystems of complex technological system (Meshkati, 1995)

Obviously, the chain (system) could break down if any link breaks down. This may occur if either all the links (subsystems) are not equally strong and designed for handling the additional load, or if they are not adequately prepared and reinforced to carry the extra load in a sustainable fashion. According to many studies, a majority of the complex technological systems' accidents have been caused by breakdowns of the weakest links in this chain, most often the human or organizational subsystems (for further information refer to IAEA, 1988; Meshkati, 1990, 1991, 1992, & 2006; Meshkati and Khashe, 2015; NAE/NRC, 2011; NAS/NRC, 2014; Tabibzadeh, 2014; Tabibzadeh and Meshkati, 2014a, 2014b, and 2015).

When there is pipeline system failure, such as fire, explosion or release of material, it could have serious adverse effects on the health, safety and environment. The following figure 2 delineates major negative consequences and their undesirable interactive effects.

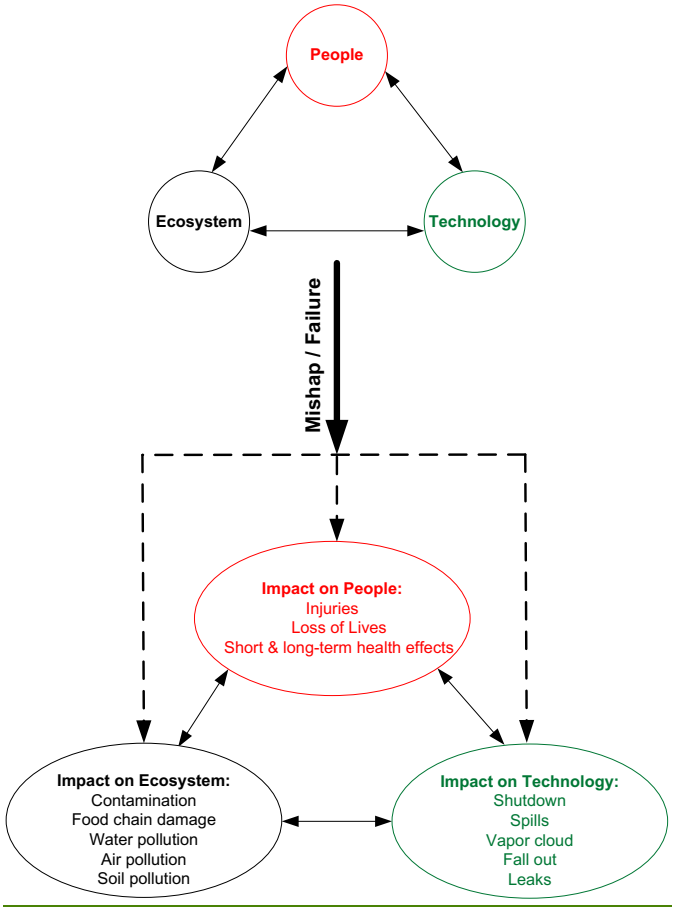


Fig. 2. Adverse consequences of a safety-sensitive technological system (e.g., pipeline) failure and interactive effects (From: Meshkati and Tabibzadeh, 2016)

There are serious interactions among impacts and their primary and secondary effects of a system failure. Therefore, a system-oriented emergency response model and Environmental Protection Plan should be designed in such a way that it is prepared for and proactively addresses and mitigates those adverse consequences via for example, focused training, specialized procedures, personal protective equipment, safe shelters and other needed provisions.

23. How can the connection between the Environmental Protection Plan, specific to an individual pipeline, and the company's Environmental Protection Program, designed for a company's pipeline system, be improved?

[redacted]

As alluded to in the *OPR Discussion Paper*, Environmental Protection Plan typically is developed and presented before the actual construction of the pipeline, as such it is a "static" document. This Plan needs routine updating due to realities of the job-site, new concerns, climate-induced changes, and

other unpredictable or unforeseeable phenomena which could be raised by Indigenous peoples, contractors, and other stakeholders.

As a further step to engagement and consultation, a standing subcommittee should be envisioned and established in the existing Indigenous Advisory & Monitoring Committees (IAMCs) structure to continuously monitor the gap and alignment between Environmental Protection Plan and Environmental Protection program of the pipeline company and make recommendation for improvements.

24. How can contaminated site management requirements be further clarified, in the OPR or in guidance?

[redacted]/[redacted]

Contaminated site(s) management require a technically sound dispersion modelling of contaminants spread and seepage into, among others, soil and groundwater basins. A robust longitudinal epidemiological study of the health-impact of contamination with full engagement and participation of Indigenous people, especially ones living in the neighbourhood of contaminated sites.

25. Are there any matters related to the Emergency Management Program in the OPR that require clarification? If so, what are they? Are there any matters for which further guidance is required?

[redacted]

The report, *Addressing Safety and Environmental Concerns Associated with the Trans Mountain Expansion Project*, submitted to the Lower Nicola Indian Band (prepared by LGL Limited May 28, 2019), included an exhaustive technical analysis of emergency management of the pipeline company.

That analysis uncovered some serious issues with Kinder Morgan/Trans Mountain (and their primary consultant Dynamic Risk) “unorthodox and uncorroborated approach to reach its questionable” estimation of human error frequency. It is noteworthy, especially considering the important fact that, according to the Trans Mountain’s acknowledgment, “human errors are a key consideration” in spill detection a response time (NEB 2016, p. 142) , and that the concept of “human error”, as a major source of pipeline failure and spill is of paramount importance.

A crucial matter for which further guidance of the OPR and its diligent oversight are highly needed deals with the fact that CER-regulated companies conduct comprehensive risk assessment, based on realistic

and technically assumptions, to identify the true nature, likelihood and impact of all major contributing factors, including human, organization and technology.

26. How could the requirement for a Quality Assurance Program be improved or clarified in the OPR?

[redacted]

[For the record: We have not been able to access and review Canadian Standards Association (CSA Group), Express Document CSA Z662:19, which looks at "Oil and Gas Pipeline Systems", and is needed for responding to this question.]

27. How can the OPR incorporate the key issues identified in the Safety Advisory regarding the strength of steel and the relative strength of the weld area?

[redacted]

As stipulated in the *OPR Discussion Paper*, technical guidance can also come from "best practices and learnings from regulators across similar industries"(p. 13). Nuclear power industry and its regulators traditionally have the most stringent standards for material reliability, grit welds, dissimilar butt welds, etc. as well as for guidelines for their inspection and evaluation. It is suggested that Canadian Nuclear Safety Commission and US Nuclear Regulatory Commission promulgated standards for the strength of the weld area be consulated.

Section 6. Implementation Objectives

28. What are your recommendations for compliance promotion at the CER?

[redacted]/[redacted]

One effective tool for elevating safety above and beyond just compliance with regulations, which has been proven record of effectiveness and success, is the Voluntary Protection Program (VPP). The concept of the VPP was developed in California in 1970s, and was later adopted by Federal OSHA and was renamed as Voluntary Protection Program in 1982.

The California Voluntary Protection program (Cal/VPP), according to CAL OSHA, "is a labor-management-government cooperative program designed to recognize workplaces that manage outstanding health and safety management systems for protection of workers and go beyond minimal compliance with the Cal/OSHA Title 8 California Code of Regulations. The sites with Cal/VPP culture have knowledgeable employees and management who work together in partnership with Cal-OSHA to systematically identify and correct hazards. The program requires continuous improvement of health and safety program at the site."

The multitude of benefits of Cal/VPP program for companies and their workers include: Improvement in employee morale and motivation to work safely; improvement of labor/management relations; reduction in overall injuries and illnesses; higher product quality and work productivity; lower workers' compensation and other insurance costs; comprehensive and ongoing evaluation by a team of health and safety professionals; networking with government and industry; community recognition and esteemed public image; and exemption from routine compliance programmed inspection.

29. How do you want to be engaged by the CER in the development of technical guidance?

[redacted]/[redacted]

We have made lots of objective comments based on research and best practices in safety-sensitive industries around the world. We would like to further engage with the CER by helping development of technical guidance in general areas of furthering Indigenous engagement, safety and environmental protection, including but not limited to, human and organizational factors, safety culture, risk assessment, emergency response planning, and (safety and environmental protection) outcome assessment.

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[i] Meshkati, N. (2017). The "Safety Case" Regulatory Regime, Its Potentials and Challenges: Implications for Singapore and other Countries. *Safety Matters* (official publication of the Singapore Institution of Safety Officers, SISO), 3, 9-12.

[ii] *Human Readiness Level Scale in the System Development Process*, American National Standards Institute and Human Factors and Ergonomics Society, ANSI/HFES 400-2021, 2021.

[iii] Meshkati, *op. cit.*, p. 10.

[iv] US Department of Energy (DOE) (2012). *Accident and Operational Safety Analysis. Volume I: Accident Analysis Techniques*. US DOE, P1-32

[v] Nuclear Regulatory Commission (NRC) (2011), *Final Safety Culture Policy Statement* [NRC–2010–0282].

[vi] Institute of Nuclear Power Operations (INPO) (2013, April). *Traits of a Healthy Nuclear Safety Culture*. INPO 12-012

Memorandum

Prepared for:	Lower Nicola Indian Band	**Date:**	June 30, 2022
Prepared by:	Dr. [redacted] R.P.Bio. Dr. [redacted]		
Re:	Canada Energy Regulator – Onshore Pipeline Regulation – Discussion Paper Review	**Project:**	EA4305

The Canada Energy Regulator (CER) implements and oversees a regulatory framework focused on the safe and efficient delivery of energy to Canada and the world, protecting the environment, and recognizing and respecting the rights of the Indigenous peoples of Canada.

The CER's Onshore Pipeline Regulations (OPR) provides the rules that companies with authorizations to build and operate these pipelines must follow. The OPR was issued under the National Energy Board Act and has been in place since 1999. The CER is now conducting a comprehensive review of the OPR under the CER Act to update the regulations. The CER's objective for this review is to deliver a regulation that supports the highest level of safety, security and environmental protection, advances Reconciliation with Indigenous peoples, addresses transparency and inclusive participation, provides for predictable and timely oversight and encourages innovation.

Indigenous people regard themselves as inseparable from the land, the waters and the animals with which they share the world. They regard themselves as custodians of the land, which is for their use during their lifetime, and which they must pass on to the next generations. Pipeline companies are responsible for meeting the requirements of the OPR to manage safety, security and environmental protection, but there has been a noticeable gap in providing a holistic perspective of the Canadian energy regulatory landscape.

As stewards of the land, the LNIB is committed to finding a sustainable balance between safety of its members, environmental conservation and resource and economic development. Therefore, ensuring environmental and safety concerns and Aboriginal rights are recognized and protected is of utmost priority. This Discussion Paper contains six sections with questions seeking your input. We have provided responses to these questions; although, Indigenous knowledge, values and perspectives can be addressed in the monitoring, regulation, compliance verification, and performance of pipeline projects to minimize impacts to Indigenous rights and interests.

Section 1. OPR – Lessons Learned

1. ***What's working well in relation to the OPR, and its implementation, and what could be improved?***

The inclusion of a meaningful consultation process in relation to the OPR could be improved. Section 3.4 of the Filing Manual states that "*The CER expects an applicant to have a company-wide Engagement Program that establishes a systematic, comprehensive and proactive approach for the development and implementation of project-specific engagement activities* (page 16)." While engagement is important, we suggest the OPR be updated to require companies to conduct a meaningful consultation process that fully respects Aboriginal and treaty rights. This would generally include:

- Gathering information to test policy proposals;
- Putting forward to Indigenous groups, project proposals that are not finalized;
- Seeking Indigenous groups' opinion on proposals;
- Informing Indigenous groups of all the relevant information upon which those proposals are based;
- Giving Indigenous groups sufficient time to research, consider and respond to the proposal;
- Listening with open mind to what Indigenous groups have to say;
- Being prepared to alter the original proposal to eliminate or minimize impacts upon Aboriginal or treaty rights; and
- Providing feedback both during the consultation process and after the decision process.

It is expected that consultation in this manner would allow for a better understanding of project risks (see comments on safety below) and allow the company to work with Indigenous groups to take a proactive approach in the development of environmental and cultural protection programs for projects.

Also, Section 3.3 of the Filing Manual reiterates the importance of a systemic approach to improve safety culture and risk reduction: "A carefully designed and well-implemented management system supports a strong culture of safety and is fundamental to keeping people safe and protecting the environment. SS. 6.1 to 6.6 of the OPR detail the required elements of a company's management system. It must be a systematic approach designed to effectively manage and reduce risk through necessary organizational structures, resources, accountabilities, policies, processes and procedures, and must include measures to evaluate effectiveness and promote continual improvement." (p. 16). Clear and practical steps as how to implement elements and evaluate the efficacy of such a "systemic approach" should be further delineated.

Finally, the "Dissuasion Paper, Section 1. OPR – Lessons Learned" states: "With this performance-based approach, the goal is for companies to strive to do better than a minimum requirement…[T]he OPR and other regulations, and conditions on authorizations, using a risk-based compliance verification approach. The CER focuses its compliance verification on those things that pose the highest risk of harm to people and the environment." The rationale, assumptions, and

process/method for arriving and estimating the level of such "risk" should clearly be explained, in full transparency and objectivity. [We have questioned and expressed serious concerns about the estimation of human error in the Trans Mountain Expansion Project's risk analysis in the past.]

Enforcement of regulation when it comes to Indigenous values can be improved; therefore, the role of Cultural or Indigenous inspectors will be a key component moving forward.

Section 2. Reconciliation with Indigenous Peoples

2. ***How can the OPR contribute to the advancement of Reconciliation with Indigenous peoples?***

With respect to specific communities and Indigenous groups, the OPR and its guidance documents should not treat for aggregate information for all Indigenous groups, based on their lowest common denominator, but rather, it must require specific references to each Indigenous community who will be differentially impacted by a pipeline. We recommend the CER work with Indigenous groups to develop a definition of reconciliation that can be added to Section 1 of the OPR.

3. ***How can the OPR contribute to the protection of heritage resources on a pipeline right-of-way during construction, and operations and maintenance activities?***

The OPR can contribute to the protection of heritage resources by directing companies to abide by specific cultural heritage policies adopted by Indigenous groups. For example, the Lower Nicola Indian Band has developed a Cultural Heritage Policy that provides a framework for the protection, preservation, promotion, respect and revival of Nłe?kepmx cultural heritage. This policy provides a specific process for conducting cultural heritage work within LNIB's Traditional Territory. It is intended to provide clarity and to promote a collaborative working relationships with businesses, governments, researchers, proponents and other people or entities who wish to conduct cultural heritage work in the Traditional Territory. Anyone planning to undertake work in LNIB's asserted Traditional Territory must be aware of and adhere to this Policy. By taking this collaborative approach, a much improved pre-development baseline assessment can be completed; thereby improving the project design and development plans and ultimately reducing impacts on heritage resources.

The OPR can also include a stipulation that companies participate in cultural awareness training, which is provided by the various Indigenous groups that over that a specific project, prior to finalizing a project proposal. This can help to ensure cultural and heritage resources are fully understood and considered as project plans are prepared.

4. ***How can the OPR contribute to the protection of traditional land and resource use, and sites of significance for Indigenous peoples on a pipeline right-of-way, during construction, and operations and maintenance activities?***

Given the magnitude of the direct impact on traditional lands from pipeline developments, a full analysis and understanding of realistic risks to safety and environmental is required to allow Indigenous groups to manage ancestral lands according to traditional laws and values. As stewards of the land, Indigenous groups are committed to finding a sustainable balance between safety of its members, environmental conservation and resource and economic development. Therefore, ensuring environmental and safety concerns and Aboriginal rights are recognized and protected is of utmost priority.

A company must understand and appreciate the components of traditional land and resource use as much as the other components (e.g., engineering and economic) of the project. Stipulations regarding the protection of traditional land and resource use must be implemented early in the planning stages of a project so that they are viewed as an integral part of pipeline construction and operation. These specific stipulations must be written into contracts and tender documents to ensure their value is highlighted to all contractors involved in a project.

The protection of traditional land and resource use along a pipeline right-of-way must also consider the cumulative impacts. The courts have found that governments are required to consider the incremental, cumulative effects of a proposed development on Aboriginal and Treaty rights; therefore, a clearly specified approach to cumulative effects assessment that takes into account the cumulative, incremental effects of a pipeline on the ability of an Indigenous group to exercise of its Aboriginal and Treaty rights is a critical component.

5. How can the use of Indigenous knowledge be addressed in the OPR?

Section 6.1 of the OPR outlines the provisions for management systems that integrates a company's operational activities and technical systems with its management of human and financial resources. The requirements for the use of Indigenous knowledge can be incorporated into these management system provisions. Part of this provision should stipulate that traditional use studies be mandatory for any project. Further, these traditional use studies should be led by the Indigenous groups; however, capacity funding is to be provided by the company.

Moreover, Indigenous knowledge could be a major recourse and can leverage requisite knowledge for identification of potential hazards and their risks, as stipulated in the OPR sections 6.3 ["(a) a policy for the internal reporting of hazards, potential hazards, incidents…"] and 6.5 ["(c)establish and implement a process for identifying and analyzing all hazards and potential hazards;" "(e) establish and implement a process for evaluating the risks associated with the identified hazards and potential hazards, including the risks related to nor- mal and abnormal operating conditions"]

6. How can the OPR address the participation of Indigenous peoples in pipeline oversight?

It is duly noted that "The CER has worked with the IAMCs to develop an Indigenous Monitoring Program where Indigenous monitors are trained and participate in CER inspection and other oversight activities for several pipeline systems and projects." (p. 5). And according to CER's *Indigenous Monitors enhance CER activities* (2021-08-12), "Indigenous Monitoring program has

come a long way in the past four years… Many Indigenous Monitors go further, sharing knowledge and experiences with their Inspection Officer colleagues… Training for Indigenous monitors and CER inspectors." OPR should envision provisions for providing Indigenous monitors with rigours training in key technical expertise needed to conduct realistic risk analysis, such as human factors, job hazards/safety analysis, etc.

Mechanisms should be in place to ensure that companies, who are implementing projects under the OPR, and Indigenous groups participate in the project review process in good faith, which results in the engagement of a construction resolution process that identifies and addresses issues and concerns relating to the proposed project. This process should include adequate capacity to Indigenous groups to be involved in the process and community support.

Project reviews should focus on potential impacts to valued components that form the basis of a sustainable environment for participating Indigenous groups. Interactions amongst parties within the review process can be characterised by the consensus nature of Indigenous society in which the exchange of ideas and information occurred in a semi-formal manner and where opportunities for mutual education and the sharing of knowledge occur. Interactions can primarily occur at the technical level, but when consensus cannot be reached, the responsibility to remedy the situation gets elevated to the leadership level of each party.

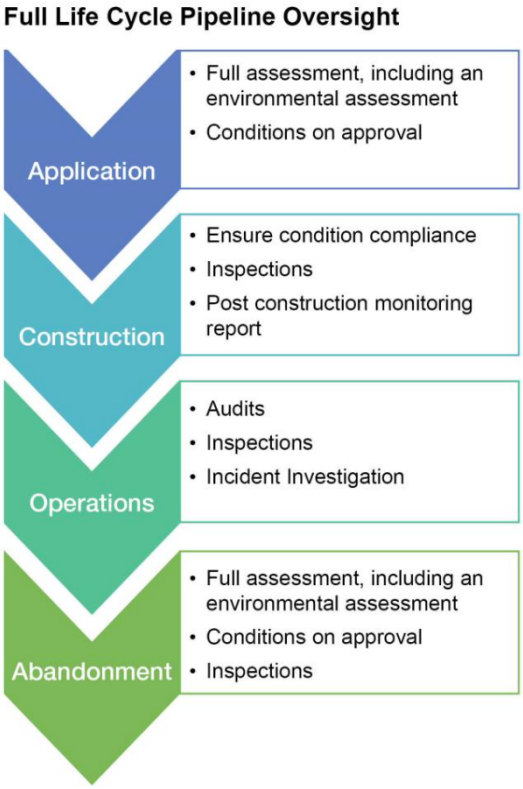
Moving forward, as a project undergoes construction and operation, Indigenous cultural monitors or guardians must be part of the team. In this regard their involvement can be stipulated in environmental monitoring and protection plans.

Section 3. Engagement and Inclusive Participation

7. ***How can the OPR support collaborative interaction between companies and those who live and work near pipelines?***

The OPR can recognize that Indigenous people have a relationship to the land and have taken the inherent responsibility to care for this land, since it is part of their identify, culture and in some cases food security and food sovereignty. The OPR must provide a mechanism to ensure companies take the time required to establish and maintain trust with Indigenous groups. This trust is essential to forming good working relationships that allow collaborative projects to thrive. At the outset of a collaborative project, all parties should agree on the values and goals. There must be recognition of Indigenous priorities and assurances that these are addressed throughout the project.

Furthermore, there should be an objective roadmap/guideline in the OPR for collaborative interaction with those who live and work near pipelines, especially Indigenous peoples, throughout its life cycle -- design, construction, operation and maintenance, and abandonment/decommissioning. The items in the boxes of the following figure, which is from the CER *Full Lifecycle Pipeline Oversight* fact sheet, are categories of the issues which could define and delineate the extent of the intended collaborative oversight process.



8. How could communication and engagement requirements in the OPR be improved?

Companies should be required to produce a communication plan, in collaboration with Indigenous groups, that outlines the expectations and commitments regarding communication and engagement. Companies must share all motivations, intentions, and information with Indigenous groups from the outset.

Communication is a key element in emergency response planning and execution. Indigenous peoples and other stakeholders should be engaged in planning, drills and updating such plans in addressing different spill scenarios.

9. How could the CER improve transparency through the OPR?

Certain guiding principles can be applied to ensure transparency, such as: being responsive to Indigenous values; applying scientific rigor; and embracing collaborative problem solving. The CER can specifically provide oversight to ensure these principles are being applied by company. This can involve direct engagement between the CER and Indigenous groups so that direct feedback can be provided and addressed.

For the sake of transparency and trust-building, OPR should develop a transparent systematic mechanism and forum for CER-regulated companies to share their incident and root-cause analyses, with Indigenous peoples.

10. ***Gender and other intersecting identity factors may influence how people experience policies and initiatives. What should the CER consider with respect to:***
    a. ***those people implementing the OPR; or***
    b. ***those people who are impacted by the operational activities addressed in the OPR?***

People with gender and other intersecting identity factors may have different physical and psychological expectations, needs, limitations and capabilities. These issues should be understood, identified and addressed in scientifically-rigorous manner with an open mind, free from bias and prejudice.

Section 4. Global Competitiveness

11. ***How can the OPR support a predictable and timely regulatory system that contributes to Canada's global competitiveness?***

To support a predictable and timely regulatory system, the OPR must be able to facilitate the proactive engagement with Indigenous groups to ensure any issues and concerns related to impacts, reconciliation and Indigenous knowledge are addressed early in the project development and review process.

In order to contribute to Canada's global competitiveness, the OPR should take advantage, adapt and adopt the most advanced performance-based regulations and global best practices in regulatory oversight, such as California OSHA's revamped and updated "Process Safety Management for Petroleum Refineries" (Title 8, Section 5189.1, effective date, October 1, 2017), and the (rather new) "Safety Case[i]" regulatory regime, respectively.

[California's Process Safety Management for Petroleum Refineries, which probably is the most comprehensive PSM standards, include some new elements such as human factors (element s), safety culture (element r), management of organizational change (element t), and root cause analysis (a new section to the old incident investigation, element o). When this CAL OSHA PSM regulation was released in 2017, a senior safety official in the US characterized it as "the single most important safety regulation that has been introduced and implemented in the last 25 years in the United States".]

12. ***How can the OPR support innovation, and the development and use of new technologies or best practices?***

The OPR can prudently support integration of innovative new algorithmic-based technologies, such as Artificial Intelligence and Machine Learning (AI/ML) for pipeline operation, monitoring and leak detection. However, at the same time, the OPR should explicitly acknowledge that oil and gas pipeline operation is a safety-critical system, where failures have significant consequences.

This "criticality" is a serious issue that must be taken into account for AI systems and their operational environments, and the risk management aspects are designed with respect to the criticality assessment; a-) With safety-critical systems, there is always at least a human operator who has received special training in how the system works, how to handle unexpected situations, and how to avert a potential failure of possibly high and catastrophic consequences. The identification of the qualifications and training of operators is crucial in safety-critical systems, and so it should be for AI systems that are safety-critical systems; and b-) No existing safety-critical systems in any sector have been fully autonomous and without a human operator. In contrast, AI systems that can be considered safety-critical systems are already being deployed without full consideration of safe operations with human oversight. Careful consideration and rigorous oversight should be given to the use of AI in any safety-critical systems where any level of autonomy is allowed.

Moreover, when supporting new AI/ML-infused and enabled technologies, the OPR should be cognizant about the alignment between Technology Readiness Level (TRL) and the Human Readiness Leve (HRL)[ii]. The problems with assuming and asserting that any technology is at a higher TRL when it is actually at a lower level can be quite serious; also the larger the gap between TRL and HRL, the higher the risk to the system.

13. What company-specific or industry-wide performance metrics could the CER consider to support enhanced oversight and transparency for CER-regulated facilities?

Criteria to be considered to help facilitate enhanced oversight and transparency for CER-regulated facilities and companies can include: 1) whether the physical and/or meaningful exercising of traditions, customs and practices of Indigenous cultures would be negatively influenced; 2) the performance history of the company and its respect for traditional governance and Treaty rights; and 3) the quality of relations a company has with Indigenous groups from other regions. Section 6.5 (Management System Processes) of the OPR can be updated to includes these types of factors.

14. Are there opportunities within the OPR for data and digital innovation that could be used by the CER and by companies regulated by the CER?

Collect all the data concerning what the pipeline system operator has to do, in terms of information processing and decisionmaking, above and beyond what is readily available to her/him via SCADA system and Computational Pipeline Monitoring (CPM), which is considered as "being the primary leak detection method."

15. How can the OPR be improved to address changing pipeline use and pipeline status?

A mechanism must be in place to address legacy effects of past pipelines (e.g., Trans Mountain Pipeline), particularly where there remains ongoing concerns about past project approvals. Until these past impacts and current effects are addressed.

The decision to "leave to abandon" or decommissioning is not typically made instantaneously. Indigenous peoples should be involved in deliberations or receive minutes of meetings concerning "leave to abandon"; they should also be actively engaged in the environmental impact study of decommissioning.

Section 5. Safety and Environmental Protection

16. What further clarification, in either the OPR (e.g. structure or content), or in guidance, would support company interpretation and implementation of management system requirements?

[redacted]

As stated in the *CER Management System Requirements and CER Management System Audit Guide*, "The OPR uses both performance and prescriptive-based requirements. For additional information on what performance based and prescriptive based requirements are, refer to section 5.2 below. Where the requirements are performance-based, companies have the flexibility and scalability to customize its management system approach based on their unique operational requirements and company needs." (emphasis added, p.7). Performance-based safety requirements, puts the onus on CER-regulated companies; it runs the risk and unintended consequence of reverting to minimalism. Whereas they – CER-regulated companies – should demonstrate that a system is critically safe and that the risks associated with it is reduced to "As Low As Reasonably Praticable (ALARP)". This implies that the industry has to demonstrate that all appropriate "measures have been taken to reduce the likelihood of hazards, and to mitigate their consequences". This process is built upon the assumption that the industry is responsible to provide necessary analysis and supporting details in proving that they have lowered the associated risk as low as possible and obtained CER's agreement on the document. The success of this complex and delicate process of ensuring an adequately acceptable safe pipeline system depends heavily on the matured safety culture of the regulated company[iii]. This fact and the instrumental role of Indigenous peoples are also reiterated in the CER's *Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture (2021)*:

> "Path Forward - The CER, [Canada-Newfoundland and Labrador Offshore Petroleum Board] C-NLOPB, and [Canada-Nova Scotia Offshore Petroleum Board] C-NSOPB remain committed to promoting and advancing safety culture through engagement with industry members, Indigenous peoples, subject matter experts, and other interested parties…Conclusion - The CER, CNSOPB, and C-NLOPB put safety and environmental protection at the forefront of their responsibilities. Safety culture remains a subject that requires greater understanding and consideration in the prevention of catastrophic incidents." (p. 14 & 15).

17. How should information about human and organizational factors, including how they can be integrated into a company's management system, for both employees and contractors, be provided in the OPR, and/or described in related guidance?

[redacted]

Human and organizational factors should be integrated into every component or subsystem of a company's management system. A good starting point will be following the strategic guidelines of the *Human and Organizational Factors for Optimal Pipeline Performance*, by Canadian Standards

Association (EXP16:22, [redacted]h 2022) concerning pipeline life cycle – design, construct, operate, maintain, decommission - and integration into management system (p. 16 and 17).

A sample of more specific approved and regulatory-driven human and organizational factors-related guidelines which can be provided in the OPR and/or described in related guidance is in the aforementioned CAL OSHA's *Process Safety Management for Petroleum Refineries*, that deal with evaluating the following: "staffing levels; the complexity of tasks; the length of time needed to complete tasks; the level of training, experience, and expertise of employees; the human-machine and human-system interface; the physical challenges of the work environment in which the task is performed; employee fatigue and other effects of shiftwork and overtime; communication systems; and the understandability and clarity of operating and maintenance procedures."

The US regulator, Pipeline and Hazardous Materials Safety Administration (PHMSA), enacted the Control Room Management/Human Factors regulations in 2011, which include issues such as shift change, fatigue mitigation education and training, change management, operating experience, training, and alarm management.. However, it should be noted that these regulations are mostly address pipeline control room operations and focused on pipeline control system operators.

18. How can the OPR improve the connection between company safety manuals and the overarching Safety Management Program, for both employees and contractors?

[redacted]

One of the major sources of misalignment between company's safety management system and its prescribing manuals and contractors safety practices is the gap between "work as imagined" versus "work as planned". "There will always be a performance gap between "work-as-planned" and "work-as-done" work performance gap (ΔWg) because of the variability in the execution of every human activity."[iv] A participative process should be the basis for coordinating and aligning company's safety efforts with its contractors, which could include Indigenous staff. This process can be augmented by frequent updating and continuous monitoring

19. How can respect and personal workplace safety be assured at CER regulated sites?

[redacted]

Respect, personal workplace and system safety are inseparable and intertwined. In fact, a "respectful work environment" has been reconized as one of the pillars and essential traits of a healthy safety culture by many industries[v]. The onus and responsibility for creating a respectful work environment is on organizational leaders, as "leaders monitor for behaviors that can have a negative impact on the work environment and address them promptly, and leaders ensure policies and expectations are enforced fairly and consistently for individuals at all levels of the organization."[vi]

The OPR should directly and explicitly address/mandate CER-regulated companies leaders' important and ultimate responsibility for initiating and maintain a respectful work environment, esp for Indigenous peoples.

20. How should the CER be more explicit about requirements for contractor management?

[redacted]

The CER can use the aforementioned CAL OSHA's *Process Safety Management for Petroleum Refineries* and possibly explicitly adopt its paragraph (h) concerning Contractors, with its subparagraphs that delineate detailed guidelines for the company and contractor safety responsibilities.

21. How should the OPR include more explicit requirements for process safety?

[redacted]

It is suggested that the CER and the OPR consider requirements of the aforementioned CAL OSHA's *Process Safety Management for Petroleum Refineries*, which could be considered the market standard and, with input from Indigenous peoples and other stakeholders, modify and adopt them for oil and gas pipeline operations in Canada.

22. How can the OPR drive further improvement to the environmental performance of regulated companies?

[redacted]

A realistic risk assessment process in the OPR, as mentioned in the *OPR Discussion Paper*, is key to a strong Environmental Protection Plan and environmental performance of any company.

Stability, risk and the efficient operation of a complex, safety-sensitive technological systems, such a pipeline system, as well as their ability to tolerate environmental disturbances, is a function of the interactions among their human (i.e., personnel and organizational) and engineered subsystems. In other terms, the survival of technological systems is dependent upon the nature, formation and interaction of their Human, Organizational, and engineered (Technological) [HOT] subsystems (Meshkati, 1992 and 1995). The connection of these three (HOT) subsystems, in the context of the total system, is represented in the following Figure 1. This simplified and symbolic demonstration depicts only one critical system's reality - the role of each subsystem as a link in a chain - in the integrity of the whole system. It does not, of course, show all the needed subsystems' interactions and interrelationships.

The chain metaphor is also helpful in understanding the effects of the output or produced service by the system, on its individual subsystems. Any increase in the output level or the capacity utilization rate imposes strain on all subsystems.

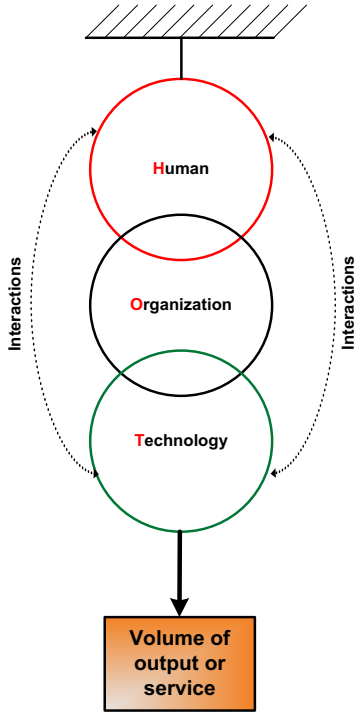


Fig. 1. Major subsystems of complex technological system (Meshkati, 1995)

Obviously, the chain (system) could break down if any link breaks down. This may occur if either all the links (subsystems) are not equally strong and designed for handling the additional load, or if they are not adequately prepared and reinforced to carry the extra load in a sustainable fashion. According to many studies, a majority of the complex technological systems' accidents have been caused by breakdowns of the weakest links in this chain, most often the human or organizational subsystems (for further information refer to IAEA, 1988; Meshkati, 1990, 1991, 1992, & 2006; Meshkati and Khashe, 2015; NAE/NRC, 2011; NAS/NRC, 2014; Tabibzadeh, 2014; Tabibzadeh and Meshkati, 2014a, 2014b, and 2015).

When there is pipeline system failure, such as fire, explosion or release of material, it could have serious adverse effects on the health, safety and environment. The following figure 2 delineates major negative consequences and their undesirable interactive effects.

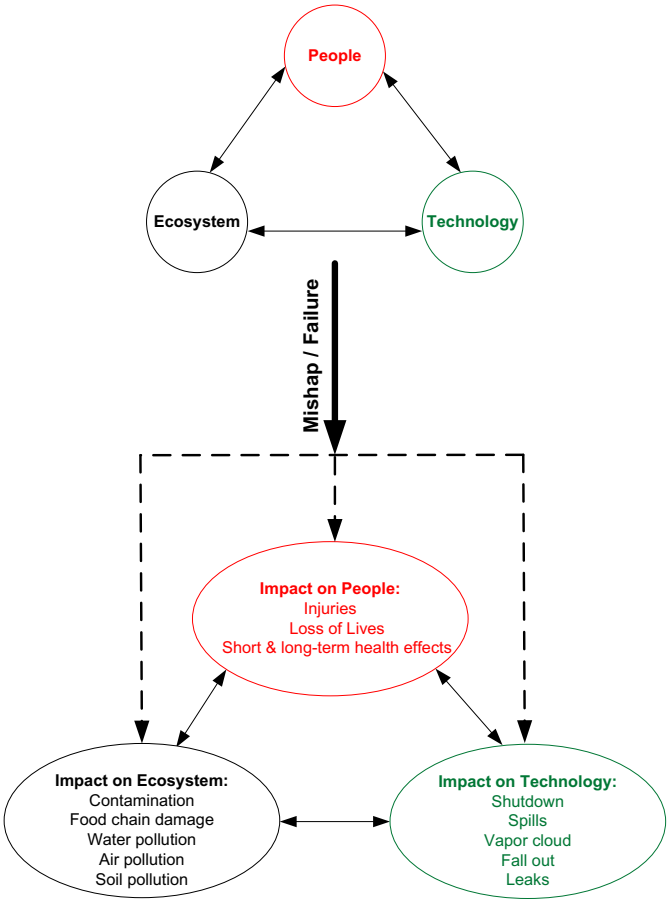


Fig. 2. Adverse consequences of a safety-sensitive technological system (e.g., pipeline) failure and interactive effects (From: Meshkati and Tabibzadeh, 2016)

There are serious interactions among impacts and their primary and secondary effects of a system failure. Therefore, a system-oriented emergency response model and Environmental Protection Plan should be designed in such a way that it is prepared for and proactively addresses and mitigates those adverse consequences via for example, focused training, specialized procedures, personal protective equipment, safe shelters and other needed provisions.

23. How can the connection between the Environmental Protection Plan, specific to an individual pipeline, and the company's Environmental Protection Program, designed for a company's pipeline system, be improved?

[redacted]/[redacted]

As alluded to in the *OPR Discussion Paper*, Environmental Protection Plan typically is developed and presented before the actual construction of the pipeline, as such it is a "static" document. This Plan needs routine updating due to realities of the job-site, new concerns, climate-induced changes, and other unpredictable or unforeseeable phenomena which could be raised by Indigenous peoples, contractors, and other stakeholders.

As a further step to engagement and consultation, a standing subcommittee should be envisioned and established in the existing Indigenous Advisory & Monitoring Committees (IAMCs) structure to continuously monitor the gap and alignment between Environmental Protection Plan and Environmental Protection program of the pipeline company and make recommendation for improvements.

24. How can contaminated site management requirements be further clarified, in the OPR or in guidance?

[redacted]

Contaminated site(s) management require a technically sound dispersion modelling of contaminants spread and seepage into, among others, soil and groundwater basins. A robust longitudinal epidemiological study of the health-impact of contamination with full engagement and participation of Indigenous people, especially ones living in the neighbourhood of contaminated sites.

25. Are there any matters related to the Emergency Management Program in the OPR that require clarification? If so, what are they? Are there any matters for which further guidance is required?

[redacted]

The report, *Addressing Safety and Environmental Concerns Associated with the Trans Mountain Expansion Project*, submitted to the Lower Nicola Indian Band (prepared by LGL Limited May 28, 2019), included an exhaustive technical analysis of emergency management of the pipeline company.

That analysis uncovered some serious issues with Kinder Morgan/Trans Mountain (and their primary consultant Dynamic Risk) "unorthodox and uncorroborated approach to reach its questionable" estimation of human error frequency. It is noteworthy, especially considering the important fact that, according to the Trans Mountain's acknowledgment, "human errors are a key consideration" in spill detection a response time (NEB 2016, p. 142) , and that the concept of "human error", as a major source of pipeline failure and spill is of paramount importance.

A crucial matter for which further guidance of the OPR and its diligent oversight are highly needed deals with the fact that CER-regulated companies conduct comprehensive risk assessment, based on realistic and technically assumptions, to identify the true nature, likelihood and impact of all major contributing factors, including human, organization and technology.

26. How could the requirement for a Quality Assurance Program be improved or clarified in the OPR?

[redacted]

[For the record: We have not been able to access and review Canadian Standards Association (CSA Group), Express Document CSA Z662:19, which looks at “Oil and Gas Pipeline Systems”, and is needed for responding to this question.]

27. How can the OPR incorporate the key issues identified in the Safety Advisory regarding the strength of steel and the relative strength of the weld area?

As stipulated in the *OPR Discussion Paper*, technical guidance can also come from “best practices and learnings from regulators across similar industries”(p. 13). Nuclear power industry and its regulators traditionally have the most stringent standards for material reliability, grit welds, dissimilar butt welds, etc. as well as for guidelines for their inspection and evaluation. It is suggested that Canadian Nuclear Safety Commission and US Nuclear Regulatory Commission promulgated standards for the strength of the weld area be consulated.

Section 6. Implementation Objectives

28. What are your recommendations for compliance promotion at the CER?

One effective tool for elevating safety above and beyond just compliance with regulations, which has been proven record of effectiveness and success, is the Voluntary Protection Program (VPP). The concept of the VPP was developed in California in 1970s, and was later adopted by Federal OSHA and was renamed as Voluntary Protection Program in 1982.

The California Voluntary Protection program (Cal/VPP), according to CAL OSHA, “is a labor-management-government cooperative program designed to recognize workplaces that manage outstanding health and safety management systems for protection of workers and go beyond minimal compliance with the Cal/OSHA Title 8 California Code of Regulations. The sites with Cal/VPP culture have knowledgeable employees and management who work together in partnership with Cal-OSHA to systematically identify and correct hazards. The program requires continuous improvement of health and safety program at the site.”

The multitude of benefits of Cal/VPP program for companies and their workers include: Improvement in employee morale and motivation to work safely; improvement of labor/management relations; reduction in overall injuries and illnesses; higher product quality and work productivity; lower workers' compensation and other insurance costs; comprehensive and ongoing evaluation by a team of health and safety professionals; networking with government and industry; community recognition and esteemed public image; and exemption from routine compliance programmed inspection.

29. How do you want to be engaged by the CER in the development of technical guidance?

[redacted]/[redacted]

We have made lots of objective comments based on research and best practices in safety-sensitive industries around the world. We would like to further engage with the CER by helping development of technical guidance in general areas of furthering Indigenous engagement, safety and environmental protection, including but not limited to, human and organizational factors, safety culture, risk assessment, emergency response planning, and (safety and environmental protection) outcome assessment.

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[i] Meshkati, N. (2017). The "Safety Case" Regulatory Regime, Its Potentials and Challenges: Implications for Singapore and other Countries. *Safety Matters* (official publication of the Singapore Institution of Safety Officers, SISO), 3, 9-12.

[ii] *Human Readiness Level Scale in the System Development Process*, American National Standards Institute and Human Factors and Ergonomics Society, ANSI/HFES 400-2021, 2021.

[iii] Meshkati, *op. cit.*, p. 10.

[iv] US Department of Energy (DOE) (2012). *Accident and Operational Safety Analysis. Volume I: Accident Analysis Techniques*. US DOE, P1-32

[v] Nuclear Regulatory Commission (NRC) (2011), *Final Safety Culture Policy Statement* [NRC–2010–0282].

[vi] Institute of Nuclear Power Operations (INPO) (2013, April). *Traits of a Healthy Nuclear Safety Culture*. INPO 12-012