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September 24, 2025 **E-FILE**

Mackenzie Valley Land and Water Board
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Attention: Erica Janes, Regulatory Specialist, and
Angela Love, Regulatory Specialist

Re: Westcoast Energy Inc. ("Westcoast")
Pointed Mountain Pipeline Abandonment Project ("Project")
Revised Closure and Reclamation Plan ("CRPP")
Water Licence MV2023L1-0013 ("Licence")
Part I: Closure and Reclamation Plan, Condition 1

As requested in the August 14, 2025 letter from the Mackenzie Valley Land and Water Board, Westcoast provides the attached Revised Closure and Reclamation Plan and concordance table.

If you have any questions concerning this matter, please do not hesitate to contact me at (587) 338-4058 or by email at deon.bridge@enbridge.com.

Yours truly,

Deon Bridge
Specialist

Enclosures

Pointed Mountain Abandonment Project
Name of Document: Closure and Reclamation Plan
Revision No.:4

Revision History

#	Issue Date	Description of Revision	Updated Section
4		1. The Board directs Westcoast to update the Plan, as agreed to, with the additional information that CCME Canada-Wide Standard for Petroleum Hydrocarbons in Soil will be met and clarifying that the COPCs for soil are required to meet the applicable guidelines at PM-1. (GNWT-ECC – 2)	Updated Section 5.2.3 Table 5
		2. The Board directs Westcoast to update the Plan with the additional information that PM-1 closure criteria will require post-remediation groundwater quality to be less than applicable federal and territorial guidelines for all COPC identified in contaminated soil (including PHC F1-F3, BTEX, naphthalene, and phenanthrene), and metals including arsenic, chromium, cobalt, copper, iron, lead, manganese, nickel, uranium, vanadium, and zinc. (GNWT-ECC – 3 MVLWB – 8)	Updated Appendix 3.
		3. The Board directs Westcoast to list all the parameters recommended in response to GNWT-ECC Comment ID 3 and specify the guideline that would apply to each of the parameters. (MVLWB – 7)	Updated Appendix 3.
		4. The Board directs Westcoast to: a) Provide the exact location of all the monitoring wells, b) Describe the data analysis to demonstrate whether closure criteria is met, and c) Justify proposing two, instead of three, consecutive sampling groundwater events that meets closure criteria to consider closure objective to be met. (MVLWB – 9)	Updated Appendix 3.
		5. The Board directs Westcoast to revise the Plan to list the contingencies to outline how the closure activities will be modified if it is unsuccessful. (MVLWB – 5)	Updated Section 5.2.5.
		6. The Board directs Westcoast to update the Plan to clarify: a) The approach to source topsoil, should local topsoil not be available, b) Where Westcoast would source the topsoil should local soil not be available, c) How to ensure that imported topsoil would meet closure criteria, and d) How treated subsoil “will be amended to achieve suitable topsoil”. (GNWT-ECC – 4)	Updated Section 5.2.3 Table 5
		7. For all closure criteria regarding contours and erosions, the Board directs Westcoast to clarify how the remediated area would be compared with the “surrounding landscape” and “adjacent area”: a) Would these areas be 20% control plots in accordance with the Ecologically Suitable Species Guideline (ESSG)? b) Would the contour of the surrounding landscape and erosion in adjacent areas also be reported to be compared with the remediated area? c) Would Westcoast ensure 80% of plots onsite must be acceptable, with no 2 adjacent plots ranked as unacceptable in accordance with the Ecologically Suitable Species Guideline (ESSG)? (GNWT-ECC - 5 and 6)	Updated Section 5.2.3 and Table 5.
		8. The Board directs Westcoast to include additional closure objectives, where appropriate, to more directly reflect the target result of each closure activity and criteria. (GNWT-ECC-7)	Updated Section 5.2.3 and Table 5.

#	Issue Date	Description of Revision	Updated Section
		9. The Board directs Westcoast to ensure that the vegetation cover closure criteria consistently states that "75% cover (or cover that is comparable to adjacent lands, when adjacent lands are <75)". (GNWT-ECC-8)	Updated Table 5
		10. The Board directs Westcoast to update the plan to: a) reflect a plot size of 3.99 m, and b) propose the number of plots required for assessment. (GNWT-ECC-9)	Updated Section 5.2.3 and Table 5.
		11. The Board directs Westcoast to include the responsible party for final reclamation of the campsite, laydown area, and existing access roads. (GNWT-ECC-10)	Updated 5.2.2 Final Site Conditions (GNWT-ECC-10)
		12. The Board directs Westcoast to include the additional information pertaining to what potential issues, as observed from overflights, would trigger a ground-based survey and application of the closure criteria. (GNWT-ECC-12)	Updated 9.1.1Follow up and Monitoring (GNWT-ECC-12)
		13. The Board directs Westcoast to ensure the references to Tables are correct. (GNWT-ECC-14)	Updated 9.1.1 Follow up and Monitoring (GNWT-ECC-14)
		14. The Board directs Westcoast to ensure all supporting documents are linked within the plan. (GNWT-ECC-15)	Updated 2.3 Closure and Reclamation Planning Team (GNWT-ECC-15)
		15. The Board directs Westcoast to clarify that temporary bridges will not be located within the ordinary high-water mark and that they do not own the permanent bridges. (MVLWB-2)	Updated 5.2.1.5 Bridge Repairs and Temporary Bridges (MVLWB-2)

Westcoast Energy Inc.

Pointed Mountain Pipeline Abandonment Closure and Reclamation Plan

September 2025

Table of Contents

1.0 Plain Language Summary

This plan details how Westcoast Energy Inc. (Westcoast) will permanently decommission its Pointed Mountain Pipeline (the "Project").

The Pointed Mountain Pipeline was constructed in 1972. In 2008, KP 0 to KP 34.92 was deactivated pursuant to National Energy Board (NEB) Order MO-11-2008. In April 2016, a 1,200 m segment of the pipeline crossing the Kotaneelee River was decommissioned pursuant to NEB Order MO-071-2015. The remainder of the Pointed Mountain Pipeline (KP 34.92 to KP 55.64) was deactivated in July 2016 pursuant to NEB Order MO-003-2016.

Since the Pointed Mountain Pipeline has no prospective future use, Westcoast is planning to take it permanently out of service by moving it to the abandonment phase. The pipeline has been deactivated, which included being purged, cleaned of residual product, internally coated with corrosion inhibitor, and physically isolated from sources of upstream pressure. The pipeline has also been filled with nitrogen gas to a minimum pressure of 70 kilopascals.

Abandonment involves removing aboveground facilities associated with the pipeline and disconnecting cathodic protection. An exposed section of pipeline will also be cut and removed as part of the Project scope. The rest of the buried pipeline will be abandoned in place with appropriate signage installed.

Physical abandonment activities are planned to commence in Fall 2025 with demobilization and closure activities completed by March 2026. Reclamation and post-construction monitoring will be ongoing.

2.0 Introduction

2.1 Purpose and Scope of the Closure and Reclamation Plan

The purpose of this Plan is to:

- Meet the intent of the Guidelines for Closure and Reclamation.
- Provide a description of the current baseline conditions of areas that will be disturbed as part of the Project and require a Land Use Permit and Water License.
- Establish closure objectives and criteria in alignment with the four core closure principles of (1) physical stability, (2) chemical stability, (3) no long-term active care requirement, and (4) future use; and,
- Provide a schedule of reclamation activities and post-construction monitoring activities.

This Plan is applicable to the portion of the Project in the Northwest Territories (NWT).

2.2 Goal of the Closure and Reclamation Plan

In accordance with the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB and AANDC 2013), the goal of the Plan is to outline how the areas disturbed by the Project will be reclaimed to a natural and self-sustaining ecosystem that supports a healthy environment and human activities. Throughout this document, the term "equivalent land capability" is defined as the ability of the land to support various land uses after reclamation, similar to its ability before the disturbance. This means that the reclaimed land should be capable of supporting natural and self-sustaining ecosystems that are compatible with adjacent native land uses, a healthy environment and human activities.

2.3 Closure and Reclamation Planning Team

The Project Team is led by the Westcoast Project Manager, who has the ultimate responsibility for the overall Project and the reclamation of the Project areas, manages the Project budget, and approves remedial action plans, as required.

The Construction Manager reports directly to the Project Manager and oversees the Construction Contractor when construction activities are occurring on site. The Construction Manager is responsible for managing the execution of remedial action plans, as required.

The Environmental Inspector works directly with the Construction Manager and reports to the Project Environment Lead on the status of the Project. The Environmental Inspector works with the Construction Manager to ensure all Project personnel are aware of the environmental conditions, commitments and guidelines for the Project and that the Project is executed in compliance with the Environmental Protection Plan (EPP) and all applicable regulatory permits and approvals. A copy of the EPP can be found on the MVLWB registry (Appendix A of Supplemental Environmental and Socio-economic Assessment, filed on October 5, 2023).

The Project Environment Lead is responsible for overseeing the Environmental Consultant, who is contracted to complete the Post-Construction Monitoring (PCM) program. Assuming construction work is completed by end of Q1 2026, the PCM Plan may be finalized by the end of Q2 2026.

2.4 Engagement

Westcoast has conducted extensive engagement on the Project as detailed in the Engagement Plan and Record filed with the MVLWB.

Westcoast has engaged with local and directly impacted Indigenous groups since early 2020 through meetings and site visits.

Westcoast has maintained ongoing communication with Indigenous groups and other stakeholders throughout the planning phases of the Project, with a view to continue through both construction and post-construction phases.

Site tours will be offered to Indigenous groups and other stakeholders impacted by the project during construction and post-construction activities. Indigenous participation in environmental monitoring is captured in project plans, agreements and written commitments. Westcoast will continue to engage with Indigenous groups to identify work opportunities for Indigenous businesses or partnerships, either directly with Westcoast or indirectly via general contractors. This continuous engagement extends into post-construction work.

2.5 Regulatory Instruments for Closure and Reclamation

Below is a list of federal and territorial legislation that may apply to the Project:

Table 1: List of Potentially Applicable Legislation

Acts	Regulations
Federal	
Canadian Energy Regulator Act	Canadian Energy Regulator Onshore Pipeline Regulations
Species at Risk Act	N/A
Migratory Birds Convention Act	N/A
Fisheries Act	N/A
Canadian Navigable Waters Act	N/A
Canadian Environmental Protection Act, 1999	Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector).
Yukon Environmental and Socio-Economic Assessment Act	N/A
Mackenzie Valley Resource Management Act	Mackenzie Valley Land Use Regulations
Northwest Territories	
Environmental Protection Act	N/A
Species at Risk (NWT) Act	N/A
Wildlife Act	N/A
Waters Act	Waters Regulations
Historical Resources Act	N/A

Acts	Regulations
Forest Protection Act	N/A
Archaeological Sites Act	Archaeological Sites Regulations

The permits, licences and other authorizations that have been obtained or may be required for the Project in the NWT include the following:

- Leave to abandon order pursuant to subsection 241(1) of the Canadian Energy Regulator Act (Canada)
- Scientific research licence pursuant to section 3 of the Scientists Act (NWT) (obtained to conduct field studies in 2021 and 2023)
- Wildlife research permit pursuant to section 84 of the Wildlife Act (NWT) (obtained to conduct field studies in 2021 and 2023)
- Class 2 archeological permit pursuant to section 4 of the Archaeological Sites Regulations (NWT) (obtained to conduct field studies in 2021 and required to conduct field studies in 2022)
- Land use permit pursuant to section 4 or 5 of the Mackenzie Valley Resource Management Act (NWT)
- Water licence pursuant to section 47 of the Waters Act (NWT)

Existing permits, licences and other authorizations that may be relevant to the Project include:

- Archaeological Impact Assessment (Permits 2021-004 and 2022-006) have been completed, and reports were submitted to the Prince of Wales Northern Heritage Centre. Acceptance letters were issued by the Department of Education, Culture, and Employment on July 12, 2022, for AIA 2021-004 and on February 28, 2023, for AIA 2022-006.
- The pipeline was constructed in 1972 pursuant to National Energy Board (NEB) Certificate GC-46 and deactivated pursuant to NEB Order MO-11-2008 (for mile posts 0 to 21.71) and NEB Order MO-003-2016 (for mile posts 21.7 to 34.62).

3.0 Project Environment

The Project environment is described in terms of Atmospheric Environment, Physical (Terrestrial) Environment, Chemical Environment, and Biological Environment in accordance with the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB and AANDC 2013).

Prior to the construction of the pipeline, the Project footprint was generally undisturbed lands.

3.1 Atmospheric Environment

The Project is located mainly on forested land with limited anthropogenic activities. The existing air quality conditions were characterized through a review of ambient air quality monitoring data. The results from regional ambient air quality monitoring stations were reviewed to determine ambient contaminant concentrations. Data from representative monitoring stations were obtained to estimate regional background concentrations and the status of compliance with AAQOs for the CACs of interest. All selected monitoring stations are located closer to populated areas (e.g., cities and towns) than to the Pointed Mountain Pipeline, which affects the representativeness of the data to the Project location. Therefore, these ambient air quality data are a conservative estimate of ambient CAC concentrations at the Project footprint.

Table 2 provides summary reports of average concentrations of the CACs of interest measured at representative stations in 2018.

Table 2: Summary of Ambient Criteria Air Contaminants Concentrations at Monitoring Stations near the Project Footprint

CACs and Measurement Averages (Units)	NWT AAQOs	YAAQS	BC AAQOS	CAAQS	Average Concentration at Representative Monitoring Stations
NO_2 (ppb)					
1-hour	213	60	60	60 (2020) 42 (2025)	28.7[a] 18.1[b]
CO (ppb)					
1-hour	13,000	13,000	13,000	N/A	1,200[c]
8-hour	5,000	5,000	5,000	N/A	700[c]
$PM_{2.5}(\mu g/m^3)$					
24-hour	28	27	25	27 (2020)	14.8[a]
Annual	10	8.8	8	8.8 (2020)	8.2[d]

Notes:
[a] Available data parameters measured in 2018 at the Norman Wells monitoring station in the Northwest Territories, located approximately 560 km north of the Project location (Government of the NWT 2018b).
[b] Available data of parameters measured from June 2016 to June 2017 by a portable monitoring station at the Blueberry River First Nation School in northeast BC, located approximately 400 km southeast of the Project location (Government of BC 2017).
[c] Available data of parameters measured in 2018 at the Fort Smith monitoring station in the NWT, located approximately 670 km east of the Project location (Government of NWT 2018b).

[d] Available data of parameters measured in 2016 at the Hidden Valley monitoring site in the City of Whitehorse, Yukon, located approximately 620 km west of the Project (Government of Yukon 2018).

3.2 Physical (Terrestrial) Environment

The Project is located in the Liard Plateau of the Mackenzie Mountain Area physiographic region (Bostock 1967). Ranging from undulating to steep slopes, elevations range from 290 metres above sea level (masl) to 550 masl. Till blanket, fine-grained lacustrine sediments and undifferentiated colluvial sediments are the dominant surficial geology (NRCan 2021). The bedrock formation underlying the Project area is characterized by Upper Paleozoic Siliciclastic/Carbonate Shelf (Ootes et al. 2013). This portion of the Project runs along the Canadian Cordillera's Foreland Belt's boundary with the Interior Plains (Wetmiller et al. 1988). Several thrust faults exist in this area, and seismic activity is known to occur, with a 6.6 magnitude earthquake occurring on October 5, 1985 and a 6.9 magnitude earthquake occurring on December 23, 1985 (Wetmiller et al. 1988). Both earthquakes occurred at the same epicentre, approximately 92 km north of PM-1 (Ootes et al. 2013; Wetmiller et al. 1988).

3.3 Chemical Environment

3.3.1 Soil Overview

The Project is located mainly on forested land. In forested areas, the uppermost layer is often referred to as strippings, which includes organic litter, fine woody material and portions of the mineral A horizon located within the rootzone (often the upper 15 cm). Soil productivity is generally defined as the capacity for soil to support healthy plant growth. The capability of soil to support the plant growth is reduced if the soil becomes compacted. Compaction affects soil capability by reducing porosity, thereby restricting root penetration and elongation, and restricting air and water movement. Compaction will be greatest if soil handling and equipment movement occurs during wet/thawed soil conditions. If the soils are frozen during physical activities, compaction is not as likely to occur (Jacobs 2022a).

Wind erosion risk is considered negligible and therefore, unrated by Natural Resources Canada along the existing pipeline right-of-way (ROW) (NRCan 2009).

Potential of water erosion is influenced by factors such as texture, available soil moisture, organic matter content, surface cover, slope, and rainfall intensity. Moderate water erosion risk is generally associated with fine-textured topsoil where they occur on slopes greater than 5 percent. Project activities are generally considered to present low water erosion risk. Physical abandonment activities will be conducted within the existing ROW and associated temporary workspace.

A search of the Federal Contaminated Sites Inventory (Treasury Board of Canada Secretariat 2021) did not return any results of known contamination along the ROW (Jacobs 2022a). The nearest known federal contaminated site to the Project is located approximately 14 km southeast of the existing ROW (Treasury Board of Canada Secretariat 2021).

No sites of known contamination are listed on the Government of Canada's NWT Contaminated Sites List (Government of Canada 2013). However, a diesel spill was reported in 2018 at PM-1. A Phase 1 Environmental Site Assessment (ESA) was conducted to identify areas of potential environmental concern (APECs) at which contaminants of potential concern (COPCs) may have been released into the surrounding environment as a result of historical operations (Jacobs 2022b). The identified APECs and PCOCs are summarized in Table 5-1 of the Phase 1 ESA (Jacobs 2022b).

Based on the findings of the Phase 1 ESA, soil investigations (Jacobs 2024a, b) were conducted at PM-1. The soil investigations identified concentrations of petroleum hydrocarbon (PHC) fractions 1 to 3, ethylbenzene, naphthalene, and phenanthrene in soil greater than applicable federal and territorial guidelines. The estimated impacted soil volume is 1,350 cubic metres.

3.3.2 Surface Water Quality

The Project is located in an area with many poorly defined watercourses and fens commonly occurring along the existing ROW. The Project watercourse and wetland crossings are all within the Liard River Basin. The La Biche River and Kotaneelee River are direct tributaries to the Liard River. Fisherman Lake has an unnamed outflow on the southern end of the lake that flows into the Liard River.

The Liard River Basin is a transboundary watershed with headwaters in the southern portion of the Yukon. The Liard River flows southeast across the British Columbia (BC) border then northward across the NWT border to where it eventually meets the confluence with the Mackenzie River. The Liard River Basin area is approximately 275,000 square kilometres and is the ninth largest in Canada (Mackenzie River Water Board 2003).

3.3.3 Groundwater Quality

The Liard River Basin Transboundary Aquifer Assessment compiled a large amount of groundwater information for the NWT portions of the Liard River Basin (Palmer 2020). There are potential Type 1 surficial aquifers along the La Biche River and Kotaneelee River valleys. Type 1 are often composed of well sorted sand/gravel as they originate from deposition of materials from flowing water. These aquifers are hydrologically connected with surface waters and contain permeable materials; therefore, they may be vulnerable to groundwater contamination. Otherwise, there is low surficial aquifer potential (Jacobs 2022a).

No wells or springs were found within 50 m of the Project in the NWT (Jacobs 2022a).

There is no potential for acid rock drainage or metal leaching, as the Project does not include mining, milling or quarrying of rock (Jacobs 2022a).

3.4 Biological Environment

The following subsections provide an overview of the biological environment in the Project area including vegetation, wetlands, aquatics (fish and fish habitat), wildlife and wildlife habitat, species at risk or species of special status. The information is based on desktop reviews and field

investigations conducted for the Project.

3.4.1 Vegetation

The Project is predominantly located in an area consisting of forested areas and wetlands. Vegetation concerns are related to vegetation and landscape health, wildlife habitat, and spread of weeds. Project activities have the potential to interact with native vegetation mainly through brushing, grubbing, grading, and revegetation (Jacobs 2022a). The existing Pointed Mountain Pipeline crosses the Liard Upland Mid-Boreal Ecoregion in the Taiga Plains Ecological Region (Ecosystem Classification Group 2007) and the Liard Range Mid-Boreal boreal-subalpine Ecoregion in the Cordillera Ecological Region of the NWT (Ecosystem Classification Group 2010).

Vegetation field surveys were conducted within and along the Project footprint in the NWT. Field surveys focused on sites where physical abandonment activities will take place. Vegetation present at the physical abandonment sites includes the following:

- PM-1 is within a regenerating forest dominated by a combination of trembling aspen, white spruce, balsam poplar and black spruce. There are also shrub, cleared and disturbed land covers at this site.
- PM-2 is within a regenerating forest dominated by a combination of trembling aspen, white spruce, balsam poplar and black spruce. There is also cleared land cover at this site.
- PM-3 is within a shrub land cover due to clearing for construction and maintenance of the pipeline.
- PM-4 is within a shrub land cover due to beaver activity within a shrub swamp and clearing for construction and maintenance of the pipeline.
- PM-4A is located on the existing regenerating pipeline footprint, dominated by shrubs within wetlands.

The Project is within the Dehcho administrative region of the NWT, which recently reported the following forest pests: aspen serpentine leafminer, eastern larch beetle, gray willow leaf beetle, spruce budworm, willow blotch leafminer, western balsam bark beetle, and white-spotted sawyer beetle (Government of the Northwest Territories [GNWT] 2018). No evidence of forest pests or pathogens was observed.

No rare vegetation species or rare ecological communities were observed.

Two invasive weed species designated Most Concern (Northwest Territories Environment and Natural Resources [2020]), white sweet-clover and yellow sweet-clover, were observed at PM-1. Additional invasive weed species were observed at this site that are not designated species in the NWT but are designated as Highly Invasive in the adjacent Yukon, perennial sow-thistle, annual hawksbeard and oxeye daisy. Invasive weed species were associated with existing disturbance and infrastructure. No weeds were observed at the other physical abandonment sites.

3.4.1.1 Vegetation Species at Risk

There are three species with federal conservation status known to occur in the NWT (Government of Canada 2021):

- hairy braya (*Braya pilosa*, listed as Endangered by COSEWIC and *SARA*, and listed as Threatened by the *Species at Risk [NWT] Act*)
- Mackenzie hairgrass (*Deschampsia mackenzieana*, listed as Special Concern by COSEWIC and *SARA*)
- Nahanni aster (*Symphyotrichum nahanniense*, listed as Special Concern by COSEWIC and *SARA*)

None of these species at risk are known to occur in the range of the Project (GNWT 2020).

Raup's willow (*Salix raupii*, May Be at Risk), a territorially listed species, occurs within 5 km of the Pointed Mountain Pipeline (GNWT 2013), located approximately 3.1 km east of the Project footprint between PM-1 and PM-2.

No rare vegetation species or rare ecological communities were observed during field surveys at the physical abandonment sites.

3.4.2 Wetlands

A substantial proportion of the existing Pointed Mountain Pipeline ROW crosses wetlands (Jacobs 2022a). Wetland regions in Canada are defined by wetland ecosystems that develop in locations with similar topography, hydrology, and nutrient regime. The Project is located within the Continental High Boreal Subregion of the Boreal Wetland Region and the Central Rocky Mountain Wetland Region of the Mountain Wetland Region. Characteristic Continental High Boreal wetlands consist of treed bogs and fens on broad flats and in confined basins. Swamp and marsh wetlands can be found in agricultural areas, as well as along edges of some streams and lakes. Peat depth for Continental High Boreal wetlands averages 2 to 3 m (Energy, Mines and Resources Canada 1986).

Central Rocky Mountain wetlands within the Rocky Mountain Wetland Region. Characteristic Central Rocky Mountain wetlands include bogs and fens. Peat accumulation is typically less than 1 m (Energy, Mines and Resources Canada 1986).

The Project components in the NWT are located within the Liard Upland Mid-Boreal Ecoregion in the Taiga Ecological Region and the Liard Range Ecoregion in the Cordillera Ecological Region of the NWT. Less than five percent of the total area of the Liard Upland Mid-Boreal Ecoregion is covered by water. The undulating terrain limits wetlands in this area. In the Liard Range Ecoregion, there are few lakes and wetlands. Lakes and wetlands are common in broad valley bottoms and include shore and floating sedge fens and black spruce fens.

3.4.3 Aquatics (fish and fish habitat)

Fish documented in the Liard River include Arctic cisco, Arctic grayling, bull trout, burbot, chinook salmon, chum salmon, Dolly Varden, finescale dace, flathead chub, goldeye, inconnu, lake chub, lake trout, lake whitefish, longnose dace, longnose sucker, mountain whitefish, northern pearl dace, northern pike, pygmy whitefish, rainbow trout, round whitefish, slimy sculpin, spoonhead sculpin, trout-perch, walleye and white sucker (Government of British Columbia 2021a,b,c; McPhail 2007). Documented fish presence was not found for Fisherman Lake; however, based on the size and connectivity to other waterbodies, it is presumably fish-bearing.

Chinook salmon are a vagrant historical record in the Liard River and unlikely to occur with any regularity in the Liard River (McLeod and O'Neil 1983). The Liard River is also notable for having a small and possibly sporadic chum salmon run from the Beaufort Sea (McLeod and O'Neil 1983). This is the only anadromous salmonid species noted to occur historically with some regularity within the Mackenzie River basin, of which the Liard River is a part of (McLeod and O'Neil 1983). Dolly Varden are present in the upper Liard River basin, although some historical records indicate that these are likely bull trout from when the two char were considered the same species (McPhail 2007).

No information was available for the watercourses crossed by the pipeline route on the Fish Sampling Atlas (Community Mapping Network 2021). No additional fisheries information was found for the NWT, as information is limited (Jacobs 2022a). The Project crosses tributaries of the Kotaneelee River system in the NWT, where bull trout (Special Concern under SARA) are also known to occur (Stewart et al. 2007). Stewart et al. noted that stream resident populations of bull trout are likely present in the Kotaneelee River system. Stream resident populations indicate they are non-migratory and inhabit spawning tributaries year-round (Stewart et al. 2007).

3.4.3.1 Fish Species at Risk

The fish community for the area surrounding the existing Pointed Mountain Pipeline includes coolwater and coldwater species and spring/summer/fall spawners. Generally, most of the watercourses identified by desktop review appear to be low gradient, poorly defined, and may lack habitat potential for sportfish (e.g., bull trout, Arctic grayling, and northern pike) (Jacobs 2022a). A notable exception is the La Biche River, which supports a diverse fish community and is expected to provide high quality fish habitat.

Bull trout (Western Arctic) are federally listed as Special Concern under *SARA* and COSEWIC (Government of Canada 2021). Bull trout are also listed as Sensitive by the NWT (Working Group on General Status of NWT Species 2016). Dolly Varden (Western Arctic population) are also federally listed as Special Concern under *SARA* and COSEWIC (Government of Canada 2021); however, they are only documented in the headwaters of the Liard River basin and are unlikely to be present at the Liard River ice bridge location (Jacobs 2022a).

3.4.4 Wildlife and Wildlife Habitat

The Pointed Mountain Pipeline crosses the Liard Upland Mid-Boreal Ecoregion in the Taiga Ecological Region (Ecosystem Classification Group 2007) and the Liard Range Ecoregion in the Cordillera Ecological Region of the NWT (Ecosystem Classification Group 2010), the La Biche River Boreal Low Subzone of the Yukon (Environment Yukon 2017), and the BWBSmk BGC subzone of BC (DeLong et al. 2011); these areas are home to a variety of wildlife species, including wood bison, moose, black bear, boreal caribou, gray wolf, beaver and other furbearers, as well as songbirds, game birds, and water birds. Hunting, fishing, and trapping occur within all of these regions (Jacobs 2022a).

The Pointed Mountain Pipeline does not cross designated parks, National Wildlife Areas, or Migratory Bird Sanctuaries (Environment and Climate Change Canada [ECCC] 2019, 2020), Important Bird Areas (Bird Studies and Nature Canada 2004-2010), Western Hemisphere Shorebird Reserves (Western Hemisphere Shorebird Reserve Network 2019), Ducks Unlimited Canada Projects (Ducks Unlimited Canada 2018), or Ramsar Wetlands (Bureau of the Convention on Wetlands 2016) (Jacobs 2022a).

The Pointed Mountain Pipeline overlaps with the western edge of boreal caribou range of the NWT (NT1); the range is one of three transboundary ranges in Canada and is large (44,166,546 ha), extending from the southern border of the NWT into the north with some overlap of the Yukon. In comparison to smaller boreal caribou ranges, those in NT1 are dispersed over a large area and may move more freely and over greater distances within the area characterized by common biophysical attributes (Jacobs 2022a).

3.4.4.1 Wildlife Species at Risk

The pipeline ROW is within the western edge of the NT1 caribou range for approximately 26.5 km. PM-1, PM-2, PM-3, and PM-4 are located within the NT1 caribou range (Jacobs 2022a). This area is considered critical habitat, as it could contribute to the undisturbed habitat needed for self-sustaining boreal caribou populations (ECCC 2020). However, the undisturbed critical habitat in NT1 is estimated to be at 65 percent, which is the target amount for all boreal caribou populations. Anthropogenic disturbance is relatively low and is estimated to be around 9 percent (ECCC 2020).

In the NWT, an approach to range planning for boreal woodland caribou is outlined in A Framework for Boreal Caribou Range Planning (NWT Framework) (GNWT 2019). The NWT Framework addresses obligations to protect critical habitat for boreal caribou identified in ECCC's National Recovery Strategy for Woodland Caribou, Boreal Population (Environment Canada 2012) as well as the territorial recommendations to develop and implement range plans for boreal caribou habitat outlined in the NWT Boreal Caribou Recovery Strategy (Conference of Management Authorities 2017). The NWT Recovery Strategy calls for the development of regional range plans focused on managing human disturbance, while the National Recovery Strategy sets a target of maintaining at least 65 percent of the NT1 range in an undisturbed condition.

Although there are no current boreal caribou range plans in effect, the NWT Framework takes a tiered management approach in which caribou habitat is assigned to different management classes (Basic, Enhanced, and Intensive) based on importance of habitat for caribou and range status relative to regional human disturbance thresholds. Though the NWT Framework defines the tiers, specific areas assigned to each of the three management classes will be defined spatially when range plans are developed. Areas in enhanced and intensive management classes will be subject to stricter requirements and conditions with the intent of achieving No Net Loss (or increase) of undisturbed habitat due to human activity over time.

Because of the paucity of potential caribou habitat (e.g., presence of wood bison along the ROW) and lack of caribou observations in the area where abandonment activities will take place, the relative importance of the area for boreal caribou can be considered low (Jacobs 2022a). Combined with the relatively low human disturbance level in NT1 (9 percent), high-level management actions outlined in the NWT Framework for this Basic Management Class area include:

- encouraging use of best practices and minimum standards (including actions to manage sensory disturbance, and actions specific to seasonal use of habitats); and/or
- managing of wildfires as per current GNWT Policy

4.0 Project Description

4.1 Location and Access

The portion of the Project located in the NWT is approximately 26 km northwest of the hamlet of Fort Liard in a remote area that is currently only accessible over land by a winter road that is typically in service from December to early April. The Project area can also be accessed in the summer months by barging on the Liard River.

4.2 Site History

The Project uses Westcoast's existing permanent easement and previous workspace to the extent possible. In particular, the proposed camp and laydown yard are situated in a disturbed area that was previously used as a construction camp and is adjacent to an existing road.

4.3 Site Geology

In the NWT, the existing Pointed Mountain Pipeline is located in the Liard Plateau of the Mackenzie Mountain Area physiographic region (Bostock 1967). Ranging from undulating to steep slopes, elevations range from 290 metres above sea level (masl) to 550 masl. Till blanket, fine-grained lacustrine sediments and undifferentiated colluvial sediments are the dominant surficial geology (NRCan 2021). The bedrock formation underlying the Project area is characterized by Upper Paleozoic Siliciclastic/Carbonate Shelf (Ootes et al. 2013). This portion of the Project runs along the Canadian Cordillera's Foreland Belt's boundary with the Interior Plains (Wetmiller et al. 1988).

Several thrust faults exist in this area, and seismic activity is known to occur, with a 6.6 magnitude earthquake occurring on October 5, 1985, and a 6.9 magnitude earthquake occurring on December 23, 1985 (Wetmiller et al. 1988). Both earthquakes occurred at the same epicentre, approximately 92 km north of PM-1 (Ootes et al. 2013; Wetmiller et al. 1988).

4.4 Project Summary

The Project will use existing access roads, as well as the following temporary infrastructure to accommodate construction activities:

- Construction camp;
- Laydown yard (fuel and equipment storage);
- Potential barge landing to stage equipment for winter construction;
- Temporary workspaces (TWS); and
- Ice bridges at Petitot River, Liard River and Kotaneelee River.

Further details on the Project components are provided in Section 5.2.

The general activities associated with construction of the Project are described in **Table** 3.

Table 3: Project Construction Activities

Construction Stage	Associated Activities
Engineering	The pipeline and surface equipment will be abandoned in accordance with all applicable industry standards (e.g., Canadian Standards Association [CSA]), as well as federal, territorial, and regional requirements, and conditions of permits or authorizations.
Surveying	Activities include flagging and staking the boundaries of the Project footprint, including TWS, as well as marking the existing ROW and utilities. Avoidance areas (e.g., protected habitats or rare plants) will be appropriately fenced or flagged.
Transportation of equipment, workers, and supplies	Supplies and equipment will be transported to the Project footprint using large trucks and trailers. Workers will use multipassenger vehicles and trucks for travel to and from the Project footprint for the duration of the physical abandonment schedule. Heavy equipment will travel along the ROW, as needed.

Construction Stage	Associated Activities
Brushing	Vegetation (i.e., stumps, brush, and other vegetation) and snow will be cleared from the Project footprint, as needed, to facilitate physical abandonment activities. Vegetation will be brushed in required locations including TWS and access along the ROW. Equipment used during brushing may include mulchers, or other clearing equipment, such as dozers
Vegetation disposal	Where possible, brush and trees will be reused by spreading over cleared areas as cover.
Strippings handling (forested lands)	In forested areas, the uppermost ground layer is referred to as "strippings", which includes organic litter, fine woody material and portion of the mineral A horizon located within the rootzone (often upper 15 cm). As a result, the term "strippings handling" is used in forested areas, instead of "soils handling". Strippings will be salvaged in areas where excavation is required to access belowground piping. The width and depth of strippings salvage depends on several factors, including the soil conditions at the time of abandonment and microtopography. Typical equipment used during strippings handling activities includes backhoes and excavators.
Grading/site preparation	Grading will be conducted on slopes and irregular ground surfaces, TWS, and access roads in order to provide a safe work surface. The camp site and laydown area are already level and do not require grading. TWS and access roads are all pre-existing, principally flat surfaces, which require minimal soil grading, if any. The pipeline ROW does not require any soil grading. No fill material is required at any of these locations, other than snow fill.
Excavation	Excavation will occur where the pipeline will be exposed to enable cutting and capping. Typical equipment used for excavation includes backhoes and tracked excavators.
Depressurization and capping	Following principles in the latest edition of CSA Z662-23, the existing pipeline will be depressurized, capped, plugged, and left without any internal pressure. The pipeline will be capped at start and end points, third-party connections, and flare sites.

Construction Stage	Associated Activities
Watercourses	All watercourse crossings will be abandoned in-place to avoid disturbance to the watercourse, except for an exposed section of pipe at KP 28.6 that will be removed. The section of pipe under the Kotaneelee River was removed in 2016.
Third-party crossings	Pipeline sections that cross third-party pipelines will be abandoned in-place, unless otherwise required, to eliminate the risk of contact with the third-party pipeline during removal. No pipeline sections that cross third-party pipelines are currently planned for excavation.
Backfilling	Excavation areas will be backfilled using backhoes, excavators, graders, dozers, or other specialized backfilling equipment. Excavations/bell holes will be backfilled using native spoil material.
Waste disposal	Household waste and sewage from the camp will be disposed of in facilities in Fort Liard. All other construction waste will be removed to a facility in BC, Yellowknife or elsewhere in the NWT. Only licensed facilities capable of accepting the types of wastes will be used.
Site dismantle	Any aboveground piping and appurtenances associated with the Pointed Mountain Pipeline will be dismantled and removed from the site. Cathodic protection for the pipeline will be disconnected. Supports and utilities will be removed to pipeline depth below ground unless still required and owned by third-party operators. All third-party connections will be disconnected.
Cleanup and reclamation (forested lands)	Upon completion of abandonment activities, cleanup, and reclamation procedures will be initiated following backfilling using dozers, backhoes, or graders. Any remaining garbage or debris will be removed and disposed of in compliance with applicable regulations and as described in the Waste Management Plan. Strippings, where salvaged, will be replaced. All disturbed, upland areas will be revegetated using natural recovery.

Construction Stage	Associated Activities
Remediation of Contaminated Soil	Westcoast completed a Phase I Environmental Site Assessment (ESA) to identify areas requiring soil sampling. A copy of the Phase I ESA is attached (Appendix 2). Of the abandonment sites in the NWT (i.e., PM-1 to PM-4), only PM-1 required soil sampling. As part of the abandonment process, contaminated soil has been identified at PM-1. The contaminated soil will be remediated on-site and replaced to its original location. The remediation will be completed using Enhanced Thermal Conductance treatment. Remediation treatment success will be confirmed by laboratory analysis of soil samples. Further details on the remediation at PM-1 are available in the attached Remedial Action Plan (Appendix 3). Any other soil found with olfactory or visual indications of contamination will be analyzed. Olfactory indicators of contamination include hydrocarbon and solvent odours. Visual indicators of contamination include discolored (grey or black) staining of soils and sheen on water in excavations. If contamination is confirmed, the site will be remediated to the appropriate land use criteria.

5.0 Permanent Closure and Reclamation

Westcoast has determined that there is no prospective future use for the Pointed Mountain Pipeline. The approximately 56 km long 20-inch diameter natural gas pipeline was constructed in 1972 and deactivated in 2008 (for mile posts 0 to 21.71) and 2016 (for mile posts 21.7 to 34.62). A 1.2 km long segment of pipeline crossing the Kotaneelee River was removed in 2016. As part of the deactivation process, the pipeline was purged, cleaned of residual product, internally coated with corrosion inhibitor, filled with nitrogen gas to a minimum pressure of 70 kilopascals, and physically isolated from sources of upstream pressure.

Generally, abandonment in-place is the most appropriate method of abandonment of buried pipelines. This is primarily because the environmental disturbance that would be caused by excavation and disposal of buried pipeline would be far greater than abandonment in place and unwarranted in the case of this remote, predominantly forested, and uninhabited land. The physical removal of the pipeline would require disturbance of the vegetation and the brush that has re-grown on the ROW, thus potentially impacting caribou, and other wildlife habitat. Westcoast further notes that this approach is consistent with the Canada Energy Regulator's base case assumption for

small-diameter pipe in undeveloped land use areas.

5.1 Definition of Permanent Closure and Reclamation

In the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB and AANDC 2013), permanent closure and reclamation is defined as follows:

Permanent closure is the final closure of a mine site with no foreseeable intent by the existing proponent to return to either active exploration or mining.

In the context of the Project, it can be interpreted that permanent closure of the Project means that Westcoast has no intentions of conducting further activities at the site, aside from routine operations and maintenance monitoring and potential remedial actions (when and where required).

5.2 Permanent Closure and Reclamation Requirements

Permanent closure and reclamation requirements are described in the following subsections for the Project components listed in Section 5.2.1, including:

- Construction camp and laydown yard;
- Potential barge landing;
- Existing access roads;
- Bridge Repairs;
- Ice Bridges; and
- TWS.

5.2.1 Project Component Descriptions

5.2.1.1 Project Sites

Physical abandonment activities (e.g., excavation, isolation, backfilling) of the Pointed Mountain Pipeline will occur at four site locations within the NWT, and exposed pipe will be removed at one location within the NWT (**Table 4**).

Table 4: Pointed Mountain Pipeline - Associated Facility Components

Site #	Site Name & GPS Coordinates	KP	Abandonment Activities
PM-1	Pointed Mountain Launcher (Original) *GPS 60.3968, -123.8263*	KP 0.0	Remove pig launcher and associated kicker line, flare, aboveground flare piping, aboveground producer connection piping, structural steel, risers, diesel and propane tanks

Site #	Site Name & GPS Coordinates	KP	Abandonment Activities
PM-2	Producer Tie-In *GPS 60.3053, -123.8923*	KP 11.1	Remove tap, piping, and valve.
PM-3	N2 Vent *GPS 60.2490, -123.9447*	KP 18.04	Remove riser piping and valve.
PM-4	N2 Vent *GPS 60.2419, -123.9618*	KP 19.25	Remove riser piping and valve.
PM-4a	Pipe Exposure *GPS 60.165, -124.0125*	KP 28.6	Remove exposed pipe and additional pipe that is predicted to be potentially exposed in the future. The pipe will be cut and capped at both ends of the exposure extent, and the pipe will be removed by pulling it from one side.
Test Lead Posts	Various	Various	Remove above ground Test Lead Posts where feasible.

5.2.1.2 Camp Site by Fort Liard Town and Laydown Yard by PM-1

One camp is required for the portion of the Project in the NWT. The camp will be located in the Beaver Enterprise Yard in Fort Liard, located by Valley Main Street. The camp will be located in a previously cleared area. The camp will be capable of accommodating up to 60 people with the following structures:

- (8) trailers camp complex
- (2) wet sleepers
- (1) wellsite trailer
- (1) fuel storage area (with secondary containment and spill kits)
- (1) generator shack

A laydown area by PM-1 will be used for fuel and equipment storage on previously disturbed land. It will have the following structures:

- (1) wash car trailer
- (1) office trailer
- (1) generator shack
- (2) propane tanks

The camp location and laydown yard will not require any vegetation clearing.

5.2.1.3 Potential Barge Landing

Equipment may be barged to a landing site on the north side of the Liard River. Barging may be used if the water level is sufficiently high and if the risk of late freeze-up is deemed material to mitigate the risk that late freeze-up delays construction.

Westcoast anticipates minimal grading of the barge landing site may be required. No construction at the barge landing site is anticipated. The barge landing site is a flat pre-disturbed area that has been used for barge landing previously.

The barging activity and equipment is generally described below. The specific equipment details may vary:

1. The tug boat will be 50 ft long, 800 hp.
2. The barge will be 30 ft wide and 120 ft long
3. Capacity of the barge is estimated at 250,000 tons.
4. There will be an estimated 5 cross river trips to carry over the following equipment:
    a. 1 – Supply trailer / 20 ft long storage container / C-can
    b. 2 – pickup trucks each with a 450L tidy tank of diesel
    c. 1 – snow cat
    d. 1 – D6 Dozer
    e. 1 – 200 series excavator
    f. 1 – 40 ft temporary bridge
    g. 1 – power generator
    h. Drip trays, spill containment and spill response equipment.
5. The duration of barging is expected to be 5 days.

5.2.1.4 Existing Access Roads

Access during physical abandonment activities will be via existing roads (e.g., Highway 77 and high-grade petroleum development roads), resource and winter roads, ice bridges (across Petitot River, Liard River and Kotaneelee River), and the existing ROW to the Project sites.

Highway 77 will be used to transport equipment / materials to the proposed camp site. The road does not require any vegetation clearing or brushing.

A temporary connector road will be used for access from Petitot River to Liard River.

Along the access roads and ROW the following temporary structures will be provided:

- (2) portable toilets; and
- Approximately (12) light stands.

5.2.1.5 Bridge Repairs and Temporary Bridges

There may be some bridge repairs required. Westcoast has conducted bridge inspections to ensure safe access and will install temporary bridges as required prior to the construction window in early Fall.

The following is a list of permanent bridges which may require repairs and a list of potential temporary bridges:

- Winter Connector Road KP 1.75
  - Location: 60.218102, -123.498357
  - Work Scope: Bridge has been washed out. Replace with a temporary 80'-90' bridge.
  - Size: Bridge Length 18.3m, Span Length: 18.3m, Deck Width 4.3m
- Paramount Road 1, KP 2
  - Location: 60.206016, -123.670933
  - Work Scope: None at this time
  - Size: Bridge Length 18.3m, Span Length: 18.3m, Deck Width 4.1m
- Paramount Road 2, KP 17.5
  - Location: 60.330319, -123.769753
  - Work Scope: None at this time
  - Size: Bridge Length 21.3m, Span Length: 21.3m, Deck Width 4.3m
- Paramount Road 3, KP 21.5
  - Location: 60.337298,-123.82985
  - Work Scope: Bridge is to be replaced by installing a longer bridge on new abutments that are set back from the top of the embankment.
  - Size: Bridge Length 15.3m, Span Length: 15.3m, Deck Width 4.3m
- Paramount Road 4, KP 23
  - Location: 60.395166,-123.850161
  - Work Scope: Rebuild rig mat abutments, remove beaver dam, and reinstate displaced delineators.
  - Size: Bridge Length 18.3m, Span Length: 18.3m, Deck Width 4.3m
  - Temporary Bridges:

The final number, size, and location of temporary bridges will be confirmed following a contractor walkthrough of the Project. Westcoast currently anticipates four temporary bridges on Prairie Road Bridge (approximately 60.343583°, -123.854011° to 60.305176°, -123.893341°) along with the Winter Connector temporary bridge. Once construction activities associated with the Project are complete, the temporary bridges will be removed. Based on MVLWB's definition of "Engineered Structure", temporary bridges would only qualify as engineered structures if they are installed

below the normal high water mark of a waterbody. Westcoast does not plan to install temporary bridges within the ordinary temporary high-water mark of any watercourse.

5.2.1.6 Ice Bridges

There will be three (3) ice bridges built to access the Project sites in the NWT. From Fort Liard, an ice bridge will be installed at the Petitot River (IB-01) to facilitate temporary access west along an existing 12 km access trail (connector road). An ice bridge will be installed at the Liard River (IB-02) to facilitate access to the GNWT Access Road, which travels north to the ROW. From there the GNWT Access Road extends northeast directly to PM-1, and the other GNWT Access extends south, paralleling the ROW, allowing access to PM-2. From PM-2, the existing ROW will be used to access PM-3 through PM-4, with an ice bridge installed at the Kotaneelee River (IB-03).

If safe and feasible, a v-notch will be placed in the center of the ice bridges (or otherwise breached) when the crossing season is complete to prevent blocking fish passage, channel erosion and flooding, and to facilitate drainage flows. If ice bridges cannot safely or feasibly be breached, and there are no concerns with fish passage, channel erosion and flooding, they will be left to melt naturally after the abandonment activities.

5.2.1.7 Temporary Workspaces

Some TWS outside of the existing ROW will be required. TWS off the existing ROW may require brushing, however, no merchantable timber is expected to be removed.

The total number of hectares to be used in each phase of the Project is provided below.:

- Camp at Fort Liard: 5.62 ha. This includes 4.808 ha for the camp and 0.812 ha for the access road into the camp from Valley Main Street.
- Laydown Area: 1.57 ha
- Total Access Road: 110.987 ha
- Total ROW: 56.803 ha
- PM-1 lease and additional TWS: 2.11 ha
- PM-2 lease and additional TWS: 0.226 ha
- PM-3 lease and additional TWS: 0.213 ha
- PM-4 lease and additional TWS: 0.191 ha
- PM-4A lease and additional TWS: 0.402

5.2.2 Final Site Conditions

The following will be done once all abandonment activities are completed and prior to expiration

of the land and water use permits.

- Buildings and Contents

The camp and other small buildings associated with Westcoast activities will be removed. All equipment and other building contents will be removed from the site.

Final inspection will be made after removal of the camp to ensure that no waste or other materials associated with Westcoast activities remain. Photos will be taken to record the final condition.

Any reclamation beyond the above is the responsibility of Beaver Enterprises Limited Partnership.

- Laydown Area

All Westcoast equipment and materials will be removed from the site.

Final inspection will be made after removal of the camp to ensure that no waste or other materials remain. Photos will be taken to record the final condition.

Any reclamation beyond the above is the responsibility of Paramount Resources Ltd.

- Access Roads

The access roads are municipals roads under the administration of the Hamlet of Tulita. Westcoast will not complete any final reclamation of the access roads.

- Fuel Tanks and Chemical Containers

All fuel tanks and chemical containers will be removed from the camp and other locations. Fuel tank locations will be inspected, and final photos will be taken of all sites.

- Re-vegetation

Disturbance to vegetation will be minimal along the ROW used for winter access and will be left to revegetate naturally. At physical abandonment sites where ground disturbance occurs, the preferred revegetation method is natural regeneration. Seeding will occur at PM-1 following remediation activities.

- Final Inspection and Documentation

Upon completion of the final abandonment and reclamation, photos will be taken, and activities documented.

5.2.3 Closure Objectives and Criteria

The closure objectives for the Project have been guided by the four closure principles outlined in the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB and AANDC 2013): (1) physical stability, (2) chemical stability, (3) no long-term active care, and (4) future use. Closure objectives and criteria have been developed for the Project Components located within land uses where physical abandonment

activities will occur.

For the Project Components located within land uses where physical abandonment activities will occur, each site will be assessed based on a grid-based approach, with no grid exceeding 30 m x 30 m (or 900 m^2). Within each grid, a vegetation and soil plot will be placed in a representative area. Each assessment plot is a circular plot of a 1.78 m radius (10 m^2) for all nonwoody vegetation metrics and then stepped out to a circular plot of a 3.99 m radius (50 m^2) to assess woody vegetation metrics, where applicable. Landscape parameters will be assessed based on the grid (30 m x 30 m) and not restricted to the 1.78 m radius plot. Control plots will be located adjacent to the Project footprint. The number of control plots will be 20% of the total number of onsite assessment plots. For a Project Component to achieve the closure objectives, 80% of plots onsite must be acceptable, with no two adjacent plots ranked as unacceptable. These methods are adapted from the *Ecologically Suitable Species Guideline* (BCER 2024).

The campsite, laydown area, and existing access roads have not been included in this process, as they are located within existing anthropogenic land uses (see 5.2.2 Final Site Conditions for additional details). The existing pipeline ROW that will be used for temporary access, and the existing trail that will be used for temporary access have not been included in this process as no ground disturbance is planned for these locations.

Closure objectives and criteria are provided in Table 5.

Table 5: Closure Criteria

Closure Objective	Closure Options	Closure Criteria
PM-1		
At closure: • The site will not be a risk to human, wildlife or environmental health and safety. • The site will achieve long-term physical stability, no unnatural impediments to drainage, and safe use with the surrounding area. • The site will support early successional native vegetation characteristic of the surrounding adjacent native land use (Liard Upland Mid-boreal Ecoregion of the Taiga Plains Ecological Region [Ecosystem Classification Group 2007] zonal upland site). Due to wood bison presence in this area, early successional native vegetation may not include many woody-species. Should wood bison grazing result in the site maintaining a grassland or shrubland structural stage, the site will still be considered successfully reclaimed. Total reclaimed area (soil disturbance and	**Remove above-ground infrastructure** Remove pig launcher and associated kicker line, flare, aboveground flare piping, aboveground producer connection piping, structural steel, risers, diesel and propane tanks. -Timing: By end of March 2026 *Applicable Closure Principles:* *(1) physical stability, (3) no long-term active care, and (4) future use*	• Above ground pipeline equipment has been removed and disposed of at an appropriate facility.
	Remediate contaminated soil and impacted groundwater Delineate, excavate and treat contaminated soil at PM-1 as per Remedial Action Plan. Remediate impacted groundwater at PM-1 by removing source of contamination (contaminated soil). -Timing: By end of March 2026 Return treated soil, which meets applicable regulatory criteria, to excavation in 200 to 300 mm lifts, and compact to restore grade. -Timing: By end of March 2026	• Meet or exceed the Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, as describe in Exhibit 2 of the Remedial Action Plan. • Post-remediation groundwater COPC concentrations are less than the applicable federal and territorial guidelines, as follows: o Canadian Council of Ministers of the Environment (CCME) Canadian WQGs for the Protection of

Closure Objective	Closure Options	Closure Criteria
TWS) assumed to be approximately 21,100 m^2. Using a 30 m x 30 m grid, approximately 25 onsite plots would be established, and 5 offsite reference plots would be established to monitor landscape, soil, and vegetation criteria.	Conduct post-remediation groundwater monitoring. -Timing: By end of December 2026 *Applicable Closure Principles:* *(2) chemical stability, (4) future use*	Agricultural Water Uses (CCME 2024a) o CCME Canadian WQGs for the Protection of Aquatic Life (CCME 2024b) o CCME Canadian Groundwater Quality Guidelines for the Protection of Human Health (CCME 2024c) o CCME Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soi (CCME 2008a, 2008b, 2008c) o Environment and Climate Change Canada (ECCC) provides Federal Environmental Quality Guidelines (FEQGs) (Government of Canada 2024) o Federal Contaminated Sites Action Plan (FCSAP) Federal Interim Groundwater Quality Guidelines (FIGQGs) (Government of Canada 2016) o Health Canada Guidelines for Canadian Drinking Water Quality (CDWQs) (Health Canada 2024)

Closure Objective	Closure Options	Closure Criteria
		• The criteria for identified contaminants in groundwater are as follows: o Naphthalene: 1.1 micrograms per litre (µg/L) Source: CCME Water Quality Guideline and FIGQG o PHC F2: 1,300 µg/L. Source: FIGQC Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Import topsoil, if available, to a depth of approximately 15 cm to support native vegetation only in areas where contaminated soil was remediated. Westcoast has identified a source of topsoil in Hay River that will undergo testing prior to use. If the location is determined to be unsuitable, alternative sites in the territory will be examined -Timing: By end of March 2026 *Applicable Closure Principles:* *(2) chemical stability* *(3) no long-term active care, and* *(4) future use* If topsoil is not available, strategies to improve remediated topsoil maybe be implemented through hydroseeding or	• Criteria is adapted from Soil Quality Criteria Relative to Disturbance and Reclamation for the Northern Forested Region (Soil Quality Criteria Working Group et. al. 2004). Topsoil will be sourced locally, if possible, and be free of weeds or contamination. The following criteria for evaluation the suitability of surface material for revegetation in a forested region should be considered, if possible. The ratings are considered Good for reclamation suitability. If Good ratings are not obtainable locally, variations may be acceptable based on adjacent soil conditions (obtained through sampling) or using the Fair ratings from the same criteria.

Closure Objective	Closure Options	Closure Criteria
	hydromulching, adding locally sourced peat, if available, or applying other amendments that may add organic matter to the topsoil.	• pH: Good: 5.0 to 6.5; Fair: 4.0 to <5.0, >6.5 to 7.5 • Electric Conductivity (EC)(dS/m): Good: <2; Fair: 2 to 4 • Sodicity (SAR): Good: <4; Fair: 4 to 8 • Saturation (%): Good: 30 to 60; Fair: 20 to <30, >60 to 80 • Stoniness/Rockiness (%area): Good: <30/<20; Fair: 30 to 50/20 to 40 • Texture1: Good: FSL, VFSL, L, SiL, SL; Fair: CL, SCL, SiCL • Organic Carbon (%): Good: >2; Fair: 1 to 2 • Moist Consistency: Good: very friable to friable; Fair: loose, firm • CaCO3 Equivalent (%): Good: <2; Fair: 2 to 20
	Waste Disposal All wastes generated during the Project are disposed of in a licensed facility as per the Waste Management Plan. Materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g.,	• No wastes or construction materials at site.

Closure Objective	Closure Options	Closure Criteria
	garbage, matting, fencing, etc.). -Timing: By end of March 2026 *Applicable Closure Principles:* *(3) no long-term active care, and (4) future use*	
	Return the landscape to contours compatible with adjacent native land uses, ensuring slope and soil stability is maintained. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• Contour/Grade and drainage re-establishment: o Surface contours match the surrounding landscape. o Un-natural ponding is not observed on- or up gradient from the site. • Microtopography: o No evidence of subsidence that is affecting drainage, vegetation establishment or is a physical hazard to humans or wildlife. o No evidence of rutting caused by construction that is altering drainage or vegetation establishment, resulting in bare ground. • Erosion: o No erosion beyond typical erosion observed in adjacent areas.

Closure Objective	Closure Options	Closure Criteria
		○ No visibly unstable slopes. ○ No sedimentation due to the Project. • Surface stoniness or debris: ○ Stoniness is rated on a scale from S0 to S5. There should be no S4 or S5 ratings, unless adjacent lands are similar (Appendix 1). ○ If present, coarse woody debris (CWD) is at a density that is not restricting vegetation establishment from reaching 75% cover (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). ○ If present, mulch depth does not exceed 5 cm, unless there are no effects on vegetation establishment. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Soil is capable of supporting the desirable vegetation community. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:*	• No compaction that causes vegetation to not meet vegetation closure criteria. • No admixing that causes vegetation to not meet vegetation closure criteria. • Topsoil depth should be within 85% of

Closure Objective	Closure Options	Closure Criteria
	(1) physical stability *(3) no long-term active care, and (4) future use*	imported target depth, where applicable, or 60% of control locations, unless no effects to vegetation establishment are observed. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Apply native seed mix only in areas where contaminated soil was remediated • See Appendix 5 for seed mix information. • Prioritize choosing local or northern seed sources for reclamation. • Seed Mix A for upland areas can be used for dormant seeding as these are cool season grasses. Can include a short-lived cover crop for soil stabilization of slopes. Timing: Early April 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4)*	• At least 3 ecologically suitable species growing onsite to promote species diversity. • Less than 25% cover bare soil per plot. • Total desirable vegetation species cover (natural regeneration or seeded) and litter greater than 75% cover per plot (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). • Vegetation health (rated on a scale of 1 to 4) does not decrease by more than one rating (described below) from control locations(s): 1. Healthy with no signs of stress of decrease in vigour. 2. Less than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease).

Closure Objective	Closure Options	Closure Criteria
	future use	3. Greater than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 4. Plants are diseased or dying. • No increase in density or distribution of weeds (Appendix 1) per plot compared to the adjacent native reference area(s). Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate. Reference area(s) will be established within the adjacent native vegetation community to compare onsite and offsite vegetation conditions.
PM-2		
At closure: • The site will achieve long-term physical stability, no unnatural impediments to drainage, and safe use with the surrounding area. • The site will support early successional native vegetation characteristic of the surrounding adjacent native land use (Liard Upland Mid-boreal Ecoregion of	**Remove above-ground infrastructure** Remove tap, piping, and valve. -Timing: By end of March 2026 *Applicable Closure Principles:* *(1) physical stability, (3) no long-term active care, and (4) future use*	• Above ground pipeline equipment has been removed and disposed at an appropriate facility.
	Waste Disposal All wastes generated during the Project are disposed of in a licensed facility as per the Waste Management Plan.	• No wastes or construction materials at site.

Closure Objective	Closure Options	Closure Criteria
the Taiga Plains Ecological Region [Ecosystem Classification Group 2007] zonal upland site). Due to wood bison presence in this area, early successional native vegetation may not include many woody-species. Should wood bison grazing result in the site maintaining a grassland or shrubland structural stage, the site will still be considered successfully reclaimed. Total reclaimed area (soil disturbance and TWS) assumed to be approximately 2,260 m^2. Using a 30 m x 30 m grid, approximately 4 onsite plots would be established, and 1 offsite reference plot would be established to monitor landscape, soil, and vegetation criteria.	Materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g., garbage, matting, fencing, etc.). -Timing: By end of March 2026 *Applicable Closure Principles:* *(3) no long-term active care, and (4) future use*	

	Return the landscape to contours compatible with adjacent native land uses, ensuring slope and soil stability is maintained.
	
	-Timing: By end of March 2026 and to be verified through the PCM program.
	
	Applicable Closure Principles:
	
	(1) physical stability
	
	(3) no long-term active care, and (4) future use
		• Contour/Grade and drainage re-establishment:
		  o Surface contours match the surrounding landscape.
		  o Un-natural ponding is not observed on- or up gradient from the site.
		• Microtopography:
		  o No evidence of subsidence that is affecting drainage, vegetation establishment or is a physical hazard to humans or wildlife.
		  o No evidence of rutting caused by construction that is altering drainage or vegetation establishment, resulting in bare ground.
		• Erosion:
		  o No erosion beyond typical erosion

Closure Objective	Closure Options	Closure Criteria
		observed in adjacent areas. o No visibly unstable slopes. o No sedimentation due to the Project. • Surface stoniness or debris: o Stoniness is rated on a scale from S0 to S5. There should be no S4 or S5 ratings, unless adjacent lands are similar (Appendix 1). o CWD is at a density that is not restricting vegetation establishment from reaching 75% cover (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). o Mulch depth does not exceed 5 cm, unless there are no effects on vegetation establishment. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Soil is capable of supporting the desirable vegetation community. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:*	• No compaction causing vegetation to not meet vegetation closure criteria. • No admixing causing vegetation to not meet vegetation closure criteria.

Closure Objective	Closure Options	Closure Criteria
	(1) physical stability *(3) no long-term active care, and (4) future use*	• Topsoil depth should be within 60% of control locations, unless no effects to vegetation establishment are observed. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Natural regeneration No seeding recommended for revegetation because no steep slopes, no observed weeds, and seed bank will be maintained. -Timing: By end of March 2026 and to be verified through the PCM program, which is plot based for vegetation. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• At least 3 ecologically suitable species growing onsite. • Less than 25% cover bare soil per plot. • Total desirable vegetation species cover (natural regeneration or seeded) and litter greater than 75% cover per plot (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). • Vegetation health (rated on a scale of 1 to 4) does not decrease by more than one rating from control locations(s): 1. Healthy with no signs of stress of decrease in vigour. 2. Less than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 3. Greater than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease).

Closure Objective	Closure Options	Closure Criteria
		4. Plants are diseased or dying. • No increase in density or distribution of weeds (Appendix 1) per plot compared to the adjacent native reference area(s). Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate. Reference area(s) will be established within the adjacent native vegetation community to compare onsite and offsite vegetation conditions.
PM-3		
At closure: • The site will achieve long-term physical stability, no unnatural impediments to drainage, and safe use with the surrounding area. • The site will support early successional native vegetation characteristic of the surrounding adjacent native land use (Liard Upland Mid-boreal Ecoregion of the Taiga Plains Ecological Region [Ecosystem Classification Group 2007] zonal upland site). Due to wood bison presence in this area,	**Remove above-ground infrastructure** Remove riser piping and valve -Timing: By end of March 2026 *Applicable Closure Principles:* *(1) physical stability, (3) no long-term active care, and (4) future use*	• Above ground pipeline equipment has been removed and disposed at an appropriate facility.
	Waste Disposal All wastes generated during the Project are disposed of in a licensed facility as per Waste Management Plan. Materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g., garbage, matting, fencing, etc.).	• No wastes or construction materials at site.

Closure Objective	Closure Options	Closure Criteria
early successional native vegetation may not include many woody-species. Should wood bison grazing result in the site maintaining a grassland or shrubland structural stage, the site will still be considered successfully reclaimed. Total reclaimed area (soil disturbance and TWS) assumed to be approximately 2,130 m^2. Using a 30 m x 30 m grid, approximately 4 onsite plots would be established, and 1 offsite reference plot would be established to monitor landscape, soil, and vegetation criteria.	-Timing: By end of March 2026 *Applicable Closure Principles:* *(3) no long-term active care, and (4) future use*	

	Return the landscape to contours compatible with adjacent native land uses, ensuring slope and soil stability is maintained.
	
	-Timing: By end of March 2026 and to be verified through the PCM program.
	
	Applicable Closure Principles:
	
	(1) physical stability
	
	(3) no long-term active care, and (4) future use
		• Contour/Grade and drainage re-establishment:
		  o Surface contours match the surrounding landscape.
		  o Un-natural ponding is not observed on- or up gradient from the site.
		• Microtopography:
		  o No evidence of subsidence that is affecting drainage, vegetation establishment or is a physical hazard to humans or wildlife.
		  o No evidence of rutting caused by construction that is altering drainage or vegetation establishment, resulting in bare ground.
		• Erosion:
		  o No erosion beyond typical erosion observed in adjacent areas.
		  o No visibly unstable slopes.

Closure Objective	Closure Options	Closure Criteria
		○ No sedimentation due to the Project. • Surface stoniness or debris ○ Stoniness is rated on a scale from S0 to S5. There should be no S4 or S5 ratings, unless adjacent lands are similar (Appendix 1). ○ If present, CWD is at a density that is not restricting vegetation establishment from reaching 75% cover (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). ○ If present, mulch depth does not exceed 5 cm, unless there are no effects on vegetation establishment. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Achieve soil quality capable of supporting desirable vegetation community. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability*	• No compaction causing vegetation to not meet vegetation closure criteria. • No admixing causing vegetation to not meet vegetation closure criteria. • Topsoil depth should be within 60% of control locations, unless no effects to vegetation establishment are observed.

Closure Objective	Closure Options	Closure Criteria
	(3) no long-term active care, and (4) future use	Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Natural regeneration No seeding recommended for revegetation because no steep slopes, no observed weeds, and seed bank will be maintained. -Timing: By end of March 2026 and to be verified through the PCM program, which is plot based for vegetation. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• At least 3 ecologically suitable species growing onsite. • Less than 25% cover bare soil per plot. • Total desirable vegetation species cover (natural regeneration or seeded) and litter greater than 75% cover per plot (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). • Vegetation health (rated on a scale of 1 to 4) does not decrease by more than one rating from control locations(s): 1. Healthy with no signs of stress of decrease in vigour. 2. Less than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 3. Greater than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 4. Plants are diseased or dying. • No increase in density or distribution of weeds (Appendix 1) per plot compared to

Closure Objective	Closure Options	Closure Criteria
		the adjacent native reference area(s). Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate. Reference area(s) will be established within the adjacent native vegetation community to compare onsite and offsite vegetation conditions.
PM-4		
At closure: • The site will achieve long-term physical stability, no unnatural impediments to drainage, and safe use with the surrounding area. • The site will support early successional native vegetation characteristic of the surrounding adjacent native land use (Liard Upland Mid-boreal Ecoregion of the Taiga Plains Ecological Region [Ecosystem Classification Group 2007] swamp wetland). Total reclaimed area (soil disturbance and TWS) assumed to be approximately 1,910 m^2. Using a 30 m x 30 m grid, approximately 4 onsite plots would be established, and 1 offsite reference plot	**Remove above-ground infrastructure** Remove riser piping and valve -Timing: By end of March 2026 *Applicable Closure Principles:* *(1) physical stability, (3) no long-term active care, and (4) future use*	• Above ground pipeline equipment has been removed and disposed at an appropriate facility.
	Waste Disposal All wastes generated during the Project are disposed of in a licensed facility as per Waste Management Plan. Materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g., garbage, matting, fencing, etc.). -Timing: By end of March 2026 *Applicable Closure Principles:* *(3) no long-term active care, and (4)*	• No wastes or construction materials at site.

Closure Objective	Closure Options	Closure Criteria
would be established to monitor landscape, soil, and vegetation criteria.	*future use*	
	Return the landscape to contours compatible with adjacent native land uses, ensuring slope and soil stability is maintained. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• Contour/Grade and drainage re-establishment: o Surface contours match the surrounding landscape. o Un-natural ponding is not observed on- or up gradient from the site. • Microtopography: o No evidence of subsidence that is affecting drainage, vegetation establishment or is a physical hazard to humans or wildlife. o No evidence of rutting caused by construction that is altering drainage or vegetation establishment, resulting in bare ground. • Erosion: o No erosion beyond typical erosion observed in adjacent areas. o No visibly unstable slopes. o No sedimentation due to the Project.

Closure Objective	Closure Options	Closure Criteria
		• Surface stoniness or debris: o Stoniness is rated on a scale from S0 to S5. There should be no S4 or S5 ratings, unless adjacent lands are similar (Appendix 1). o If present, CWD is at a density that is not restricting vegetation establishment from reaching 75% cover (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). o If present, mulch depth does not exceed 5 cm, unless there are no effects on vegetation establishment. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Soil is capable of supporting the desirable vegetation community. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• No compaction causing vegetation to not meet vegetation closure criteria. • No admixing causing vegetation to not meet vegetation closure criteria. • Topsoil depth should be within 60% of control location, unless no effects to vegetation establishment are observed. Should any of these criteria not be met,

Closure Objective	Closure Options	Closure Criteria
		mitigation and/or further monitoring will be recommended where appropriate.
	Natural regeneration No seeding recommended for revegetation because no steep slopes, no observed weeds, and seed bank will be maintained. -Timing: By end of March 2026 and to be verified through the PCM program, which is plot based for vegetation. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• At least 3 ecologically suitable species growing onsite. • Less than 25% cover bare soil per plot. • Total surface water, desirable vegetation species cover (natural regeneration or seeded) and litter greater than 75% cover per plot (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). • Vegetation health (rated on a scale of 1 to 4) does not decrease by more than one rating from control locations(s): 1. Healthy with no signs of stress of decrease in vigour. 2. Less than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 3. Greater than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 4. Plants are diseased or dying. • No increase in density or distribution of

Closure Objective	Closure Options	Closure Criteria
		weeds (Appendix 1) per plot compared to the adjacent native reference area(s). Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate. Reference area(s) will be established within the adjacent native vegetation community to compare onsite and offsite vegetation conditions.
PM-4A		
At closure: • The site will achieve long-term physical stability, no unnatural impediments to drainage, and safe use with the surrounding area. • The site will support early successional native vegetation characteristic of the surrounding adjacent native land use (Liard Range Mid-boreal boreal-subalpine Ecoregion of the Cordillera Ecological Region [Ecosystem Classification Group 2010] swamp wetland). Total reclaimed area (soil disturbance and TWS) assumed to be approximately 4,020	**Remove exposed section of pipe** -Timing: By end of March 2026 *Applicable Closure Principles:* *(1) physical stability, (3) no long-term active care, and (4) future use*	• Exposed pipe has been removed and disposed. Remaining pipe to be abandoned in-place has been cut and capped at both ends.
	Waste Disposal All wastes generated during the Project are disposed of in a licensed facility as per Waste Management Plan. Materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g., garbage, matting, fencing, etc.). -Timing: By end of March 2026 *Applicable Closure Principles:* *(3) no long-term active care, and (4)*	• No wastes or construction materials at site.

Closure Objective	Closure Options	Closure Criteria
m^2. Using a 30 m x 30 m grid, approximately 4 onsite plots would be established, and 1 offsite reference plot would be established to monitor landscape, soil, and vegetation criteria.	*future use*	
	Return the landscape to contours compatible with adjacent native land uses, ensuring slope and soil stability is maintained. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• Contour/Grade and drainage re-establishment: o Surface contours match the surrounding landscape. o Un-natural ponding is not observed on- or up gradient from the site. • Microtopography: o No evidence of subsidence that is affecting drainage, vegetation establishment or is a physical hazard to humans or wildlife. o No evidence of rutting caused by construction that is altering drainage or vegetation establishment, resulting in bare ground. • Erosion: o No erosion beyond typical erosion observed in adjacent areas. o No visibly unstable slopes. o No sedimentation due to the Project.

Closure Objective	Closure Options	Closure Criteria
		• Surface stoniness or debris: o Stoniness is rated on a scale from S0 to S5. There should be no S4 or S5 ratings, unless adjacent lands are similar (Appendix 1). o If present, CWD is at a density that is not restricting vegetation establishment from reaching 75% cover (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). o If present, mulch depth does not exceed 5 cm, unless there are no effects on vegetation establishment. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Soil is capable of supporting the desirable vegetation community. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• No compaction causing vegetation to not meet vegetation closure criteria. • No admixing causing vegetation to not meet vegetation closure criteria. • Topsoil depth should be within 60% of control location depth, unless no effects to vegetation establishment are observed. Should any of these criteria not be met,

Closure Objective	Closure Options	Closure Criteria
		mitigation and/or further monitoring will be recommended where appropriate.
	Natural regeneration of Project footprint No seeding recommended for revegetation because no steep slopes, no observed weeds, and seed bank will be maintained. -Timing: By end of March 2026 and to be verified through the PCM program, which is plot based for vegetation. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• At least 3 ecologically suitable species growing onsite. • Less than 25% cover bare soil per plot. • Total surface water, desirable vegetation species cover (natural regeneration or seeded) and litter greater than 75% cover per plot (or cover that is comparable to adjacent lands, where adjacent lands have <75% cover). • Vegetation health (rated on a scale of 1 to 4) does not decrease by more than one rating from control locations(s): 1. Healthy with no signs of stress of decrease in vigour. 2. Less than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 3. Greater than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 4. Plants are diseased or dying. • No increase in density or distribution of

Closure Objective	Closure Options	Closure Criteria
		weeds (Appendix 1) per plot compared to the adjacent native reference area(s). Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate. Reference area(s) will be established within the adjacent native vegetation community to compare onsite and offsite vegetation conditions.
Test Lead Posts		
At closure: • The site will achieve long-term physical stability, no unnatural impediments to drainage, and safe use with the surrounding area. • The site(s) will support early successional native vegetation characteristic of the surrounding adjacent native land use. Total reclaimed area (soil disturbance and TWS) assumed to be approximately 100 m^2 for each test lead post. Using a 30 m x 30 m grid, approximately 1 onsite plot would be established, and 1 offsite reference plot would be established to monitor landscape, soil, and vegetation criteria. Where variable conditions are encountered at Test lead Post sites, additional onsite plots may be	**Remove the above-ground test lead posts, where feasible** -Timing: By end of March 2026 *Applicable Closure Principles:* *(1) physical stability, (3) no long-term active care, and (4) future use*	• Above ground test lead posts have been removed, where feasible, and disposed at an appropriate facility.
	Waste Disposal All wastes generated during the Project are disposed of in a licensed facility as per Waste Management Plan. Materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g., garbage, matting, fencing, etc.). -Timing: By end of March 2026 *Applicable Closure Principles:* *(3) no long-term active care, and (4)*	• No wastes or construction materials at site.

Closure Objective	Closure Options	Closure Criteria
warranted.	*future use*	
	Return the landscape to contours compatible with adjacent native land uses, ensuring slope and soil stability is maintained. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• Contour/Grade and drainage re-establishment: o Surface contours match the surrounding landscape. o Un-natural ponding is not observed on- or up gradient from the site. • Microtopography: o No evidence of subsidence that is affecting drainage, vegetation establishment or is a physical hazard to humans or wildlife. o No evidence of rutting caused by construction that is altering drainage or vegetation establishment, resulting in bare ground. • Erosion: o No erosion beyond typical erosion observed in adjacent areas. o No visibly unstable slopes. o No sedimentation due to the Project.

Closure Objective	Closure Options	Closure Criteria
		• Surface stoniness or debris: o Stoniness is rated on a scale from S0 to S5. There should be no S4 or S5 ratings, unless adjacent lands are similar (Appendix 1). Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Soil is capable of supporting the desirable vegetation community. -Timing: By end of March 2026 and to be verified through the PCM program. *Applicable Closure Principles:* *(1) physical stability* *(3) no long-term active care, and (4) future use*	• No compaction causing vegetation to not meet vegetation closure criteria. • No admixing causing vegetation to not meet vegetation closure criteria. • Topsoil depth should be within 60% of control location depth, unless no effects to vegetation establishment are observed. Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate.
	Natural regeneration No seeding recommended for revegetation because no steep slopes, no observed weeds, and seed bank will be maintained. -Timing: By end of March 2026 and to be verified through the PCM program, which is plot based for vegetation.	• At least 1 ecologically suitable species growing onsite. • Less than 25% cover bare soil per plot. • Total surface water, desirable vegetation species cover (natural regeneration or seeded) and litter greater than 75% cover per plot (or cover that is comparable to adjacent lands, where adjacent lands have

Closure Objective	Closure Options	Closure Criteria
	Applicable Closure Principles: *(1) physical stability* *(3) no long-term active care, and (4) future use*	<75% cover). • Vegetation health (rated on a scale of 1 to 4) does not decrease by more than one rating from control locations(s): 1. Healthy with no signs of stress of decrease in vigour. 2. Less than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 3. Greater than 25% of plants show signs of decreased health (changes in colour, or signs of stress or disease). 4. Plants are diseased or dying. • No increase in density or distribution of weeds (Appendix 1) per plot compared to the adjacent native reference area(s). Should any of these criteria not be met, mitigation and/or further monitoring will be recommended where appropriate. Reference area(s) will be established within the adjacent native vegetation community to compare onsite and offsite vegetation conditions.

In general, successful reclamation will be defined as achieving a final site condition that is similar to a representative area off the Project construction footprint. Representative areas will be identified by Westcoast in consultation with an Environmental Consultant.

5.2.4 Predicted Residual Effects

The assessment team completed a determination of significance for the predicted residual effects based on a qualitative evaluation of all assessment criteria for each residual effect, which is referred to as a qualitative aggregation method (Canadian Environmental Assessment Agency 2018a) (Jacobs 2022a). Qualitative significance determinations incorporate professional judgement, which allows for the integration of all effects criteria ratings to provide relevant significance conclusions that are sensitive to context and that facilitate decision-making (Lawrence 2007). The assessment team consisted of discipline experts, experienced assessment practitioners, and senior reviewers. Since physical abandonment activities are similar in nature to routine pipeline construction activities, the evaluation of significance benefited from review of select PCM reports from previous projects either completed in proximity to the Project, or where the Project encountered similar issues, for relevant residual effects (Jacobs 2022a).

The Project is not anticipated to result in significant environmental or socio-economic effects, nor result in any significant negative residual impact.

5.2.5 Uncertainties & Contingencies

The Project is a relatively small-scale abandonment project that includes reclamation. As a result, there are limited uncertainties and contingencies. Notable uncertainties and contingencies include:

- Forest fire season: A severe forest fire season may delay or prevent the Project from occurring. A severe fire season could impact the Project footprint or draw resources, such as construction equipment, needed for the Project.
- Water bans/drought: Continued drought conditions may prevent Westcoast from using water for ice/winter road construction. This could result in a delay to the Project. Low water may also prevent Westcoast from using barging to stage equipment.
- Natural regeneration: Natural regeneration is the preferred revegetation method for most locations of ground disturbance on the Project. Should the results of the PCM indicate that natural regeneration is not resulting in revegetation at a specific location, it will be seeded. Local or northern seed sources will be prioritized for reclamation.

Slumping: If Westcoast determines that any slopes or banks leading to watercourses are unstable, the banks will be reshaped to prevent slumping. Once the banks are reshaped, temporary erosion control measures will be installed and inspected daily with any required repairs completed before the end of the day. Unstable soils and/or site-specific factors such as stream velocity and flow direction may require additional reclamation efforts, such as installation of rock rip-rap, to stabilize disturbed stream bed/banks. Rock rip-rap will only be used where site-specific conditions require

and where Westcoast has acquired applicable permits or approvals. Soil remediation: The enhanced thermal conductance (ETC) process has been evaluated to confirm suitability with the type of contamination present and the weather conditions expected. This technology has been proven effective for the contaminants at PM-1. The ETC system is scalable and if the treatment time is forecasted to extend beyond the initial 1-month timeframe, additional treatment cells can be added to accelerate the timeframe.

- Groundwater remediation: Remediation of the soil contamination is expected to result in remediation of the groundwater contamination on the Project. Should the results of the post-remediation groundwater monitoring indicate that groundwater impacts remain, alternate remedial options (e.g., monitored natural attenuation, risk assessment) will be evaluated and monitoring will continue until groundwater meets applicable guidelines.

Under the CER Act and regulations, Westcoast remains responsible for pipelines abandoned in place. The CER requires pipeline companies to set aside funds for long-term monitoring and unforeseen events and requires pipeline companies to periodically monitor pipelines abandoned in place.

6.0 Progressive Reclamation

The Project is an abandonment and reclamation project and as such progressive reclamation is not applicable.

7.0 Temporary Closure

As this facility is no longer operating, there is no prospect for temporary closure.

8.0 Integrated Schedule of Activities

Mobilization will commence in Q3 2025 with abandonment activities occurring through the winter. Final reclamation will begin upon the completion of construction activity. No buildings, equipment, or waste will remain beyond the expiration date of the permits. Project activities are planned to generally follow the schedule outlined in the attached Gantt chart (Appendix 4).

9.0 Post-Closure Site Assessment

9.1.1 Follow up and Monitoring

Following completion of physical abandonment activities, Westcoast will conduct PCM for a period of 7 years to ascertain if vegetation regrowth is on an appropriate trajectory to successfully meet equivalent land capability, and implement correction measures as needed through adaptive management. Assessments are planned in years 1, 3, 5 and 7 of the 7-year program. Should the closure criteria not be met at year 7, further corrective actions will be required. Following year 7, if necessary, PCM will continue every 2 years, or as appropriate, to monitor the success of the

corrective actions or remedial measures, until the closure criteria are met. Full assessment methodology will be provided in the PCM report, which will also act as the Performance Assessment Report to adhere to the Guideline for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB and AANDC 2013). The purpose of the reclamation monitoring phase of the Project is to:

- assess the effectiveness of environmental protection measures implemented during physical abandonment activities;
- review the success of re-establishing equivalent land capability at areas disturbed during physical abandonment activities; and
- document any corrective actions or opportunities for improvement on future projects.

Land reclamation success will be measured against adjacent site conditions (i.e., control locations) by assessing parameters and using the criteria outlined in Table 5. Following the first, third, fifth, and seventh full growing seasons after final clean-up, monitoring will include:

- inspecting areas disturbed using ground reconnaissance to capture previously unidentified environmental issues;
- evaluating the natural recovery of lands disturbed during physical abandonment activities;
- assessing the effectiveness of mitigation practices used during physical abandonment activities;
- evaluating the recovery of ecological function of wetlands disturbed during physical abandonment activities;
- recommending further remedial measures, if warranted, to be implemented to address outstanding environmental issues; and
- restoring disturbed areas to self-sustaining ecosystems that are compatible with adjacent native land uses.

In addition, long-term monitoring of the pipeline ROW is planned to account for the remote possibility of issues arising following completion of the PCM program. The PCM Plan may be developed as soon as the end of June 2026. The existing pipeline ROW that will be used for temporary access, and the existing trail that will be used for temporary access will be monitored via helicopter overflights following completion of physical abandonment activities as part of the PCM program. If potential issues, as bulleted in the paragraph below (e.g. Construction Activity…), are observed during overflights, and the potential issues appear to cause Westcoast to not meet the Closure Criteria in Table 5, a ground-based survey will be triggered to verify if further reclamation is required. If no potential issues are observed during overflights, no ground-based assessment will be conducted.

Westcoast is committed to meeting CER and CSA Z662 Clause 10.6.1.1 requirements for post-

abandonment monitoring and care, and requirements set out in Order ZO-003-2024 pursuant to subsection 241 (1) of the CER Act to Westcoast as authorization for the Project. Westcoast will conduct regular patrols to observe and address, at minimum, the following:

- Construction Activity
- Dredging Operations
- Erosion
- Evidence of Leaks
- Ice Effects
- Loss of Cover
- Scour
- Seismic Activity
- Soil Slides
- Subsidence
- Unauthorized Activities (UAs)

No wildlife monitoring is planned to occur post-closure. Should wildlife monitoring be a regulatory or stakeholder requirement, wildlife monitoring will be incorporated into the PCM Plan. Thresholds for determining when and what remedial activities will be required will be outlined in the PCM plan that will be developed after the completion of abandonment activities.

10.0 Financial Security

Westcoast will post and maintain a security deposit with the Minister of Indigenous and Northern Affairs Canada that provides direct, unencumbered access to the full amount and in a form that will retain its full value throughout the Project and throughout post-closure monitoring. Westcoast has an existing security deposit in the amount of $30,000 for its ROW license (095B04001).

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Appendix 1: Closure Criteria Categories

Surface Stoniness and Debris

- S0 (non-stony) – No stones or few stones are present with no interference with land use (stones are less than 0.01% of the surface, and greater than 25 m apart).
- S1 (slightly stony) – Stones comprise 0.01 to 0.1% of surface, are 8 to 25 m apart, and have little to slight potential for interference with land use.
- S2 (moderately stony) – Stones comprise 0.1 to 3% of surface, are 1 to 8 m apart, and have slight to moderate potential for interference with land use.
- S3 (very stony) – Stones comprise 3 to 15% of surface, are 0.5 to 1 m apart, and have moderate to high potential for interference with land use.
- S4 (exceedingly stony) – Stones comprise 15 to 50% of surface, are 0.1-0.5 m apart, and have high potential for interference with land use and require clearing prior to any cultivation.
- S5 (excessively stony) – Stones greater than 50% of surface and are less than 0.1 m apart. Stones prevent any cultivation and are often in the form of boulder or stone pavement.

Source: Government of Canada. n.d. "Surface Stoniness Class." *National Soil Database.* Agriculture and Agri-Food Canada. Last Modified: June 25, 2013. Accessed [day] March 2025. https://sis.agr.gc.ca/cansis/nsdb/dss/v3/cmp/stoniness.html.

**surface stones or debris can often be beneficial to reclamation in forested regions, creating microsites or aiding in stability. Can be a concern if density of stones or debris (e.g., coarse woody debris) is too high, restricting vegetation establishment.

Weed Distribution Classes

Code	Rating	Description of Abundance in Polygon	Distribution
0	N/A	None	
1	Low	Rare	
2		A few sporadically occurring individual plants	
3		A single patch	
4		A single patch plus a few sporadically occurring plants	
5	Moderate	Several sporadically occurring plants	
6		A single patch plus several sporadically occurring plants	
7		A few patches	
8		A few patches plus several sporadically occurring plants	
9		Several well-spaced patches	
10	High	Continuous uniform occurrences of well-spaced plants	
11		Continuous occurrence of plants with a few gaps in the distribution	
12		Continuous dense occurrence of plants	
13		Continuous occurrence of plants with a distinct linear edge in the polygon	

Source: Adapted from Adams, B.W., G. Ehlert, C. Stone, M. Alexander, D. Lawrence, M. Willoughby, D. Moisey, C. Hincz, A. Burkinshaw, J. Richman, K. France, C. DeMaere, T. Kupsch, T. France, T. Broadbent, L. Blonski, A. Miller. 2016. *Rangeland Health Assessment for Grassland, Forest and Tame Pasture*. Alberta Environment and Parks, Rangeland Resource Stewardship Section. pp. 156.

Weed Density Classes

Density Code	Definition
1	< 1 plant/m^2
2	2-5 plants/m^2
3	6-10 plants/m^2
4	> 10 plants/m^2

Source: British Columbia Ministry of Forests and Range (BC MFR). 2010. *Invasive Alien Plant Program Reference Guide*. 77 pp.

Notes:
> = greater than
< = less than
m^2 = square metre(s)

Appendix 2: Phase I ESA

Appendix 3: PM-1 Remedial Action Plan

Post-Remedial Excavation Groundwater Monitoring

Pre-Remediation Groundwater Conditions

Four groundwater monitoring wells were installed to investigate groundwater flow and quality (PM1_24MW-4R, PM-1_24MW-5, PM-1_24MW-8, and PM1_24MW-11) (Jacobs 2024). PM-1_24MW-8 was installed within the future excavation area, between the generator shack and ASTs, near the deepest identified soil contamination. PM-1_24MW-4R and PM-1_24MW-11 were installed on the eastern and western sides of the PM-1 site, respectively. PM1_24MW-5 was installed to the southeast, downgradient of the PM-1 site infrastructure.

Groundwater was encountered between 0.84 and 1.96 mbgs, in a clay soil unit (Jacobs 2024). Recharge in the wells was slow, consistent with clay units and hydraulic conductivity data for the Paramount Resources Ltd. site to the northeast (Advisian 2018). Groundwater was inferred to flow east-southeast, consistent with local topography. The horizontal gradient was approximately 0.02 metre per metre (Jacobs 2024).

Groundwater samples from the four monitoring wells were submitted and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), petroleum hydrocarbon (PHC) fraction (F)1 to F4, and polycyclic aromatic hydrocarbons (PAHs) (Jacobs 2024). Concentrations of BTEX, PHC F1 to F4, and PAHs were less than the applicable Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines (WQGs) for the Protection of Agricultural Water Uses, CCME WQGs for the Protection of Aquatic Life, CCME Canadian Groundwater Quality Guidelines for the Protection of Human Health, Environment and Climate Change Canada (ECCC) Federal Environmental Quality Guidelines (FEQGs) Freshwater and Groundwater, Tier 1 Federal Contaminated Sites Action Plan (FCSAP) Federal Interim Groundwater Quality Guidelines (FIGQGs), and Health Canada Guidelines for Canadian Drinking Water Quality (CDWQs) guidelines, except for:

- Naphthalene in PM-1_24MW-8 (2.78 milligrams per litre [mg/L]) exceeded the CCME (1.1 mg/L) and Tier 1 FCSAP FIGQG (1.1 mg/L) guidelines.
- PHC F2 in PM-1_24MW-8 (7,460 mg/L) exceeded the Tier 1 FCSAP FIGQG (1,300 mg/L) guideline.

PM-1-24MW-8 is screened from 1.5 to 3.0 mbgs, and vertical delineation of groundwater impacts was not achieved due to refusal during the drilling activities. The low permeability of the clay will likely limit the vertical migration of contamination. The perimeter wells did not identify concentrations of contaminants of potential concern above the applied guidelines. Because of the low permeability, groundwater impacts are not expected to extend past the area of soil impacts. The data from the Paramount Resources Ltd. site (Advisian 2018). to the northeast does not indicate an overlap in impacts between the PM-1 site and Paramount Resources Ltd. site.

Post-Remediation Groundwater Monitoring and Closure Criteria

Westcoast intends to complete groundwater monitoring within the excavation extent and in the

periphery. New monitoring wells will be installed in up to two locations within the excavation extent to confirm remediation of the identified contamination. Three existing and two new monitoring wells, located on the cross gradient and downgradient sides of the excavation will be used to confirm if residual groundwater impacts remain after completion of the soil remediation. Table A3-1 provides the locations of the existing and planned PM-1 site monitoring wells.

Table A3-1. PM-1 Site Monitoring Well Locations

Monitoring Well ID	Status	Easting	Northing	Screened Interval	Purpose
PM-1_24MW-4R	Active	454485.0	6695901.5	1.5-3.0 mbgs	Groundwater monitoring at excavation area periphery
PM-1_24MW-5	Active	454480.3	6695884.2	0.7-2.2 mbgs	
PM-1_24MW-8	Active[a]	454460.4	6695900.8	0.9-2.4 mbgs	Groundwater monitoring within excavation area
PM-1_24MW-11	Active	454449.9	6695891.6	1.5-3.0 mbgs	Groundwater monitoring at excavation area periphery
PM-1_26MW-12A	Planned[b]	454464.4	6695897.1	1.5-3.0 mbgs	Replacement of PM-1_24MW-8
PM-1_26MW-12B	Planned[b]			4.5-6.0 mbgs	Groundwater monitoring at excavation area periphery
PM-1_26MW-13A	Planned[b]	454474.5	6695896.1	1.5-3.0 mbgs	
PM-1_26MW-13B	Planned[b]			4.5-6.0 mbgs	
PM-1_26MW-14	Planned[b]	454465.8	6695888.0	1.5-3.0 mbgs	Groundwater monitoring at excavation area periphery
PM-1_26MW-15	Planned[b]	454482.9	6695892.3	1.5-3.0 mbgs	

[a] Well PM-1_24MW-8 will be decommissioned during the remedial excavation.
[b] Planned locations are subject to change based on field conditions, final remediation extent, and SME guidance.

Note:
mbgs = metre(s) below ground surface

A minimum of two post-remediation groundwater sampling events will be conducted to confirm groundwater closure criteria have been met. Closure criteria will be met when groundwater COPC concentrations are below the applicable federal and territorial guidelines, as follows and presented in Table A3-2:

- Canadian Council of Ministers of the Environment (CCME) Canadian WQGs for the Protection of Agricultural Water Uses (CCME 2024a)
- CCME Canadian WQGs for the Protection of Aquatic Life (CCME 2024b)
- CCME Canadian Groundwater Quality Guidelines for the Protection of Human Health (CCME 2024c)
- CCME Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soi (CCME 2008a, 2008b, 2008c)
- Environment and Climate Change Canada (ECCC) provides Federal Environmental Quality Guidelines (FEQGs) (Government of Canada 2024)
- Federal Contaminated Sites Action Plan (FCSAP) Federal Interim Groundwater Quality Guidelines (FIGQGs) (Government of Canada 2016)
- Health Canada Guidelines for Canadian Drinking Water Quality (CDWQs) (Health Canada 2024)

The first event is planned to be conducted in the late summer or early fall, approximately six months following the soil remediation and backfill of the excavation. This will allow groundwater to return to static conditions following the soil remediation. The second event is planned to be conducted in late summer or early fall of the next year. Conducting groundwater sampling 6 and 18 months post soil remediation will allow for identification of potential residual groundwater impacts. As groundwater is being remediated through removal of the soil (the contaminated soil), more frequent or an extended period of groundwater monitoring is not warranted. Westcoast may elect to conduct the sampling events at shorter intervals. In that case three sampling events may be conducted with each sampling event a minimum 90 days subsequent to the prior event.

Groundwater samples will be analyzed for BTEX, PHC F1 to F3, , naphthalene, phenanthrene, and redox-sensitive metals (specifically, arsenic, chromium, cobalt, copper, iron, lead, manganese, nickel, uranium, vanadium, and zinc).

Should exceedances be identified, alternate remedial options will be evaluated, and monitoring will continue until groundwater meets applicable guidelines.

Table A3-2. PM-1 Site Monitoring Well Locations

Parameter	Closure Criteria	CCME WQG		CDWQ		FCSAP FIGQG						ECCC - FEQG
		AL	FW	AO	MAC	AL CG	AL FG	PL CG	PL FG	IL CG	IL FG	
Benzene	5	NG	370	NG	**5**	88	88	140	2800	88	88	590
Toluene	2	24	**2**	24	60	83	4900	83	82000	83	4900	30
Ethylbenzene	1.6	2.4	90	**1.6**	140	3200	3200	11000	42000	3200	3200	70
Xylenes, Total	20	NG	NG	**20**	90	3900	13000	3900	21000	3900	13000	70
PHC F1	NA	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
PHC F1-BTEX	810	NG	NG	NG	NG	**810**	6500	**810**	6500	**810**	6500	NG
PHC F2	1300	NG	NG	NG	NG	**1300**	1800	**1300**	1800	**1300**	1800	NG
PHC F3	NA	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
1-Methylnaphthalene	180	NG	NG	NG	NG	**180**	**180**	**180**	**180**	**180**	**180**	NG
2-Methylnaphthalene	180	NG	NG	NG	NG	**180**	**180**	**180**	**180**	**180**	**180**	NG
Acenaphthene	5.8	NG	5.8	NG	NG	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	**5.8**	NG
Acenaphthylene	46	NG	NG	NG	NG	**46**	**46**	**46**	**46**	**46**	**46**	NG
Acridine	4.4	NG	**4.4**	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	0.012	NG	**0.012**	NG	NG	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	**0.012**	NG
Benzo(a)anthracene	0.018	NG	**0.018**	NG	NG	**0.018**	**0.018**	**0.018**	**0.018**	**0.018**	**0.018**	NG
Benzo(a)pyrene	0.01	NG	0.015	0.04	NG	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	NG
Benzo(b)fluoranthene	NA	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzo(e)pyrene	NA	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzo(g,h,i)perylene	0.21	NG	NG	NG	NG	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	NG
Benzo(k)fluoranthene	0.48	NG	NG	NG	NG	**0.48**	**0.48**	**0.48**	**0.48**	**0.48**	**0.48**	NG
Chrysene	0.1	NG	NG	NG	NG	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	NG
Dibenzo(a,h)anthra-cene	0.28	NG	NG	NG	NG	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**	NG
Fluoranthene	0.04	NG	0.04	NG	NG	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	NG

Parameter	Closure Criteria	CCME WQG		CDWQ		FCSAP FIGQG						ECCC - FEQG
		AL	FW	AO	MAC	AL CG	AL FG	PL CG	PL FG	IL CG	IL FG	
Fluorene	3	NG	**3**	NG	NG	**3**	**3**	**3**	**3**	**3**	**3**	NG
Indeno(1,2,3-cd)pyrene	0.23	NG	NG	NG	NG	**0.23**	**0.23**	**0.23**	**0.23**	**0.23**	**0.23**	NG
Naphthalene	1.1	NG	**1.1**	NG	NG	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	NG
Perylene	NA	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	0.4	NG	**0.4**	NG	NG	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	NG
Pyrene	0.025	NG	0.025	NG	NG	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	NG
Quinoline	3.4	NG	**3.4**	NG	NG	NG	NG	NG	NG	NG	NG	NG
BaP TPE	NA	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Arsenic	5	25	**5**	NG	10	**5**	**5**	**5**	5	5	5	NG
Chromium, total	8.9	NG	NG	NG	50	**8.9**	**8.9**	**8.9**	**8.9**	**8.9**	**8.9**	NG
Chromium, hexavalent	1	8	**1**	NG	NG	NG	NG	NG	NG	NG	NG	5
Chromium, tirvalent	8.9	4.9	**8.9**	NG	NG	NG	NG	NG	NG	NG	NG	NG
Cobalt	H = 100 = 1 H 52-396 = exp{(0.414[ln(H)] – 1.887}	50	NG	NG	NG	50	50	50	50	50	50	**H = 100 = 1 H 52-396 = exp{(0.414[ln(H)] – 1.887}**
Copper	Calculated	200	**H <82 = 2 H 82-180 = 0.2 * exp{0.8545[ln(H)]-1.465} H >180 = 4**	1000	2000	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**BLM**
Iron	100	5000	300	**100**	NG	300	300	300	300	300	300	110

Parameter	Closure Criteria	CCME WQG		CDWQ		FCSAP FIGQG						ECCC - FEQG
		AL	FW	AO	MAC	AL CG	AL FG	PL CG	PL FG	IL CG	IL FG	
Lead	Calculated	100	**H 0-60 = 1 H >60-180 = exp{1.273[ln (H)]-4.705} H >180 = 7**	NG	**5**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**WQG = exp(0.514[ln (DOC)] + 0.214[ln(H)] + 0.4354)**
Manganese	12	200	WQG = exp(0.878[ln(H)] + 4.76)	20	**12**	200	200	200	200	200	200	NG
Nickel	H 0-60 = 25 H >60-180 = exp{0.76[ln(hardness)]+1 .06} H >180 = 150	200	**H 0-60 = 25 H >60-180 = exp{0.76[ln(hardness)]+ 1.06} H >180 = 150**	NG	NG	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	**CCME FW WQG**	NG
Uranium	10	**10**	15	20	NG	**10**	**10**	**10**	**10**	**10**	**10**	NG
Vanadium	100	**100**	NG	5000	NG	**100**	**100**	**100**	**100**	**100**	**100**	120
Zinc	10	1000	WQG = exp(0.947[ln(H)] - 0.815[pH] + 0.398[ln(DO C)] + 4.625).	NG	NG	**10**	**10**	**10**	**10**	**10**	**10**	NG

Notes:
All units in microgram(s) per litre (µg/L)
AL = Agricultural
AO = Aesthetic Objective
BaP TPE = benzo(a)pyrene total potency equivalents
BLM = WQG calculated using Biotic Ligand Model (BLM) Tool, consult guidance for further information
CCME = Canadian Council of Ministers of the Environment

CDWQ = Health Canada Canadian Drinking Water Quality Guideline
CG = coarse grained
DOC = dissolved organic carbon in mg/L
ECCC FEQG = Environment and Climate Change Canada Federal Quality Guideline
F = fraction
FCSAP FIGQQ = Federal Contaminated Sites Action Plan Federal Interim Groundwater Quality Guidelines
FG = fine grained
FW = Freshwater
H = hardness in mg/L
IACR = index of additive cancer risk
IL = industrial
MAC = Maximum Acceptable Concentration
mg/L = milligram(s) per litre
NA = not applicable
NG = no guideline
PHC = petroleum hydrocarbon
PL = parkland
WQG = Water Quality Guideline

Appendix 4: Gantt Chart

Appendix 5: Seed Mix