

Pine Point Mine Tailings Impoundment Area

Spill Contingency Plan

2017

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1.0 PURPOSE & OBJECTIVES

The purpose of this contingency manual is to minimize health hazards and adverse environmental effects caused by spills, as well as to comply with the Canadian Environmental Protection Act, *Environmental Emergency Regulations*.

This document outlines contingency measures and response strategies for spills of potentially hazardous substances in the Pine Point Tailings area, which may adversely affect the environment, and/or human health and safety. Rapid deployment of emergency personnel and equipment to a spill will both protect the health and safety of employees and public as well as minimize potential effects to the environment.

All Teck Resources Limited (Teck) employees and Contractors working at the Pine Point Mine Tailings Impoundment Area (TIA) should be familiar with this document. New employees and contractors will be introduced to the plan as part of their orientation. Personnel will understand the potentially hazardous situations that spills can create to the health and safety of workers and the environment. They will understand their responsibilities as workers to prevent, identify, report, and appropriately deal with a spill. This document will be available for viewing by all workers. The company will advise workers of revisions or changes to the plan.

The objectives of the manual are:

- To identify potentially hazardous materials located on site.
- To identify spill prevention measures.
- To identify and describe spill response and emergency response measures in the case of an incident.
- To establish a high order of preparedness in the event that a spill occurs.
- To ensure an orderly and timely decision-making, response and reporting process.

2.0 SITE DESCRIPTION

Figure 1 provides a general location map for Pine Point, Figure 2 depicts an area overview of the Tailings Pond area.

The mine operated from the early 1960's until the spring of 1988. Lead/zinc ore from the open pits was trucked to the plant site where it was treated to separate and recover the lead and zinc minerals into two concentrates. Recovery of the minerals was accomplished using a flotation process. The mineral concentrates were generally shipped by rail as they were produced. In the final years of operation stockpiles of concentrate were built to the east and west of the plant site. The tailings from the treatment plant were discharged into the tailings pond located north of the plant site. The processing plant was shut down permanently in the spring of 1988. After shutdown the stockpiles of concentrate were shipped until they were depleted. The site was prepared for abandonment by following the approved Abandonment & Restoration Plan.

The TIA is the only remaining area under lease where annual water treatment and discharge will occur until treatment is no longer required.

Figure 1: General Location Map

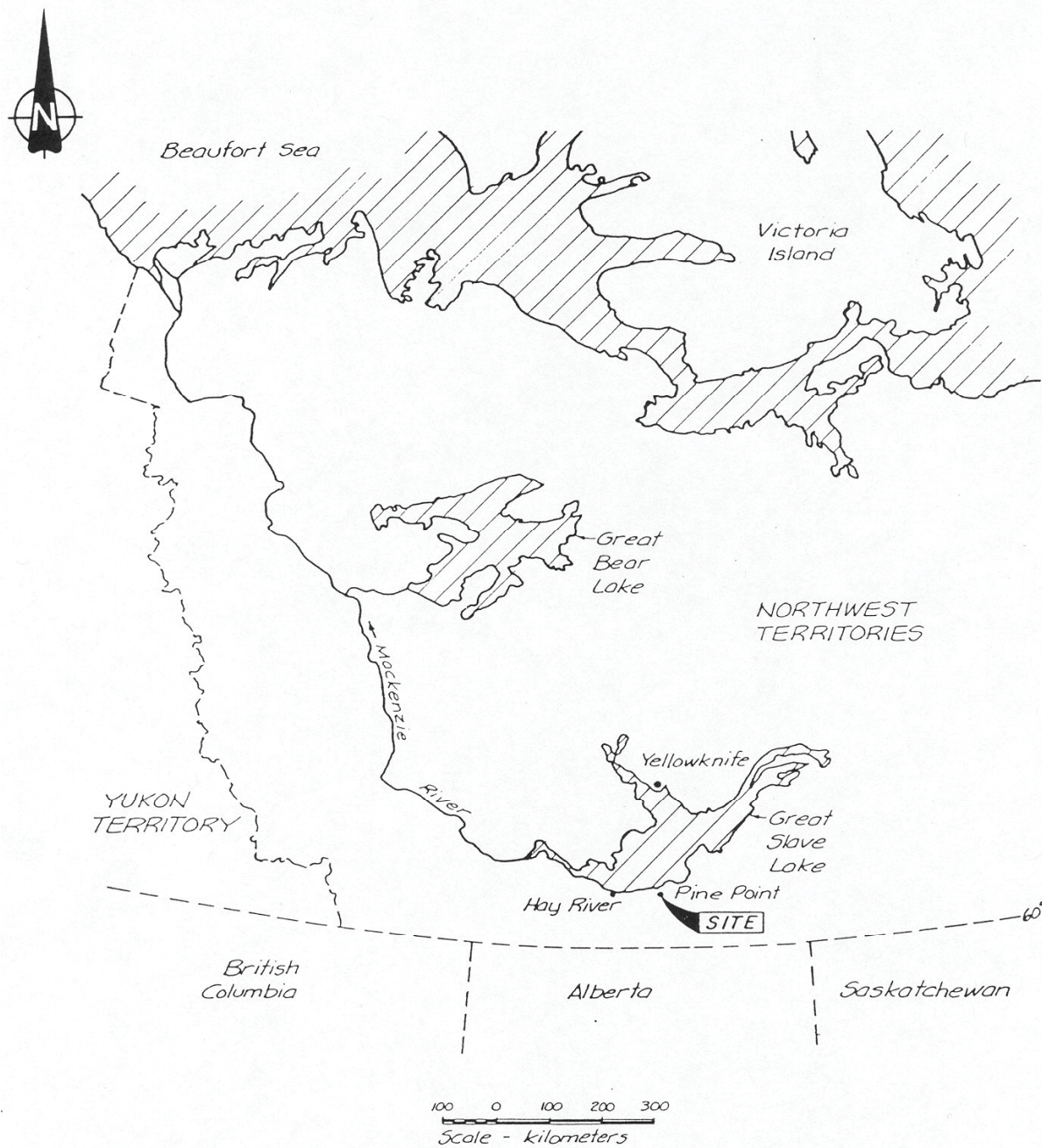
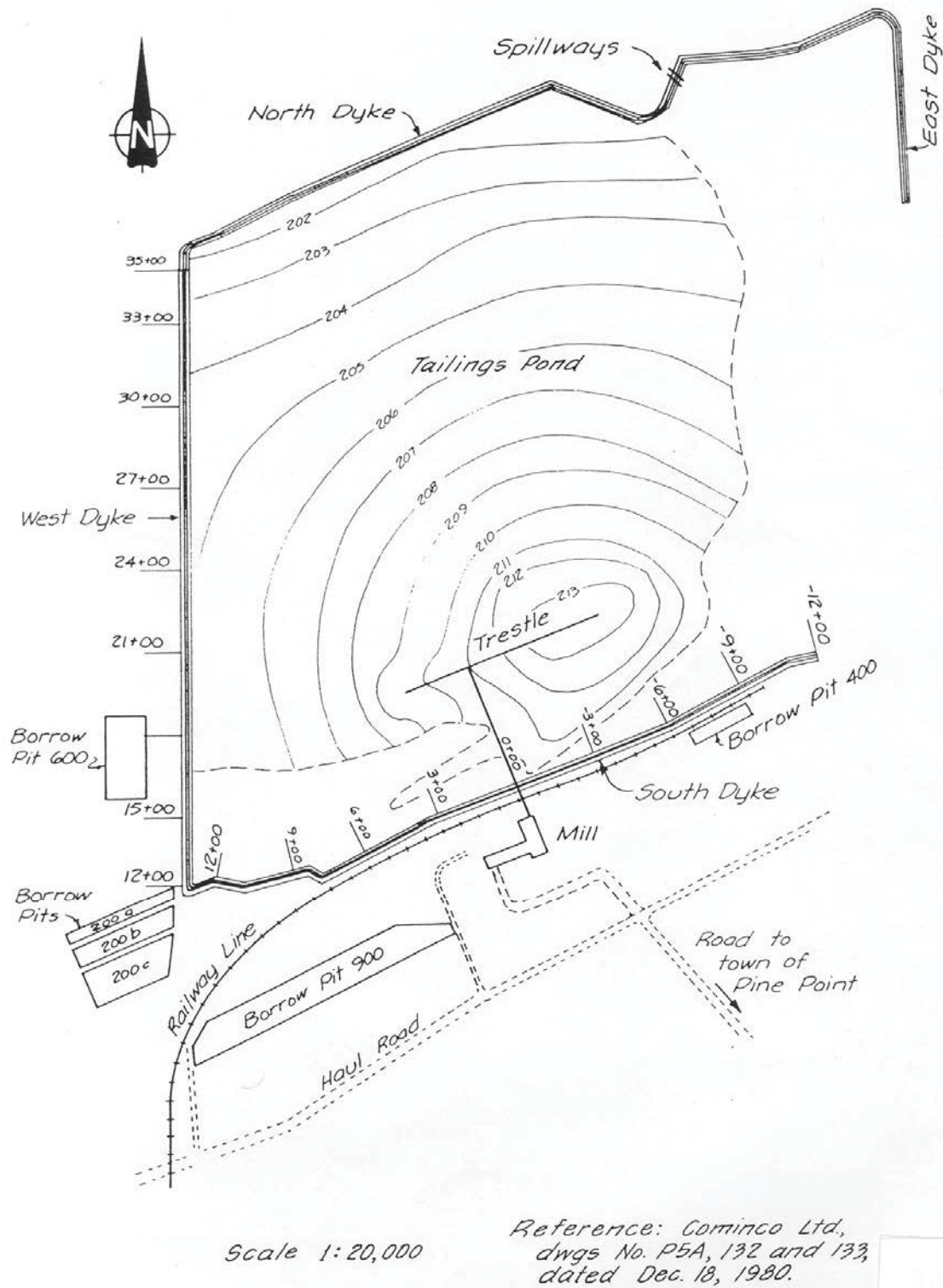


Figure 2: Overview of Tailings Pond Area



3.0 TECK RESOURCE LIMITED'S COMMITMENT TO THE ENVIRONMENT

Teck is committed to advancing environmental protection and providing safe working conditions for employees and contractors. The company recognizes the need to maintain and improve environmental quality on its property. The prevention of deleterious substances from operations entering and impacting the environment is imperative to the Company's long-term future in Canada.

Teck will take an active and aggressive role in minimizing the impact of its operations on the environment by utilizing appropriate technologies and effective management strategies. The company believes that it has a responsibility to develop resources productively and efficiently by applying technologies in a manner that is environmentally responsible.

4.0 GENERAL SPILL CONTINGENCY PLAN

4.1 *RESPONSE ORGANIZATION*

The mine remains permanently closed and therefore there are no personnel on-site except during the summer water treatment period. There are no Hazardous Materials on the site except during the water treatment period. The only possible spills, other than during the water treatment period, would be related to the TIA dykes. In the event of an incident the Site Manager is responsible for coordinating activities.

As the Incident Commander, the Site Manager is responsible for:

- Overall command and control of an incident.
- Establishing response objectives and strategies.
- Providing information to authorities regarding reportable incidents.
- Scheduling meetings to update the response plan.

During the water treatment period, there will be personnel on-site with Hazardous Materials, in relatively small volumes, under their control. In the event of a spill, the personnel would react immediately to a spill and contact the Site Manager.

4.2 REPORTABLE SPILLS

A spill in excess of the following thresholds is considered a spill under the N.W.T. Spill Contingency Planning and Reporting Regulations (N.W.T. Reg. 068-93), pursuant to the Environment Protection Act. In these regulations “Federal Regulations” means the amended Transportation of Dangerous Goods Regulations (International Harmonization Update, 2016) SOR/2016-95.

Table 1: Reportable Spill Quantity of Dangerous Goods

Substance Spilled	Severe Marine Pollutant	TDG Code	Reportable Quantity
Explosives of Class 1 as defined in section 3.9 of the Federal Regulations.		1	Any amount
Flammable gases, of Division 1 of Class 2 as defined in section 3.11 (a) of the Federal Regulations.	Gasoline	2.1	Any amount of gas from a container larger than 100L, or where the spill results from equipment failure, error or deliberate action or inaction.
Non-flammable gases of Division 2 of Class 2 as defined in section 3.11 (d) of the Federal Regulations.		2.2	Any amount of gas from a container larger than 100L, or where the spill results from equipment failure, error or deliberate action or inaction.
Poisonous gases of Division 3 of Class 2 as defined in section 3.11(b) of the Federal Regulations.		2.3	Any amount
Corrosive gases of Division 4 of Class 2 as defined in section 3.11 (c) of the Federal Regulations.		2.4	Any amount
Flammable liquids of Class 3 as defined in section 3.12 of the Federal Regulations.	Diesel	3	200L (Any amount if spilled into a watercourse)
Flammable solids of Class 4 as defined in section 3.15 of the Federal Regulations.		4	25 kg
Products or substances that are oxidizing substances of Division 1 of Class 5 as defined in sections 3.17(a) and 3.18(a) of the Federal Regulations.		5.1	50 kg or 50 L
Products or substances that are organic compounds that contain the bivalent “-O-O-” structure of Division 2 of Class 5 as defined in sections 3.17 (b) and 3.18 (b) of the Federal Regulations.		5.2	1 kg or 1L
Products or substances that are poisons of Division 1 of Class 6 as defined in sections 3.19 (a) to (e) and 3.20 (a) of the Federal Regulations.		6.1	5 kg or 5 L
Organisms that are infectious or that are reasonable believed to be infectious and the toxins of these organisms as defined in sections 3.19(f) and 3.20(b) of the Federal Regulations.		6.2	Any amount
Radioactive materials of Class 7 as defined by section 3.24 of the Federal Regulations.		7	Any discharge or a radiation level exceeding 10 mSv/h at the package surface and 200 mSv/h at 1 m from the package surface.
Products or substances of Class 8 as defined by section 3.24 of the Federal Regulations.		8	5 kg or 5 L
Miscellaneous products or substances of Division 1 of Class 9 as defined by sections 3.27 (1) and 2 (a) of the Federal Regulations.		9	50 kg or 50 L

TDG = Transportation of Dangerous Goods.

4.3 DISCOVERY AND RESPONSE TO SPILLS

The following provides a general response to any spill upon initial discovery. Refer to Appendices A and B for more specific information including spill response procedures and MSDS documents for the particular substances located at the mine site.

Appendix B – **Gasoline**

Appendix C – **Diesel**

FIRST PERSON TO OBSERVE THE SPILL:

Ensure personal and worker safety, if you cannot identify the spilled substance consider it dangerous.

If personnel are injured

- Call for medical help, attend to injured person, and administer first aid if safe to do so.

If Safe

- Stop all sources of ignition and stop or reduce the source flow of the spill.
- Shut off all valves.
- Shut off all electrical power.
- Initiate containment.
- Put down adsorbent pads and berm spill area, if possible.
- Do not enter confined spaces.
- Do not expose self to fire hazard.
- Complete the spill report form and report the spill.

If Unsafe

- Initiate evacuation (upgrade or upwind) – move to safe area.
- Notify Site Manager.
- Isolate area and deny entry until qualified response personnel arrive.
- Deny access to all unauthorized personnel.
- Complete the spill report form and report the spill.
- Update Site Manager on spill status.

4.4 TAILINGS DYKE FAILURE

Risk

The risks to the TIA dykes potentially include:

- Release untreated water if water levels exceed specific elevations, or
- Release water and tailings if one of the dykes were to be breached.

Due to the remote location of the TIA, the release of water and/or tailings are not a significant risk to human health or safety. There are no dwellings close to the area and only rarely are individuals present close enough to the dykes that a sudden release of tailings or water would represent a risk. Release of the tailings pond effluent and tailings would have minimal environmental impact in the short term and in the longer term mitigation strategies (such as relocating tailings back into the TIA and reconstructing the dykes could be implemented).

Prevention

The tailing dykes that partially surround the TIA are inspected three times a year in compliance with the Water License. These are completed in spring summer and fall. At a minimum of once every year, the summer inspection is conducted by a qualified geotechnical engineer.

The Operation, Maintenance and Surveillance (OMS) Manual recommends that the water level in the pond be maintained at or less than the maximum operational water level so that in the event of a high wind, waves on the pond will not overtop and erode the crest of the dykes.

To maintain the pond level at or below the maximum operational water level (201.8 m), the pond level is inspected during the spring, summer and fall inspections. If the water level is at or above the alert level of 201.6 m, the site manager is informed and the water is treated and released as early as practical. Water treatment stops when water level approaches elevation 200.0 m.

Accidental Release of Contents

Potential risks to the dykes could occur due to the following events:

1. **Event:** Erosion from wave action on the face of the dykes or from precipitation. If erosion were to become extreme, the potential to weaken the dyke to the point of failure is possible.
Actions: Identification of this condition should be undertaken during one of the three annual inspections of the dam. If significant erosion is noted, or if a full or partial dyke breach were to be the result, the Site Manager must be contacted and informed of the situation. The Site Manager will then contact the geotechnical consultant to conduct a formal inspection of the dam and to make recommendations as to whether repairs to the dyke are required as well as specify the details of the repairs. Identified source materials for any repairs and a list of contractors are detailed in the OMS Manual. If any release of tailings were to have occurred, they would need to be moved back into the impoundment area upon completion of repairs.

2. **Event:** Water levels in the pond exceed the height of the spillway.

Response: In the event that water treatment was not carried out, the pond level could be relatively high going into the fall season. It is possible that prior to the next season's normal treatment period, the elevation of the pond could exceed the elevation of the spillway invert and effluent from the pond be discharged in the spring during freshet. Upon discovery of this, the Site Manager must be contacted and a treatment program initiated so that the water level in the pond could be lowered to or below the maximum operational level as defined in the OMS Manual.

3. **Event:** An earthquake causes structural damage to the dam.

Response: If there is an earthquake in excess of magnitude 5 within 100 kilometers, the Site Manager is notified by the federal government. The Site Manager will immediately contact a geotechnical engineer to undertake a dam inspection; and if this cannot be done in a timely fashion the Site Manager will have another person with geotechnical experience make an interim inspection of the facility. Recommendations from the geotechnical engineer would be acted upon and dyke repairs initiated. Identified source materials for any repairs and a list of contractors are detailed in the OMS Manual. Any tailings released would need to be returned to the impoundment after dyke repairs were completed. The Site Manager is responsible for coordinating repairs using identified material sources.

With any of the above accidental releases, the volumes and concentrations of zinc in the water discharged would exceed the permit limits. Therefore the spill line would need to be contacted and the spill reported.

4.5 COMMUNICATION: SPILL REPORTING

4.5.1 Teck Resources Limited's Reporting and Contact Information

Spills with quantities greater than those shown in section 4.2 must be immediately reported to the Site Manager. If the Site Manager is unavailable, contact Teck's designated alternate, as detailed in Table 2.

If the on-site person is unable to make direct contact with the Site Manager or designated alternate they shall report the incident to the N.W.T. 24 Hour Spill Report Line at 1-867-920-8130.

If possible contact the local Resource Management Officer, Olivia Villebrun, at 867-872-2558 and inform her of the situation.

Table 2: Contact Details for Site Manager and Alternate

Site Manager: Dana Haggar	
Office Tel.	250-427-8413
Cell	250-602-9361
Alternate #1: Michelle Unger	
Office Tel.	250-427-8422
Cell	250-432-5264

If the Site Manager deems that the spill has exceeded the reporting threshold for the spilled substance, Teck's Head Office in Vancouver and the appropriate government agencies will be notified. The government procedure is outlined in the following section, "External Notification".

4.5.2 External Notification

All spills of petroleum products or other hazardous materials exceeding the appropriate threshold must be reported. The Site Manager is responsible for all external reporting. Although several government agencies at the federal, territorial and municipal levels may ultimately be involved, only one government contact is required to be made by the Site Manager or his designate for mine site spills. Affected Agencies will be contacted at:

Northwest Territory 24 HOUR SPILL REPORT LINE

Telephone: 1-867-920-8130

This is a 24 Hour telephone number to Environment Canada. They will notify all other concerned agencies when necessary. The following information shall be conveyed to the affected agencies through the 24 Hour Spill Report Line. This information is to be documented on the "Spill Reporting Form" provided in Appendix A-1.

The reporting person must give as much of the following information as possible:

- a) Date and time of spill.
- b) Location of spill as follows:
Pine Point Tailings Area 100 km by road east of Hay River, 10 km south of Great Slave Lake.
- c) Direction the spill is moving.
- d) Name and phone number of a contact person close to the spill location.
- e) Type of contaminant spilled and quantity spilled.
- f) Cause of spill.
- g) Whether spill is continuing or has stopped.
- h) Description of existing containment.
- i) Action taken to contain, recover, clean up and dispose of spilled contaminant.
- j) Name, address and phone number of person reporting spill.
- k) Name of owner or person in charge, management or control of contaminants at time of spill.

A list of typical spill response equipment is provided in Appendix A-2.

4.5.3 External Technical Advice - CANUTEC

The Canadian Transport Emergency Center (CANUTEC), a branch of Transport Canada, can also be contacted for 24-hour technical advice on Dangerous Goods, as needed. The CANUTEC – help line for dangerous goods is 1-888-226-8832 or 613-996-6666.

REFERENCES

- Canutec. 2016. *Dangerous Goods Initial Emergency Response Guide 2016*. Minister of Supply and Services Canada 2016, Ottawa, Canada.
- Government of Canada, Environment Canada. 1999. *Canadian Environmental Protection Act, (1999)*.
- Government of Canada, Environment Canada. 2003. *Environmental Emergency Regulations (2003)*.
- Government of Northwest Territories. *Spill Contingency Planning and Reporting Regulations N.W.T. Reg. 068-93, Environmental Protection Act (1988)*.