
**BULLMOOSE MINE
TAILINGS STORAGE FACILITY
EMERGENCY PREPAREDNESS AND RESPONSE
PLAN**

November 2014

TECK RESOURCES LIMITED
BULLMOOSE MINE
EMERGENCY PREPAREDNESS AND RESPONSE PLAN
VERSION 1

Copy No. _____

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1.INTRODUCTION

This document presents the Emergency Preparedness and Response Plan (EPRP) for the Tailings Storage Facility (TSF) at the Bullmoose Operating Corporation's (BOC) mine site 30 km west of Tumbler Ridge, BC.

The Bullmoose Operating Corporation is managed by Teck Resources Limited (Teck). Teck's Legacy Properties office located in Kimberley BC is responsible for the site but day to day monitoring and care and maintenance of the site is provided by the staff from the Quintette Mine which located within an hour by road of the Bullmoose Mine site. The Quintette Coal Operations' (QCO) Acting Mine Manager (or when absent, the On-Call Manager will assume the role of the QCO Acting Mine Manager) will also be the Acting Mine Manager for the Bullmoose Mine site in the event of an emergency.

Emergency preparedness and response planning for dams relies on dam owners providing warnings to the downstream affected Local Authorities who then are responsible for initiating their own Emergency Plans. Local Authorities should use this EPRP as a guide to develop annexes to their existing Regional and Municipal Emergency Plans (MEP) that deal specifically with their response to a major flood and/or dam breach. It is incumbent upon each Local Authority to ensure their Emergency Plan is current and functional.

This EPRP will be distributed to parties as listed in Section 6 of this document. The intent of the plan is that each party understands their role as described in this EPRP and their own Emergency Plan.

This EPRP has been written primarily focused in the context of the highest consequence credible failure mode for the TSF in its closed, and reclaimed state. An accompanying document to this EPRP is the Bullmoose Mine "Tailings Storage Facility – Dam Breach and Inundation Study" which provided the basis for developing this EPRP.

Two key dam failure scenarios were considered; an overtopping dam failure and a piping failure. It was deemed that a piping failure would have the most incremental impact as an overtopping failure would occur when the base river flow in Bullmoose Creek is experiencing a major flood event (such as a 1000 year flood). The flood event itself is large and would result in the majority of damage and an overtopping failure simultaneously would have a limited incremental impact. A piping failure of the dam would have larger incremental impacts than an overtopping failure as it could occur at a time when Bullmoose Creek is not experiencing a major flood event. The results indicate that impacts from either a rainy-day (an overtopping) failure or a sunny-day (piping) failure of the dam would be largest near the dam site. The flood wave is quickly attenuated and by the time it reaches Bullmoose Flats (21 km downstream of the dam), the peak flow is reduced to less than 20% of the peak flow at the dam. A failure of the dam would result in damage to

some of the infrastructure (pipelines, provincial highway, local roads, and bridges) and economic losses to third parties. A failure of the dam would also result in damage to agricultural fields and some of the buildings on the banks of Bullmoose Creek between Highway 29 and the Wolverine River. Such an event would classify as a “Level 3” – crisis situation, in Teck’s Corporate Crisis Management system.

2. TAILINGS STORAGE FACILITY

2.1 Description

The Bullmoose Mine is located about 30 km northwest of Tumbler Ridge, BC. The area is characterized by moderate topographic relief, with mountains several hundreds of meters above broad glacial and river formed valleys. The area is generally forested at lower elevations, with some ridgelines extending to above tree line.

Coal production at Bullmoose began in December 1983, and produced annually about 1.7 million tonnes of clean metallurgical coal and 600,000 tonnes of clean thermal coal. Waste from the coal preparation process included coarse and fine refuse. The BTD impoundment was active throughout mine operations. The fine refuse (tailings) was generally 95% by weight passing the 0.15 mm sieve size and was produced at an average rate of about 150,000 tonnes per year. Tailings production varied considerably depending on the ratio of thermal to metallurgical coal. Tailings was transported as slurry (35% solids by weight), to a single point discharge located at the northwest corner (closest to the mill) of the impoundment.

The tailings impoundment is located on the south flank of the broad valley bottom, with South Bullmoose Creek to the west and West Bullmoose Creek to the north. The tailings dam was constructed to a final crest elevation of 1122 m, with a maximum height of 38 m (crest to downstream toe). The design capacity of the facility is 4.6 Mm³; based on existing contours 4.4 Mm³ of tailings are stored.

The impoundment is formed by the horseshoe-shaped BTD on the north, east and west sides with the natural valley slope to the south. A starter embankment about 10 m high was constructed of borrow material for the first year of operations. The BTD has an upstream slope of 2H:1V and downstream slope of ranging from 2.5H:1V to 3H:1V, and was constructed of coarse coal refuse compacted to varying densities to meet permeability and density requirements (refer to design drawings in Appendix II). A 15 m wide upstream zone was heavily compacted to achieve a zone of lower permeability and a drainage blanket beneath the downstream shell was constructed using only moderate compaction.

The foundation soils consist of alluvial sands and gravels with interbedded silts and glacial till. The alluvial soils are sufficiently pervious to allow pond water to seep from the impoundment. As the thickness of the deposited fine coal refuse increased the seepage rate decreased (Teck, 2012). There are two aquifers underlying the impoundment: surficial gravelly aquifer with piezometric level 4 m below the original ground approximately the elevation of Bullmoose Creek; and lower gravelly aquifer with piezometric level 8 m to 10 m below the original ground surface. The two aquifers are reported to be separated by a low permeability glacial till layer.

A closure spillway was constructed in 2002 at the west abutment. The spillway channel follows a southwesterly route from the tailings impoundment, discharging onto the natural ground at approximately elevation 1120 m. No construction activity (raises, upgrades repairs) has been completed on the dam since the mine was closed and spillway constructed.

The Tailings Storage Facility (TSF) is located in the valley near the confluence of the West Bullmoose and South Bullmoose Creeks. This facility is immediately adjacent to the main access gate of the Bullmoose Mine site as shown in Figure 1 (attached in Section 7 – Appendix A). The TSF was in service from 1984 until 2003, and has been inactive since then. In 2002 an emergency spillway was constructed at the southwest abutment to prevent potential overtopping of the tailings dam during an extreme inflow event. The TSF has a relatively small catchment area of 21 ha compared to the impoundment area of 17 ha. There is seasonal ponding of rainfall and snowmelt up to about 1 m deep in the northeast low lying area of the impoundment and through the summer, it gradually evaporates and/or seeps away.

2.2 Access To The Dam Site

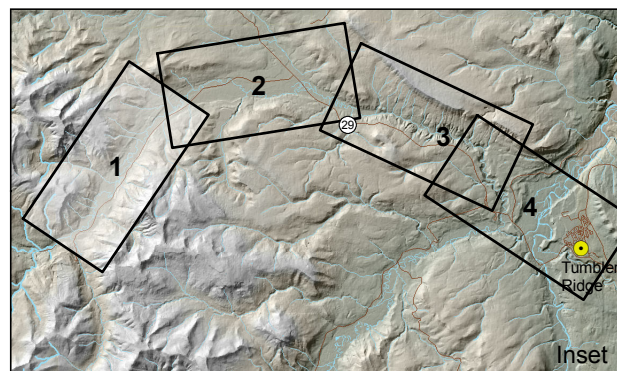
From Tumbler Ridge, access to the mine site is via the Bullmoose Mine Road, approximately 17 km southwest of the Highway 29 / Bullmoose Mine Road Junction (Refer to Section 7 – Appendix A Figure 2.1). This is the only access route to the mine site from Tumbler Ridge.

The TSF is located immediately adjacent to the site's main access road near the main gate to the mine site. Currently there is no gate blocking access to the TSF.

2.3 Inundation Maps

Attached are a series of inundation maps sourced from the Report titled "Bullmoose Mine Tailings Storage Facility – Dam Breach and Inundation Study" by Klohn Crippen Berger dated June 2, 2014.

Path: Z:\MVC\RM09893A01-TML-Bullmoose Review\400 Drawings\mxd\Dam Break\Individual Tiles\Dam Break Piping Failure Tile1.mxd



Notes:
1. Projection: NAD83 UTM Zone 10N.
2. References: ArcGIS Online Imagery, TRIM.
3. Inundation based on results from HEC-RAS model.
4. Flows concurrent with a hypothetical piping failure are the Mean Annual Flows (MAF). They are confined within the main river channel and are not shown on this figure.

Legend:

- Photograph Location
- Potential Inundation Area (Piping Failure with MAF)
- Existing Stream Channel
- Natural Gas Pipeline (Underground)
- Power Transmission Line
- Road
- Bridge
- Railway

NOT FOR CONSTRUCTION

TO BE READ WITH KLOHN CRIPPEN BERGER REPORT DATED JUNE 2014.

AS A MUTUAL PROTECTION TO OUR CLIENT, THE PUBLIC AND OURSELVES, ALL REPORTS AND DRAWINGS ARE SUBMITTED FOR THE CONFIDENTIAL INFORMATION OF OUR CLIENT FOR A SPECIFIC PROJECT AND AUTHORIZATION FOR USE AND/OR PUBLICATION OF DATA, STATEMENTS, CONCLUSIONS OR ABSTRACTS FROM OR REGARDING OUR REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.

CLIENT



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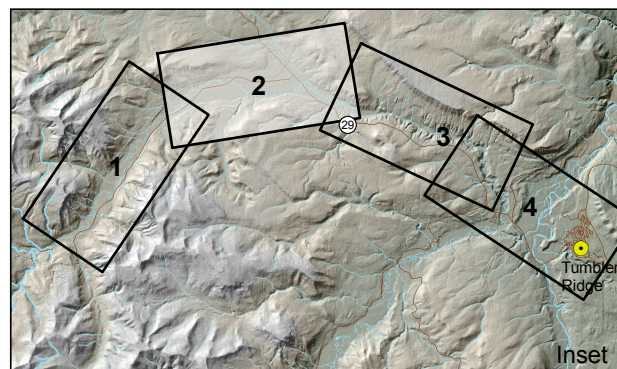
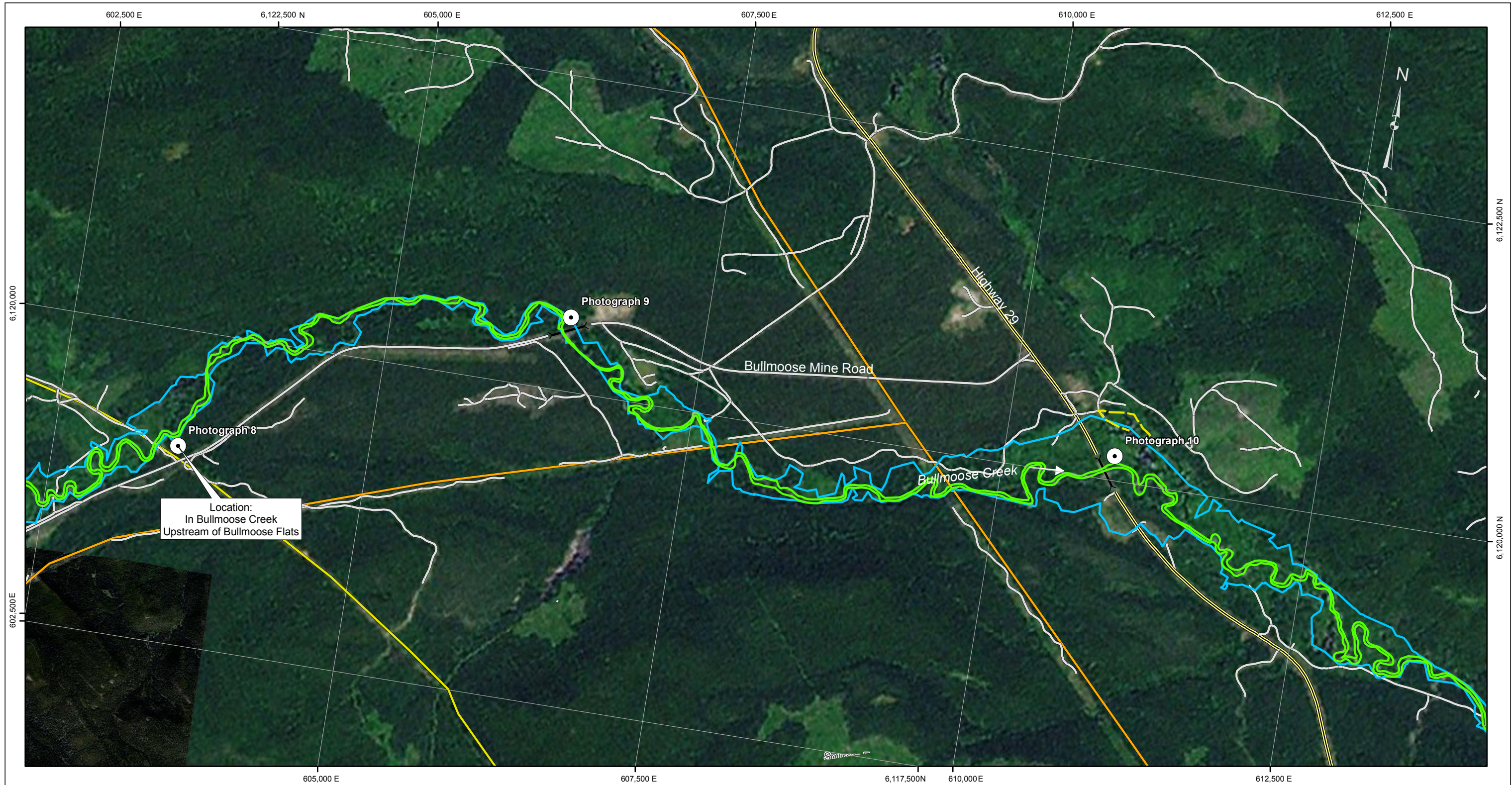
PROJECT BULLMOOSE MINE TAILINGS FACILITY DAM BREACH & INUNDATION STUDY

TITLE Piping Failure Base Case Flood Inundation Areas Map Sheet 1 of 4

PROJECT No. M09893A01

FIG No. 5.5

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Notes:
1. Projection: NAD83 UTM Zone 10N.
2. References: ArcGIS Online Imagery, TRIM.
3. Inundation based on results from HEC-RAS model.
4. Flows concurrent with a hypothetical piping failure are the Mean Annual Flows (MAF). They are confined within the main river channel and are not shown on this figure.

Legend:

- Photograph Location
- Potential Inundation Area (Piping Failure with MAF)
- Existing Stream Channel
- Natural Gas Pipeline (Underground)
- Power Transmission Line
- Highway
- Road
- Bridge
- Railway
- Forestry Recreation Trail

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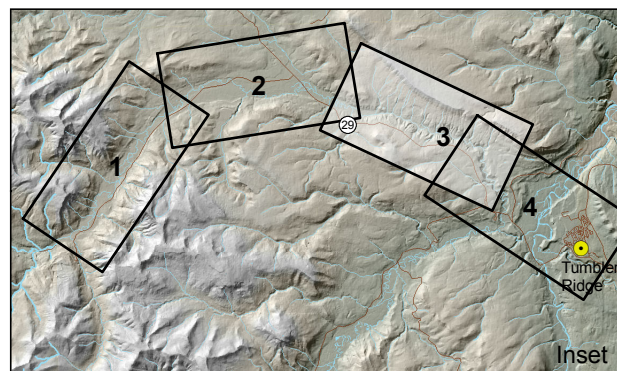
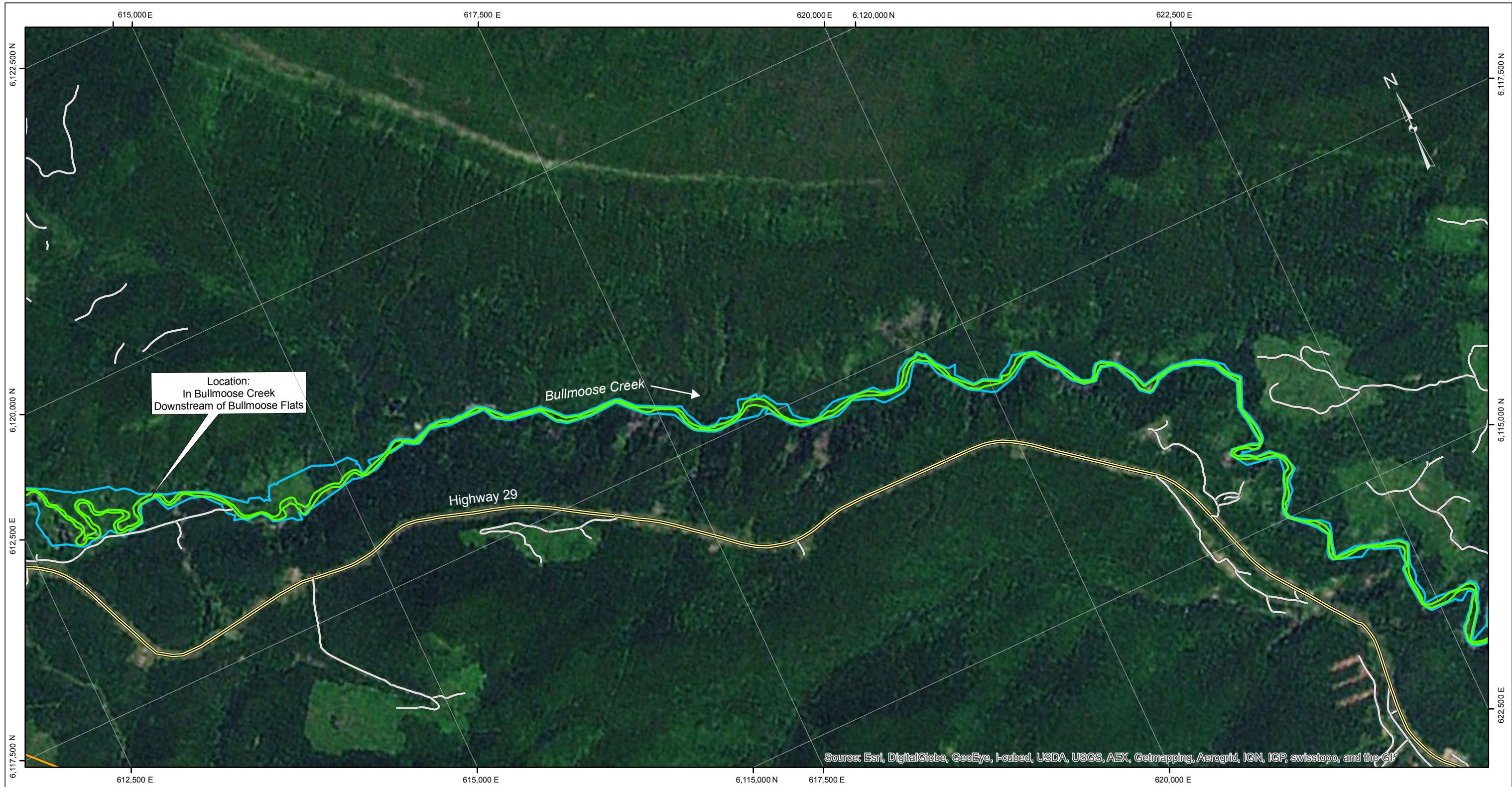
PROJECT BULLMOOSE MINE TAILINGS FACILITY DAM BREACH & INUNDATION STUDY

TITLE
Piping Failure
Base Case Flood Inundation Areas
Map Sheet 2 of 4

PROJECT No. M09893A01

FIG No. 5.5

Path: Z:\MVC\RM09893A01-TML-Bullmoose Review\400 Drawings\mxd\Dam Break\Individual Tiles\Dam Break Piping Failure Tile3.mxd



Notes:
1. Projection: NAD83 UTM Zone 10N.
2. References: ArcGIS Online Imagery, TRIM.
3. Inundation based on results from HEC-RAS model.
4. Flows concurrent with a hypothetical piping failure are the Mean Annual Flows (MAF). They are confined within the main river channel and are not shown on this figure.

Legend:

- Photograph Location
- Potential Inundation Area (Piping Failure with MAF)
- Existing Stream Channel
- Natural Gas Pipeline (Underground)
- Power Transmission Line
- Highway
- Road
- Bridge
- Railway

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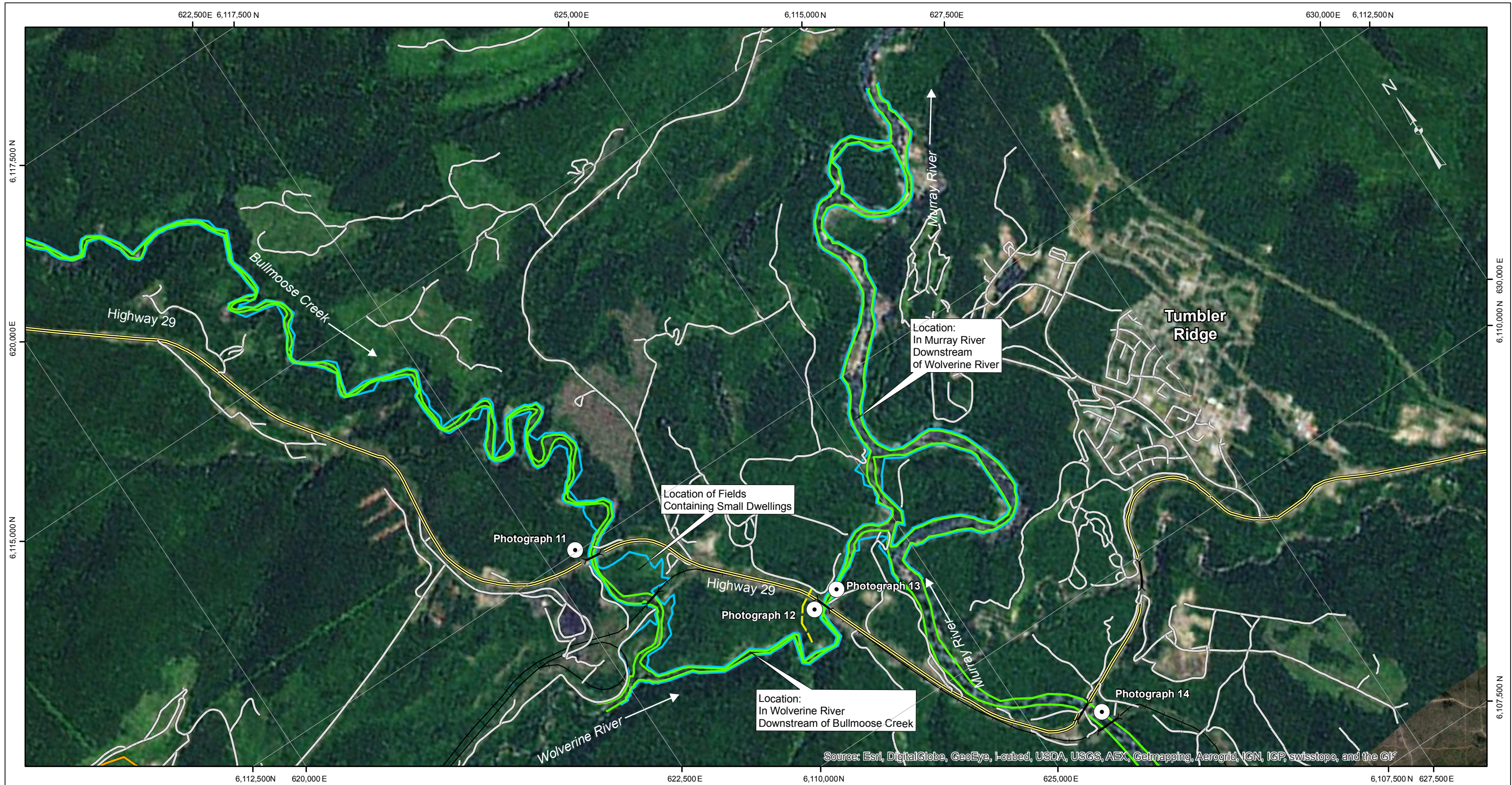
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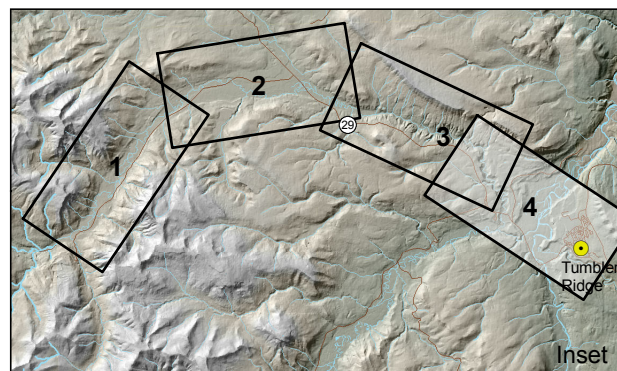
0 1km

PROJECT BULLMOOSE MINE TAILINGS FACILITY DAM BREACH & INUNDATION STUDY	
TITLE Piping Failure Base Case Flood Inundation Areas Map Sheet 3 of 4	
PROJECT No. M09893A01	FIG No. 5.5

Path: Z:\MVC\RM09893A01-TML-Bullmoose Review\400 Drawings\mxd\Dam Break\Individual Tiles\Dam Break Piping Failure Tile4.mxd



Source: Esri, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GfK



Notes:
1. Projection: NAD83 UTM Zone 10N.
2. References: ArcGIS Online Imagery, TRIM.
3. Inundation based on results from HEC-RAS model.
4. Flows concurrent with a hypothetical piping failure are the Mean Annual Flows (MAF). They are confined within the main river channel and are not shown on this figure.

Legend:

- Photograph Location
- Potential Inundation Area (Piping Failure with MAF)
- Existing Stream Channel
- Natural Gas Pipeline (Underground)
- Power Transmission Line
- Highway
- Road
- Bridge
- Railway
- Forestry Recreation Trail

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0 1km

PROJECT BULLMOOSE MINE TAILINGS FACILITY DAM BREACH & INUNDATION STUDY

TITLE
Piping Failure
Base Case Flood Inundation Areas
Map Sheet 4 of 4

PROJECT No. M09893A01

FIG No. 5.5

3.OVERVIEW OF EMERGENCY RESPONSE AND NOTIFICATION STRUCTURE

3.1 Emergency Identification and Evaluation

Table 1 lists the incidents/conditions that will require the implementation of this Emergency Response Procedure. Warning indicators to be used to identify the incidents are provided in Table 1. The incidents are divided according to alert levels, for which required actions and communications to address them are described in the following sections of this document.

- Normal conditions: No incident identified, refer to the Bullmoose Mine OMS manual for normal surveillance and maintenance activities;
- Level 1: Minor incidents requiring increased surveillance;
- Level 2: Major incidents requiring mobilization of equipment and personnel for implementing mitigation measures and
- Level 3: Imminent loss of containment of water and/or tailings.

Table 1. Emergency Incidents and Warnings

Alert Level	Incident	Warning
Normal Conditions	No incident.	No unusual observation during an inspection, readings of monitoring instrumentation below trigger level
Level 1 (Table 2)	<ul style="list-style-type: none"> • Minor tension cracks, sagging or bulging at the toe of a dam or dike; • Shallow sloughing of downstream face (less than 3 m deep and 3 m wide) or movement of the dam (less than 0.15 m of dam crest); or • Seepage from dam with low flow, slightly sediment-laden. 	<ul style="list-style-type: none"> • Unusual observation during an inspection; • Major earthquake or rainfall event; • Exceedance of trigger levels in readings from instrumentation readings • Clear seepage from the dam is noted.
Level 2 (Table 3)	<ul style="list-style-type: none"> • Cracking near crest; • Major sloughing on downstream face, cracking or movement; or • High seepage flow heavily laden with sediment. • Discharge through the emergency spillway 	<p>Major earthquake or major rainfall event, or progression of Level 1 incident, including:</p> <ul style="list-style-type: none"> • Worsening of crack, sagging, bulging; • Increasingly dark seepage

3.2 Level 1 Alert Response

A Level 1 Alert does not entail a release of contaminant into the receiving environment; however progression to a higher alert level might ultimately lead to a release. Actions undertaken at this alert level are typically intended to identify the causes of the incident, and to establish corrective or mitigation measure to be implemented as soon as practical. The action plan is described in Table 2.

Table 2. Level 1 Alert Action Plan

Person Responsible	Action Required	Urgency	Comments
Person finding the problem.	Take appropriate action.	Immediate	Take steps to contain and minimize the impact on the environment, as needed and as practical.
	Notify the local area Acting Mine Manager and the Senior Person On-Duty at QOC	Immediate	Provide the following information: <ul style="list-style-type: none">• Type of emergency.• Location of emergency.• Measures being taken with photos.• Time and date.
Acting Mine Manager	Require inspection by a Geotechnical Engineer	Immediate	Conduct field level hazard assessment prior to conducting the inspection.
	Require frequency of instrument monitoring at the affected structure increased as advised by the geotechnical engineer.	Immediate	Return to normal frequency to be decided in consultation with the Geotechnical Engineer. Monitoring to be undertaken only if safe to do so.
	Decide on action necessary to mitigate	As soon as practical	Identification of mitigation undertaken by both the Geotechnical Engineer and the Acting Mine Manager.
	Notify the Legacy Properties Manager.	As soon as practical	

3.3 Level 2 Alert Response

A Level 2 Alert will typically be a worsening condition of a Level 1 Alert condition or be identified following an event-driven inspection after a major earthquake or major rainfall event. Actions undertaken at this alert level are intended to identify the causes of the incident, if not already done at the Level 1 Alert, and to establish corrective or mitigation measure to be implemented immediately. The action plan is described in Table 3. Depending on the situation, it is likely that Local Authorities and other Regulatory Agencies will need to be notified.

Table 3. Level 2 Alert Action Plan

Person Responsible	Action Required	Urgency	Comments
Person finding the problem.	Take appropriate action.	Immediate	If not already applied at the Level 1 Alert. Take steps to mitigate the conditions as practical.
	Notify the Acting Mine Manager	Immediate	If not already applied at the Level 1 Alert. Provide the following information: <ul style="list-style-type: none"> • Type of emergency. • Location of emergency. • Measures being taken with photos of problem. • Time and date.
Acting Mine Manager	Require inspection by the Geotechnical Engineer	Immediate	Conduct field level hazard assessment prior to conducting the inspection.
	Continuous monitoring at the affected structure	Immediate	Only return to normal monitoring frequency in consultation with the geotechnical Engineer. Monitoring to be undertaken only if safe to do so.
	Decide on action necessary to mitigate	Immediate	The Bullmoose MERP will be implemented for a "Level 2 – Emergency situation in parallel with attempting an emergency repair
	Notify appropriate Local Authorities and other Provincial Regulatory Agencies.	As needed	Notify the appropriate contacts at the District of Tumbler Ridge and the Peace River Regional District and BC PEP.
	Notify the Legacy Properties Manager & the Teck Corporate Office.	Immediate	Refer to Teck Resources Crisis Manual, First Steps section to get Contact details (manual located in Mine Manager's Office).

3.3.1 *Emergency Response*

3.3.1.1 *Bullmoose Site Response:*

- Implement the MERP for a “Level 2 Alert – Emergency Bordering on Potential Crisis” situation.
- The Bullmoose Emergency Operations Centre (EOC) will:
 - Bullmoose EOC will notify SNRI (CNRL) Gas Plant of the Potential Flood Emergency. The SNRI electrical sub-station could be within the inundation zone if a dam breach occurs in the north east corner of the facility. The CNRI plant site is outside of the potential inundation zone. However, sections of the Bullmoose access road between the dam and Highway 29 are within the inundation zone. Refer to the inundation maps in Section 2.3
 - Verify that External Responders have current inundation maps.
 - In conjunction with the Peace River Regional District (PRRD) and the District of Tumbler Ridge, consider the need for the Local Authorities to issue flood warnings directly to the inhabitants of permanent dwellings located on the banks of Bullmoose Creek between Highway 29 and Wolverine River.
 - In conjunction with the Peace River Regional District (PRRD) and the District of Tumbler Ridge, consider the need for the Local Authorities to alert and/or restrict traffic on roads within the potential inundation area.
- If a potential dam emergency were to be identified at an early stage, road access may still be safe at a Level 2 Alert stage as advised by Teck. If the safety of using the access road is uncertain, then personnel access to/from the site would be best achieved by use of a helicopter as the access road would be potentially impacted by a dam breach. Refer to the emergency contact listing in Section 6 for local helicopter company contact information.
- If road access is still safe and there are indications that the situation could benefit from heavy equipment on site, it should be mobilize while there is still safe access. There is no other route into the site so once the Bullmoose access road is deemed unsafe for use; it will not be possible to mobilize equipment into the area.
- Bullmoose EOC will contact the following personnel to perform an emergency dam safety assessment (see Contact information in Section 6):
 - Andrew Bidwell P.Eng. (Senior Engineer Supervisor Geotechnical, Teck, Calgary);
 - Chris Anderson P.Eng. (Principal Geotechnical Engineer, Teck, Vancouver); and
 - Rick Friedel P.Eng. (Klohn Crippen Berger, external consultant / Engineer of Record).

3.3.1.2 *External Emergency Response*

Upon notification of a Potential Flood Emergency by the QCO EOC Director, the external responders will take appropriate actions as per their own emergency response plans. The general actions of the external

responders are briefly described below for context only. Their respective ERP's will determine their specific actions.

District of Tumbler Ridge

Notify the District of Tumbler Ridge as the mine site is within their jurisdiction and thus should receive the first notice of a pending emergency. The District of Tumbler Ridge will work the Peace River Regional District and the Provincial Emergency Management System. There is no 24 hour coverage so it may be necessary to contact the BC Emergency Response Management System if there is no response from the District of Tumbler Ridge.

Peace River Regional District (PRRD)

The PRRD should also receive a priority emergency call as effects of a potential dam breach will be experienced within the PRRD. Upon notification of a Potential Flood Emergency from the QCO EOC Commander, the Peace River Regional District will:

1. Initiate their Regional Emergency Response Plan.
2. Activate the District's Regional Emergency Operations Centre.
3. Place emergency medical services on stand-by, including the hospital if required.
4. Place firefighting services on stand-by if required.
5. Notify the RCMP.
6. Confirm with Bullmoose EOC that residents at/within the dam breach inundation zone depicted on the inundation maps (see Section 2.3) have been notified and advised to be on stand-by for evacuation. Verify the emergency level with the Bullmoose EOC.
7. Consult inundation maps and tables in Section 2.3 in concert with the Bullmoose EOC to obtain preliminary estimates of potential increases in water level and changes in water quality in the Murray River, as well as estimates of time when the changes will be at their maximum, based on current and forecasted flow conditions.

BC Emergency Response Management System

The province of British Columbia emergency management structure has developed and adopted BCERMS (British Columbia Emergency Response Management System). BCERMS is a comprehensive management system based upon the Incident Command System (ICS) that ensures a coordinated and organized response and recovery to all emergency incidents and disasters. It provides the framework for a standardized emergency response in British Columbia.

While the Local Authorities have the lead role in a local emergency, they do not have 24 hour, 365 day coverage of their emergency numbers and so BCERMS should be contacted first on off hours and concurrently during business hours to ensure there are no gaps in notifications. The BCERMS provides

support by managing emergencies at the provincial level through the Government's Emergency Operation Centre's (G-EOC). More detailed information about BCERMS is available in the BCERMS Overview Manual and in the BCERMS Emergency Operations Centre Operational Guidelines. Both publications are available on the PEP Web site: www.pep.bc.ca

Other External Responders

Other external responders include BC:

- BC Hydro as there are powerline right of ways that will potentially be inundated;
- SNRI as their electrical substation adjacent to the dam could potentially be inundated. Also they have gas lines crossing Bullmoose Creek that potentially could be affected.
- BC Rail should be notified that their rail line and local bridge should not be impacted.

3.4 Level 3 Alert Response

At a Level 3 Alert emergency applies when discharge (water and/or tailings) off site or to the environment occurs or is imminent. Communication and coordination of effort with Local Authorities and other Regulatory Agencies and the Teck Corporate Office will be required. The action plan for this alert level is described in Table 4.

Table 4. Level 3 Alert Action Plan

Person Responsible	Action Required	Urgency	Comments
Person finding the problem.	Move to a safe location.	Immediate	
	Take appropriate action.	Immediate	If not already applied at the Level 2 Alert. Take steps to contain and minimize the impact on the environment, as needed.
	Notify the Acting Mine Manager	Immediate	If not already applied at the Level 2 Alert. Provide the following information: <ul style="list-style-type: none"> • Type of emergency. • Location of emergency. • Measures being taken with summary of actions at Level 1 and 2. • Time and date.
Acting Mine Manager	Require inspection by the Geotechnical Engineer	Immediate	If not already applied at the Level 2 Alert conduct field level hazard assessment prior to conducting the inspection.
	Implementation of the flood management plan	Immediate	The Bullmoose MERP will be implemented for a Level 3 Emergency situation in parallel with attempting to complete emergency repairs.
	Notify appropriate Local Authorities and other Provincial Regulatory Agencies.	Immediate	Notify the District of Tumbler Ridge, the Peace River Regional District, and BC PEP
	Notify Teck Corporate Office and the Manager Legacy Properties.	Immediate	Refer to Teck Resources Crisis Manual, First Steps section to get contact details.

3.4.1 Emergency Response

3.4.1.1 Bullmoose Site Response:

- Bullmoose EOC will notify SNRI Gas Plant of the Potential Flood Emergency. The SNRI electrical sub-station could be within the inundation zone if a dam breach occurs in the north east corner of the facility. The SNRI plant site is outside of the potential inundation zone. However, sections of the Bullmoose access road between the dam and Highway 29 are within the inundation zone. Refer to Section 2.3 for inundation maps.
- Verify that External Responders have current inundation maps.
- In conjunction with the Peace River Regional District (PRRD) and/or Local Authority, consider the need for the Local Authorities to issue flood evacuation orders directly to the inhabitants of permanent dwellings located on the banks of Bullmoose Creek between Highway 29 and Wolverine River.
- In conjunction with the Peace River Regional District (PRRD) and/or Local Authority, indicate the need for the Local Authorities to restrict traffic on roads within the potential inundation area.
- Ensure that personnel access to/from the site would be achieved by use of a helicopter as the access road would be potentially impacted by a dam breach. Refer to the emergency contact listing in Section 6 of this EPRP for local helicopter company contact information.
- At Level 3, road access would not be considered safe to mobilize heavy equipment from downstream of the dam to support efforts on site. There is no other route into the site so once the Bullmoose access road is deemed unsafe for use; it will not be possible to mobilize heavy equipment into the area.
- If not already having done so, Bullmoose EOC will contact the following personnel to perform an emergency dam safety assessment (See Section 6 for contact information):
 - Andrew Bidwell P.Eng. (Senior Engineer Supervisor Geotechnical, Teck, Calgary);
 - Chris Anderson P.Eng. (Principal Geotechnical Engineer, Teck, Vancouver); and
 - Rick Friedel P.Eng. (Klohn Crippen Berger, external consultant / Engineer of Record).

3.4.1.2 External Emergency Response

Upon notification of an Imminent Flood Emergency or a Flood Emergency by the Bullmoose EOC Director, the external responders will take appropriate actions per their own emergency response plans. The general actions of the external responders are briefly described below for context only. Their respective ERP's will determine their specific actions.

District of Tumbler Ridge

Notify the District of Tumbler Ridge as the mine site is within their jurisdiction and thus should receive the first notice of a pending emergency. The District of Tumbler Ridge will work the Peace River Regional District and the Provincial Emergency Management System. There is no 24 hour coverage so it may be necessary to contact the BC Emergency Response Management System if there is no response from the District of Tumbler Ridge.

Peace River Regional District

The PRRD should also receive a priority emergency call as effects of a potential dam breach will be experienced within the PRRD. Upon notification of a Potential Flood Emergency from the Bullmoose EOC Commander, the Peace River Regional District will:

1. Initiate their Regional Emergency Response Plan.
2. Activate the District's Regional Emergency Operations Centre.
3. Provide emergency medical services, if required.
4. Provide firefighting services, if required.
5. Notify the RCMP of imminent flood emergency condition.
6. Notify the Bullmoose EOC that residents within the dam breach inundation zone depicted on the inundation maps (see Section 2.3) have been asked to and will evacuate or are being evacuated..
7. Verify the emergency level with the Incident Command Post and/or Bullmoose EOC.
8. Consult inundation maps and tables in Section 2.3 in concert with the Bullmoose EOC to obtain preliminary estimates of potential increases in water level and changes in water quality in the Murray River, as well as estimates of time when the changes will be at their maximum, based on current and forecasted flow conditions.

BC Emergency Response Management System

The province of British Columbia emergency management structure has developed and adopted BCERMS (British Columbia Emergency Response Management System). BCERMS is a comprehensive management system based upon the Incident Command System (ICS) that ensures a coordinated and organized response and recovery to all emergency incidents and disasters. It provides the framework for a standardized emergency response in British Columbia.

While the Local Authorities have the lead role in a local emergency, they do not have 24 hour, 365 day coverage of their emergency numbers and so BCERMS should be contacted first on off hours and concurrently during business hours to ensure there are no gaps in notifications. The BCERMS provides support by managing emergencies at the provincial level through the Government's Emergency Operation Centre's (G-EOC). More detailed information about BCERMS is available in the BCERMS Overview Manual and in the BCERMS Emergency Operations Centre Operational Guidelines. Both publications are available on the PEP Web site: www.pep.bc.ca

Other External Responders

Other external responders include BC:

- BC Hydro as there are powerline right of ways that will potentially be inundated;
- SNRI as their electrical substation adjacent to the dam could potentially be inundated. Also they have gas lines crossing Bullmoose Creek that potentially could be affected.
- BC Rail should be notified that their rail line and local bridge should not be impacted.

4.EPRP TESTING

On an annual basis, conduct a “table top” test to ensure QOC staff are familiar with the EPRP and are prepared to implement this EPRP if required. As part of the test, Local Authorities and other Regulatory Agencies should be consulted to confirm that they still have current copies of this EPRP and the Inundation Study, and understand their contents.

5.PERIODIC REVIEWS AND UPDATES OF THE EPRP

The Legacy Properties Senior Health and Safety Coordinator is responsible to ensure there are at a minimum annual reviews of this EPRP, and that timely updates/revisions to this EPRP as appropriate. The reviews of the EPRP shall be done in conjunction with the key staff at the Quintette Coal Operations as they conduct the day to day monitoring of the facility and will undertake the necessary actions to any alerts related to the Bullmoose tailings facilities.

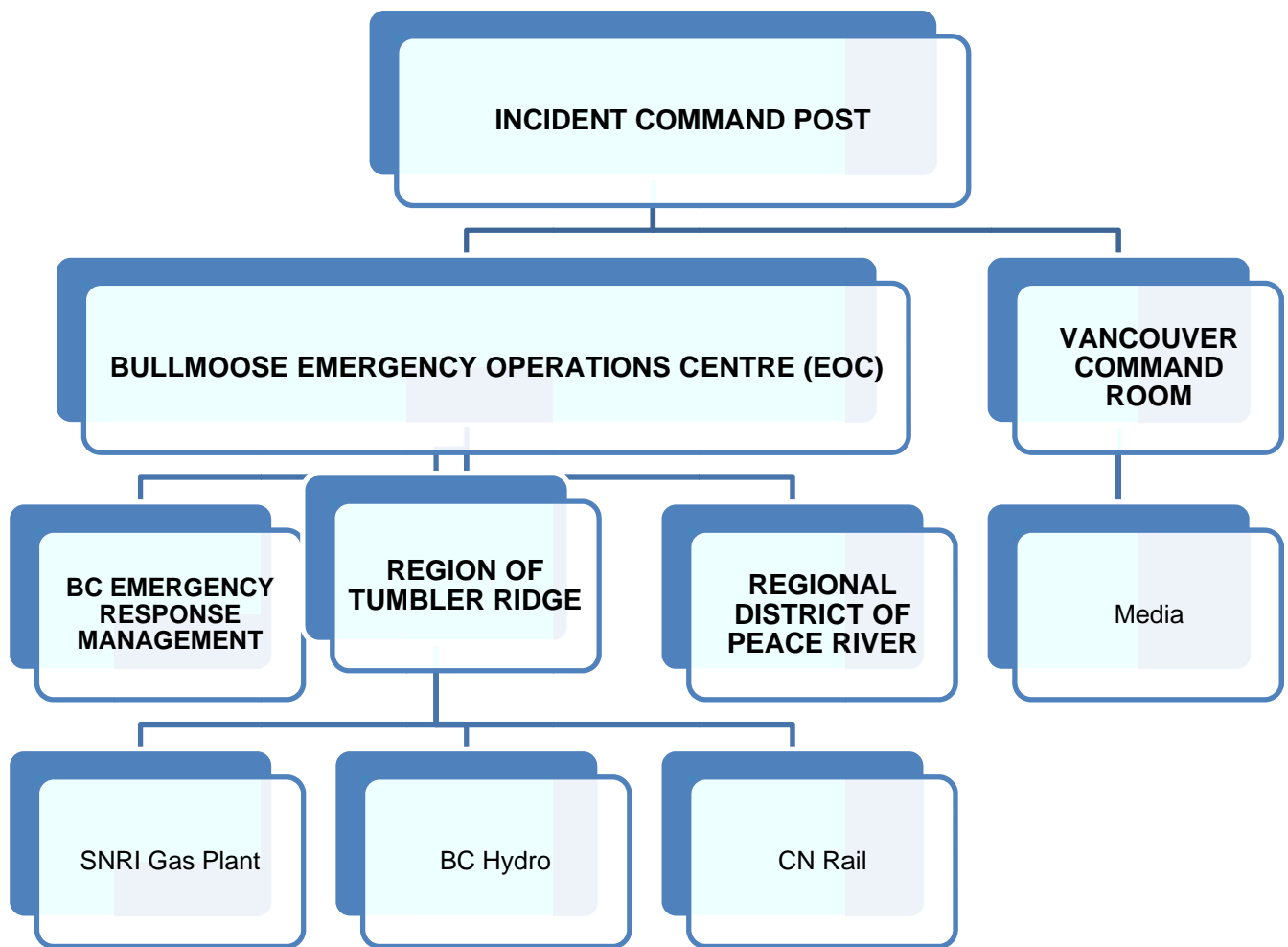
All revisions will be summarized in the "Record of Revisions" table below, and revised versions of the EPRP will be provided to the EPRP holders listed in Section 6.

Table 5: Record of Revisions to Dam Breach EPP

Revision #	Date	Section(s) Revised/Added/Deleted and Reason
0	November 26 2014	Bullmoose TSF EPRP created.

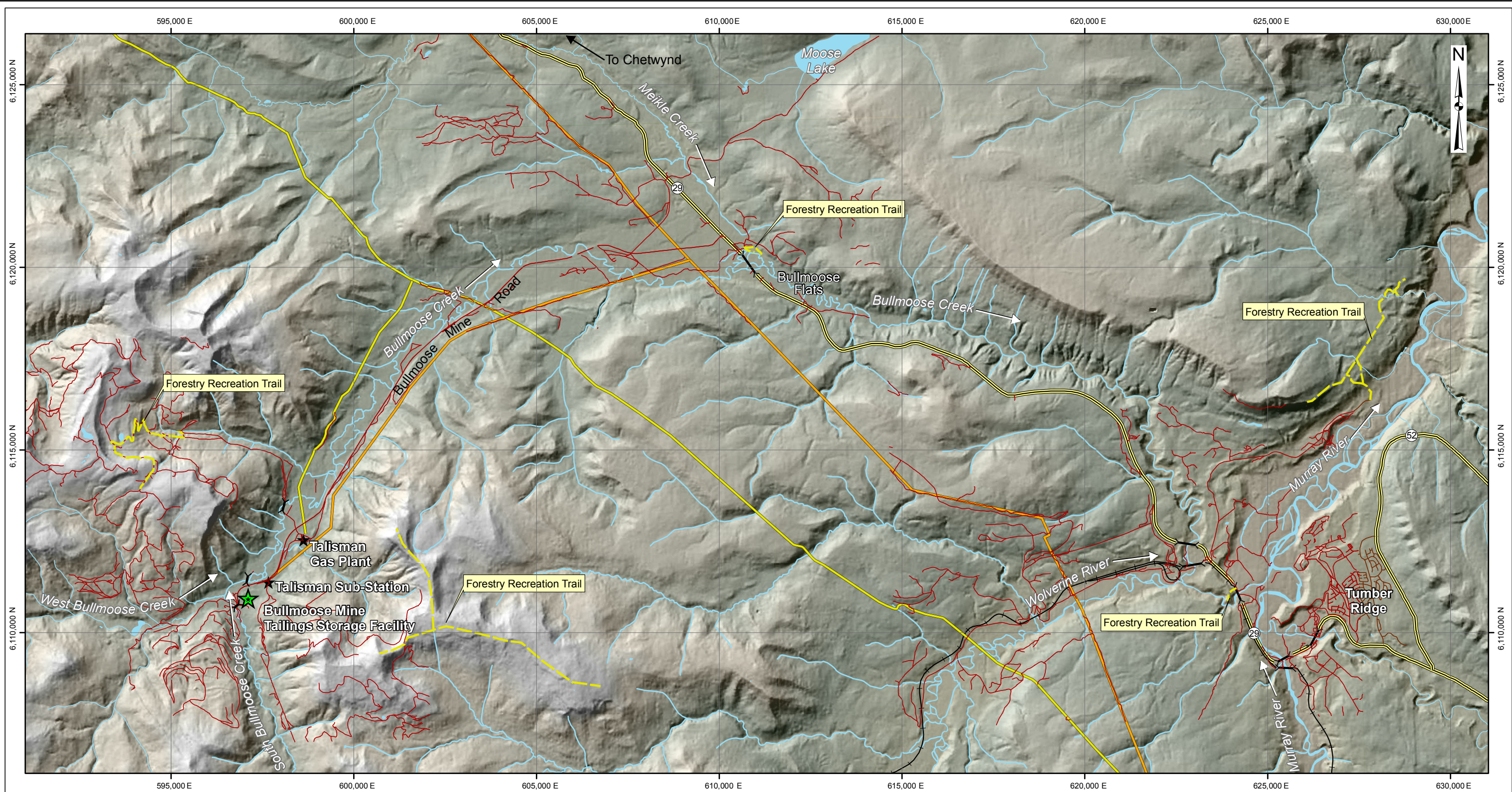
6.COMMUNICATIONS DIRECTORY

Organization Name	EPRP Holder?	Name	Title	Phone Number
Teck Resources Limited	Yes	Andrew Bidwell P.Eng.	Senior Engineer Supervisor, Geotechnical, (Calgary)	O 587-433-7214 [REDACTED]
Teck Resources Limited	Yes	Chris Anderson P.Eng.	Principal Geotechnical Engineer, (Vancouver)	O 604-699-4039 [REDACTED]
Klohn Crippen Berger (Engineering of Record)	Yes	Rick Friedel P.Eng.	Manager, Engineering, Klohn Crippen Berger	O 604-251-8523 [REDACTED]
Teck Coal Ltd.	Yes	Rob Muisse	On-Call Manager	250-242-7131
Teck Coal Ltd.	Yes	Kevin Sharman P.Geo.	On-Call Manager	250-242-7210
Teck Resources Limited	Yes	Bruce Donald P.Eng.	Mine Manager	O 250-427-8405 [REDACTED]
BC Emergency Response Management System (BCERMS)		Provincial Emergency Reporting	24-hour Phone Number	800-663-3456
BC Highways		Drive BC	Tumbler Ridge	800-550-4997
RCMP			Tumbler Ridge Detachment	250-242-5252 or 911
Peace River Regional District	Yes	Trish Morgan	Manager of Community Services/Emergency Program Coordinator	800-670-7773 250-784-3200
District of Tumbler Ridge	Yes	Matt Treit	Fire Chief	250-242-3939
SNRI (Local Gas Plant)		SNRI Bullmoose Gas Plant: Murray Bennett Darryl Campbell Cnrl Tumbler Office Anthony Armstrong Jim Jung	Foreman Assistant Foreman Foreman Assistant Foreman	250-261-8553 250-788-6802 250-242-8137 250-242-1214
BC Hydro				911



7.APPENDIX A – Figures

Path: Z:\MVC\RM09893A01-TML-Bullmoose Review\400 Drawings\mxd\Dam Break\Break140602 Dam Break Overview.mxd



Notes:
1. Projection: NAD83 UTM Zone 10N.
2. Basedata: TRIM.

Legend:

- Natural Gas Pipeline (Underground)
- Power Transmission Line
- Highway
- Road
- Railway
- Bridge
- Forestry Recreation Trail

NOT FOR CONSTRUCTION

TO BE READ WITH KLOHN CRIPPEN BERGER REPORT DATED JUNE 2014.

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CLIENT



PROJECT
**BULLMOOSE MINE TAILINGS FACILITY
DAM BREACH & INUNDATION STUDY**

TITLE
Study Area

PROJECT No.
M09893A01

FIG No.
2.1

0 5km

