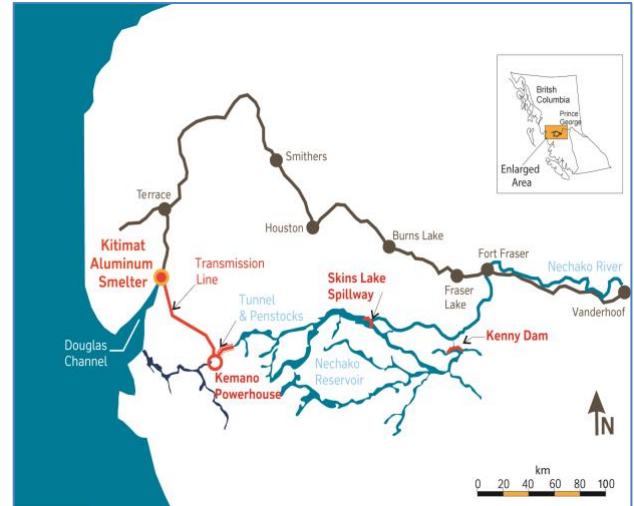
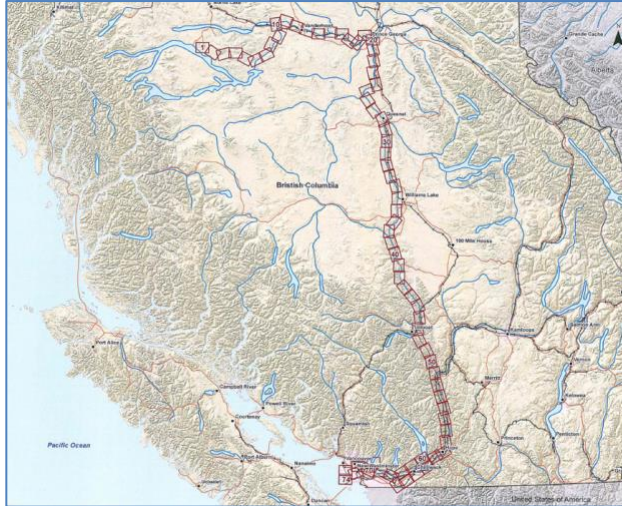


# Nechako Reservoir

## Dam Emergency Plan (DEP)

Dam Alert

Kenny  
Dam  
(Breach)Saddle  
Dams  
(Breach)Extreme  
Flood

**DAM Owner:** RioTinto (Operations Director - Power & Services)

**Prepared By:** Rio Tinto BC Works Power and Nechako Reservoir Management Teams

### \*\* About this Document \*\*

This document is specific to Nechako Reservoir emergency management and details information and procedures **to be used and followed by Rio Tinto** staff during the following events;

1. **Dam Alert** (Risk of Dam Breach) - refer to [section 2.1](#)
2. **Dam Breach** – refer to [section 2.2](#) (Kenney Dam) or [section 2.3](#) (Saddle Dams)
3. **Extreme Flood** – refer to [section 2.4](#)
4. **DEP Communication Test** - refer to [section 8](#)
5. **Other Emergencies** – refer to [Appendix E](#).

This plan is intended to have sufficient detail regarding the potential flooding impacts downstream of the Nechako Reservoir to assist downstream communities prepare emergency response plans as per BC Dam Safety Guidelines.

**In an emergency event**, Rio Tinto will notify the affected stakeholders identified under [Appendix A2 - Notification Chart](#) using One Call Now notification system. This will be a notification of the event only!

**IMPORTANT** – it is your responsibility to enact your emergency response plan upon receiving this notification. Subsequent notifications about the event will be made by Rio Tinto as information becomes available, using the same notification procedure, and until alternate emergency communication coordination is developed, as deemed appropriate.

*This is a controlled document and should not be copied/modified. Rio Tinto will distribute controlled printed copies when document is modified (as per [Distribution List – Appendix A-3](#)).*

**Issue. DEC 2022**

*ECopy of this document available on the 'Get Involved Nechako' website.*

Doc# 930-001

*Link here* → [https://www.getinvolvednechako.ca/learn-more-our-operations?tool=ganda#tool\\_tab](https://www.getinvolvednechako.ca/learn-more-our-operations?tool=ganda#tool_tab)

## PREFACE

Rio Tinto BC Works has prepared this Dam Emergency Plan (DEP), once referenced as the Emergency Preparedness Plan (EPP) in keeping with regulatory requirements, and for the benefit of downstream communities. This plan is intended to have sufficient detail regarding the potential flooding impacts downstream of the Nechako Reservoir to assist downstream communities prepare emergency response plans as per B C Dam Safety Guidelines ([Dam Safety Regulation \[O.I.C. 114, B.C. Reg. 40/2016\]](#) under the Water Sustainability Act effective February 29, 2016).

This edition of the DEP has been prepared with reference to [Guide & Template for Preparing a Dam Emergency Plan \(DEP\) in British Columbia](#) .

### **How to use this document and when to use this document:**

- 1) **DAM ALERT:** This document is to be used in the event of a Dam Alert, of a risk of a dam breach. Go to [section 2.1](#)
- 2) **DAM BREACH:** This document is to be used in the event of a Dam Breach Emergency. Go to [section 2.2 for Kenney Dam, Go to section 2.3 for Saddle Dams](#)
- 3) **EXTREME FLOOD:** This document is to be used in the event of an extreme flood such as the Probable Maximum Flood. Go to [section 2.4 for Extreme Flood](#)
- 4) **DEP COMMUNICATION TEST:** This document is to be used for all Nechako Reservoir DEP communication tests. Go to [Section 8 -NECHAKO RESERVOIR DEP COMMUNICATION TEST](#)

**FOR OTHER EMERGENCIES:** If other emergencies arise refer to [Appendix E – Other Emergency and Response Guidance Chart](#) for information that may be useful.

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## 1. INTRODUCTION

### 1.1 General

This Nechako Reservoir DEP facilitates communication and understanding of potential consequences of flood emergencies related to Nechako Reservoir.

The DEP contains information that can be used to prepare emergency response plans, warnings, and evacuation procedures for the protection and security of downstream communities.

In the event of a Nechako Reservoir DEP Communication test, refer to [Section 8 - NECHAKO RESERVOIR DEP COMMUNICATION TEST](#).

### 1.2 Roles & Responsibilities

The following are the basic emergency planning and response roles and responsibilities for the five key agencies involved when a level 2 or 3 emergency occurs. For more detailed information regarding emergency planning, preparedness, response and recovery refer to the document, [British Columbia Emergency Management System \(BCEMS\) 2016](#).

#### 1.2.1 Dam Owner (Director – Energy and Watershed Partnerships)

- As soon as an emergency event is observed or reported, immediately determine the emergency level (see [APPENDIX F - Guidance for Determining the Emergency Level](#), Appendix F).
  - Level 1: unusual event, slowly developing
  - Level 2: potential dam failure situation, rapidly developing
  - Level 3: dam failure appears imminent or is in progress
- Immediately notify the personnel in the order shown on the [Appendix A-2 – Notification Chart](#) for the appropriate emergency level.
- Undertake appropriate remedial actions during Level 2. Remedial actions may be recommended by the Dam Owners Technical Representative or required by the Dam Safety Officer.
- Provide updates of the situation to the local emergency authority to assist them in making timely and accurate decisions regarding warnings and evacuations.
- Provide leadership to assure the DEP is reviewed and updated annually and copies of the revised DEP are distributed to all who received copies of the original DEP including the records for the local emergency authorities. Undertake DEP exercises as appropriate.

##### 1.2.1.1 Rio Tinto Internal Roles & Responsibilities

###### ***BC Works General Manager***

Responsibility for overall safety of the Dams.

###### ***Director – Energy and Watershed Partnerships***

Act as the Dam Owner as described in 1.2.1 responsibilities, and delegate activities in the response to Reservoir Operations personnel and Manager, Communication and Communities.

### **Reservoir Operations Personnel**

Responsible for day to day operation of the reservoir and to carry out the necessary actions under the Nechako Reservoir DEP and as directed by the Director – Energy and Watershed Partnerships.

In the event of an emergency which could affect downstream communities, the designated Reservoir Operations personnel are responsible for initiating a warning system to notify the specified emergency agencies. Roles performing this responsibility include;

- Superintendent Nechako Watershed (*supports role as **Dam Owner's Technical Representative***)
- System Operations
- Resident Attendant
- Power Control Room
- Plant Protection

### **Business Partner Communities Social Performance**

Responsible for development and implementation of the Rio Tinto BC Operations Emergency Communications Plan. This includes announcements, updates and releases, as well as responses to media enquiries, the co-ordination of media interviews with designated spokespeople, and media site visits.

## **1.2.2 Local Emergency Authorities**

Local emergency authorities support and coordinate the overall emergency response activities within its geographical or functional jurisdiction.

- Serve as the primary contact responsible for coordination of all emergency actions for potentially affected communities.
- When a Level 2 situation occurs:
  - Prepare emergency response personnel for possible evacuations that may be needed if a Level 3 situation occurs.
  - Consider drafting a State of Local Emergency in preparation for Level 3.
  - Provide resources as necessary to the dam owners.
- When a Level 3 situation occurs:
  - Initiate warnings and order evacuation of people at risk downstream of the dam.
  - Declare a State of Local Emergency if required.
  - Direct local emergency response services (may include local law enforcement) to carry out the evacuation of people and close roads within the evacuation area (see [.APPENDIX G - Inundation Maps](#) )
  - Provide resources as necessary to the dam owners.
- Decide when to terminate the emergency.
- Participate in review, updates and exercises of the DEP.

### **1.2.3 Emergency Management BC (EMBC)**

Emergency Management BC (EMBC) is the lead agency in the provincial government for all emergency management activities. EMBC works with local governments, First Nations, federal departments, industry, non-government organizations and volunteers to support the emergency management phases of mitigation/ prevention, preparedness, response and recovery. EMBC has its headquarters, the Provincial Emergency Co-ordination Centre (PECC) and the 24/7 Emergency Call Centre (ECC) in Victoria. Six Provincial Regional Emergency Operations Centres (PREOCs) are located in Terrace, Prince George, Kamloops, Nelson, Surrey and Victoria (co-located with the PECC).

- When a Level 2 or Level 3 situation occurs, provide support as requested or required. For example:
  - Assist local emergency authority when notified of the activation of local emergency plans with issuance of an emergency task number.
  - Propagate the emergency information to other relevant stakeholders.
  - Support the communication needs of local emergency authority.
  - Declare a Provincial State of Emergency if required.
- Participate in exercises of the DEP.

### **1.2.4 Dam Owner’s Technical Representatives**

- Undertake an engineering assessment of the safety hazard at the dam.
- Assist the dam owner to determine the emergency level, if time permits.
- Advise the dam owner of remedial actions to take if Level 2 event occurs, as required.

### **1.2.5 Ministry of Forests, Lands and Natural Resource Operations**

- MFLNRO is the ministry responsible for the provincial government “Dam Emergency Response Plan (DERP)” under the Emergency Program Act. The BC Dam Safety Program administers the DERP and has an active role in all levels.
- The DSO is the first point of contact in MFLNRO for Level 1, and, is required to inform EMBC if a dam is considered to be at Level 1. EMBC may contact the local emergency authority at their discretion.
- The DSO may have an active role in Levels 2 and 3. The DSO may advise the dam owner of the emergency level determination.
- The DSO may advise the dam owner of remedial actions to take if Level 2 event occurs.
- Support EMBC, local emergency authorities, and other agencies. The DSO may be called on to be the Subject Matter Expert at an emergency response center.
- The Dam Safety Officer (DSO) is responsible for reviewing and accepting the DEP.

### 1.3 Reporting

The **Plant Protection** phone number is posted on all Nechako Reservoir Dams to facilitate public reporting of dam related concerns and emergencies. However an emergency could be reported from or to any number of sources.

All emergencies should be reported first to **Plant Protection**. **Plant Protection** will immediately activate the communication protocol in this document on the Notification Chart provided in [Appendix A-2 – Notification Chart](#).

In order to facilitate the management of an emergency, each person involved will keep a written record of all communications related to the emergency. Within 24 hours of an emergency occurring or being reported, the Skins Lake Attendant, Plant Protection, the on-duty Power Control Room Operator, and the Operations Director (or in their absence, the Coordinator) will each complete and submit a "**Notification of Emergency Response**" form found in [Appendix B1 - Notification of Emergency Response](#) to Rio Tinto BC Works Power Control Room.

The **Director – Energy and Watershed Partnerships** will also submit a copy of the report to the **General Manager of B.C. Works**.

Each person making or receiving reports will maintain a diary of events form found in [Appendix B-2 - Diary of Events](#). The diary will include brief details of:

- Date and time;
- Location of incident;
- Summary of incident, including times;
- Names of persons involved;
- Agencies notified and time called;
- Action taken and present condition; and
- Further action planned.

## 1.4 Review

The Superintendent Nechako Watershed will ensure that all Reservoir Operations personnel become thoroughly familiar with the Nechako Reservoir DEP and the procedures for emergency reporting, notification, and action described in [Section 2 - EMERGENCY SCENARIOS](#).

Annual Nechako Reservoir DEP reviews will be conducted under direction of Operations Director using the following DEP Document Review **process steps**;

### 1.4.1 DEP Document REVIEW process Steps:

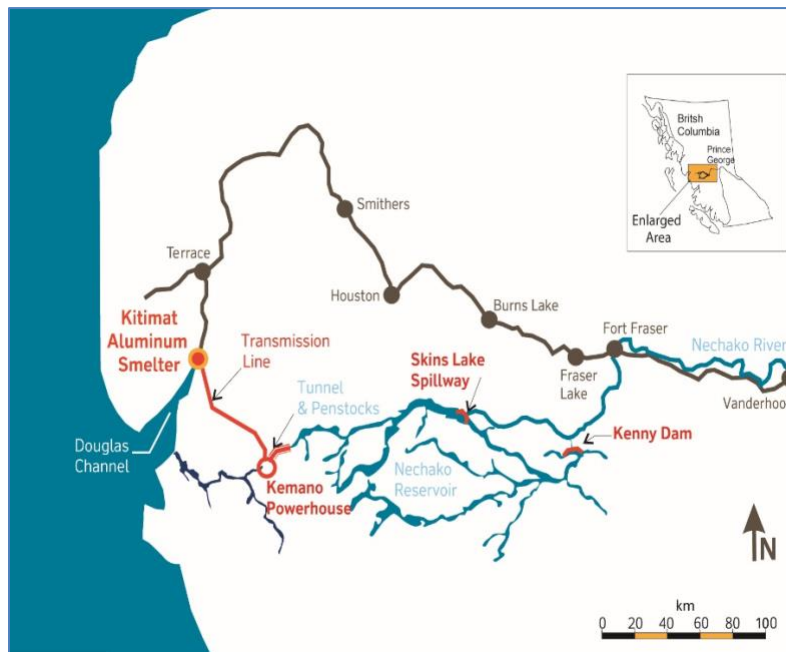
1. Director – Energy and Watershed Partnerships requests Document Controller to perform Document Review (occurs annually)
2. Document Controller updates DEP, as required
  - a. Input: Filled forms of [C-2 Request for Revision](#) received
  - b. Input: Review of Contact information all [APPENDIX A - Notifications & Contacts](#) and any other updates to DEP document
  - c. Output: DEP updated document (*not reviewed*)
3. Document Controller will put DEP document into Review
  - a. Input: [Appendix C-3 Review Routing](#) and any Requests for outside agencies to review (made by internal Rio Tinto management with [Appendix C-4 Record of Review by Outside Agencies](#))
  - b. Output: DEP updated document (*reviewed with comments*)
4. Final Updates & Approval (update DEP & [Section 9 Record of Document Revision](#))
  - a. Output: DEP Document (Final with Version assigned)
5. DEP Document (new version) Copies Distributed and Letter of Understanding filled for each recipient
  - a. Input: [Appendix A-3 DEP Distribution List and Contacts](#)
  - b. Output: [Appendix C-1 Letter of Understanding](#) (filled for each DEP recipient)



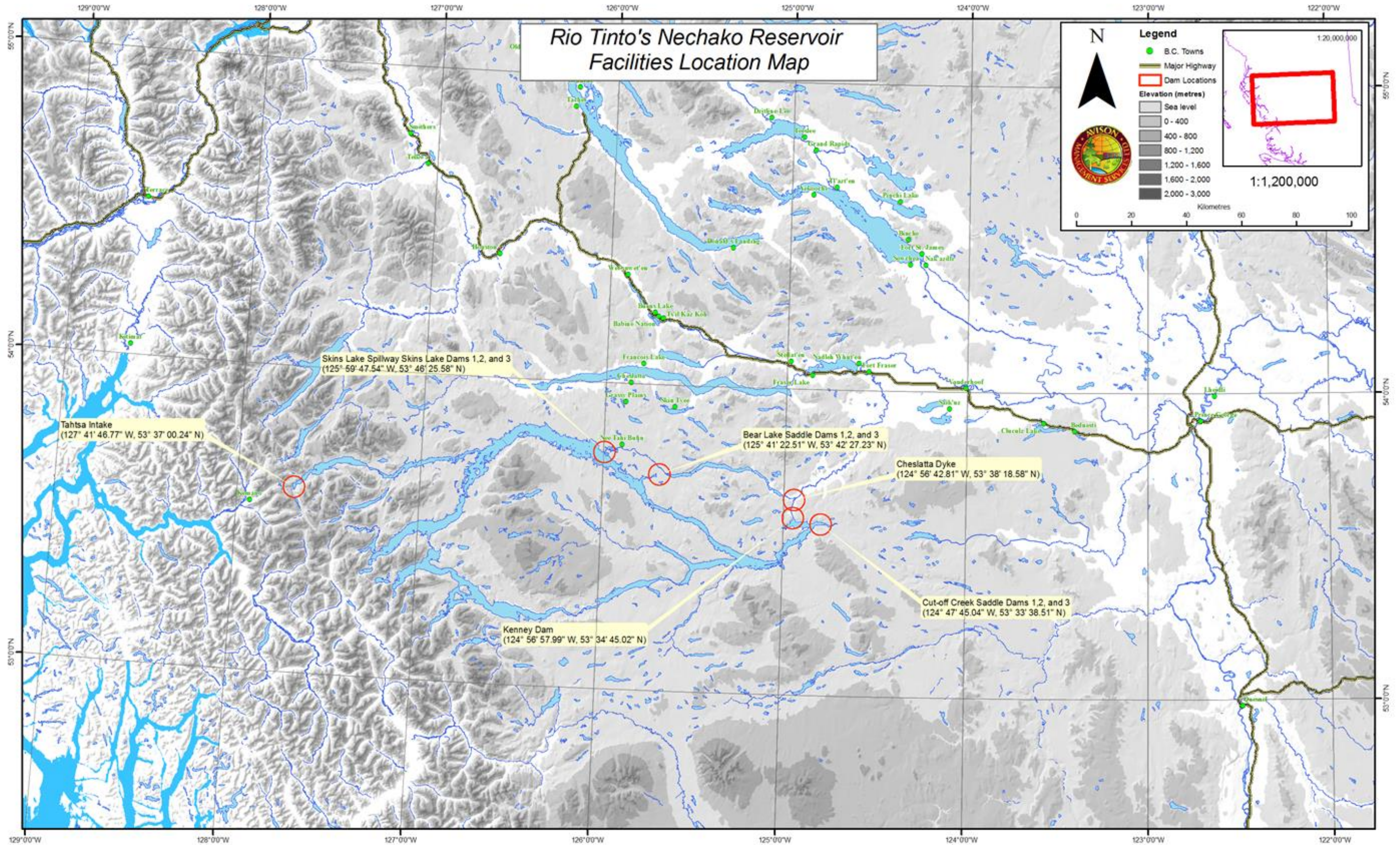
## 1.5 Location and Map

The Nechako Reservoir has one principal dam, the 95-m-high rockfilled dam with a clay core, Kenney Dam; nine smaller earthfill saddle dams; and Skins Lake Spillway, a reinforced concrete structure with two steel radial gates. Kenney Dam is situated at the eastern end of the reservoir, approximately 87 km south-west of Vanderhoof. Three of the saddle dams are situated at Cut-off Creek to the south-east of Kenney Dam. The spillway and another three of the saddle dams are situated at Skins Lake on the northern shore of the reservoir, approximately 70 km north-west of Kenney Dam. The remaining three saddle dams are situated at Bear Lake to the south-east of the spillway. Throughout the Nechako Reservoir DEP, the 10 dams and the spillway are referred to collectively as the dams. The dams were designed, constructed and have been maintained by Rio Tinto since the beginning of impoundment in 1953. Refer to the following image below and Map on the following page ([Section 1.5.1 Nechako Reservoir Facilities Location Map](#)):

*Rio Tinto BC Works Aluminium Smelter, Power and Nechako Reservoir Facilities (shown in Red)*



1.5.1 Nechako Reservoir Facilities Location Map



## 1.6 List of Facilities and Geographic Information

For geological reference, refer to Map → ([Section 1.5.1 Nechako Reservoir Facilities Location Map](#)):

Name of Facility	Latitude N	Longitude W	UTM Northing Zone 10 *(Zone 9)	UTM Easting Zone 10 *(Zone 9)
<b>Kenney Dam</b>	53°34'45.28"	124°56'58.29"	5938477	370931
<b>Skins Lake Spillway</b>	53°46'25.56"	125°59'47.55"	5962519	302542
<b>Skins Lake Saddle Dam No. 1</b>	53°46'35.57"	125°59'59.23"	5962837	302341
<b>Skins Lake Saddle Dam No. 2</b>	53°46'26.01"	125°59'48.13"	5962532	302532
<b>Skins Lake Saddle Dam No. 3</b>	53°46'13.17"	125°58'16.83"	5962066	304186
<b>Bear Creek Saddle Dam No. 1</b>	53°41'58.18"	125°42'13.07"	5953482	321524
<b>Bear Creek Saddle Dam No. 2</b>	53°42'27.23"	125°42'22.52"	5954386	321385
<b>Bear Creek Saddle Dam No. 3</b>	53°42'43.62"	125°42'34.50"	5954902	321185
<b>Cut-off Creek Saddle Dam No. 1</b>	53°34'26.21"	124°49'07.54"	5937659	379573
<b>Cut-off Creek Saddle Dam No. 2</b>	53°34'26.62"	124°49'00.70"	5937668	379699
<b>Cut-off Creek Saddle Dam No. 3</b>	53°34'24.96"	124°48'55.30"	5937614	379797
<b>Cheslatta Dyke</b>	53°38'32.48"	124°57'10.02"	5945504	370909
<b>West Tahtsa Intake</b>	53°37'00.24"	127°41'46.77"	*5941670 (Zone 9)	*586236 (Zone 9)

## 2. EMERGENCY SCENARIOS

The types of emergency situations covered within this Nechako Reservoir DEP are:

- **Dam Alert** ([Section 2.1](#))
- **Kenney Dam Breach** ([Section 2.2](#))
- **Saddle Dam Breach** ([Section 2.3](#))
- **Extreme Flood Release** ([Section 2.4](#))

Other emergencies (listed below) are referred to in [Appendix E-1 – Other Emergency and Response Guidance Chart](#). A table is provided and guidance given in terms of what to do if these circumstances occur.

- Landslides,
- Severe Storms,
- Fire,
- Oil, hazardous substances or pesticide spills,
- Major fish or wildlife losses in reservoir,
- Drownings and accidents in reservoir, or
- Criminal activity

## 2.1 Dam Alert

A dam alert is any condition that poses an immediate threat to the safety of any of the dams, the spillway, their foundations or abutments which could result in a large or rapidly increasing uncontrolled flow of water from the reservoir. This situation requires swift action to prevent development of a dam breach. The situation may require very large releases from the spillway, which may result in substantial downstream flooding.

The following 5 step process will be taken in the event of a Dam Alert Emergency:

- Step 1: Response
- Step 2: Verification
- Step 3: Notification and Remedial Action
- Step 4: Reporting
- Step 5: Media Contacts

### 2.1.1 Response

If you observe a dam alert condition at any of the dams, or anyone who learns or suspects for good reason that dam alert conditions exist, immediately contact and report to **Plant Protection** in Kitimat (telephone number 250-639-8273). If another person receives a dam alert report, they will transfer the call to **Plant Protection**.

**Plant Protection** will obtain the following information:

- the observer's name, current location and telephone number;
- details of the threat, including:
  - type, i.e. slide, slough, settlement, cracking, seepage, etc.;
  - location and extent;
  - likelihood of deterioration;
  - effect on adjacent structures;
  - reservoir level;
  - weather conditions; and
- any other relevant details.

### 2.1.2 Verification

**Plant Protection** will attempt to confirm that the report is genuine. Verification may include:

- recognition of the caller;
- corroborating evidence from current conditions, e.g. weather, earthquake;
- independent verification by the R.C.M.P. or other sources using the caller's name, telephone number and location;
- Rio Tinto personnel must be included in the verification process

### 2.1.3 Notification and Remedial Action

After attempting to verify that the dam alert report is genuine, **Plant Protection** will immediately relay the report to **Director – Energy and Watershed Partnerships** or, delegate.

After whatever additional verification is deemed appropriate, the **Director – Energy and Watershed Partnerships** will give authority for Plant Protection to:

- Follow notifications as shown in [Appendix A-2 Notification Chart](#), making certain that everyone understands the nature of a dam alert situation, and the possibility of an eventual dam breach.
- evaluate the threat;
- determine and implement immediate actions to reduce or eliminate the risk of a breach, including:
  - dumping of filler material on a boil, pipe or cloudy seepage;
  - dumping of fill material into a crack or void in the dam, or at the toe of a slide; and
  - repairs to structures or operating equipment.
  - if very large spillway releases are required, initiate the notifications shown on Appendix A-2 Notification Chart;
  - if the situation deteriorates and a dam breach becomes imminent or occurs, initiate the the appropriate Dam Breach notifications and procedures ([Section 2.2 - Kenney Dam Breach](#) or [Section 2.3 - Saddle Dam Breach](#)).

#### 2.1.4 Reporting

Use form located in [Appendix B-1- Notification of Emergency Response](#) .

- As soon as practicable, each person responding to an emergency or reported emergency will complete and submit a **Notification of Emergency Response** form to the **Director – Energy and Watershed Partnerships**.
- The **Director – Energy and Watershed Partnerships** will keep a complete record of any emergency or reported emergency and, as soon as practicable, will also complete and distribute a **Notification of Emergency Response**.

Filled Notification of Emergency response forms are to be sent to Power Operations Control Room.

## 2.2 Kenney Dam Breach

A breach of Kenney Dam consists of a failure of the dam or its foundations or abutments accompanied by a large or rapidly increasing uncontrolled flow of water from the reservoir. This is the most serious emergency involving the Nechako Reservoir, and will result in extensive downstream flooding.

The following 7 step process will be taken in the event of a Kenney Dam Breach Emergency:

- Step 1: Response
- Step 2: Verification
- Step 3: Notification
- Step 4: Remedial Action
- Step 5: Reporting
- Step 6: Inundation Maps
- Step 7: Media Contacts



### 2.2.1 Response

If you observe a breach in Kenney Dam, or flow conditions which indicate that a breach has occurred, you will immediately contact and report to **Plant Protection** on duty in Kitimat 250-639-8273. (If another person receives a dam breach report, they will transfer the call to **Plant Protection**.)

**Plant Protection** will obtain and record:

- the observer's name, current location and telephone number:
- the position and estimated size of breach:
- the estimated rate or depth of flow:
- the estimated rate of enlargement:
- the estimated time breach occurred:

### 2.2.2 Verification

**Plant Protection** will attempt to confirm that the report is genuine. Verification may include:

- recognition of the caller;
- corroborating evidence from current conditions, e.g. weather, earthquake;
- independent verification by the R.C.M.P. or other sources using the caller's name, telephone number and location;
- Rio Tinto personnel must be included in the verification process;
- Piezo Instrumentation;
- CCTV

### 2.2.3 Notification

After attempting to verify that the breach report is genuine, **Plant Protection** will immediately relay the report to the **Control Room Operators** and the **Director – Energy and Watershed Partnerships** or, delegate. After whatever additional verification is deemed appropriate, the **Director – Energy and Watershed Partnerships** will immediately initiate the notifications shown in Section 9. The notifications are listed in order of priority to maximize the time available for the safe evacuation of downstream communities at risk, and the time available for remedial action.

### 2.2.4 Remedial Action

After initiating the notifications, the **Director – Energy and Watershed Partnerships** will take all practicable steps to stem the breach.

### 2.2.5 Reporting

Use form located in [Appendix B-1- Notification of Emergency Response](#).

- As soon as practicable, each person responding to an emergency or reported emergency will complete and submit a **Notification of Emergency Response** form to the **Director – Energy and Watershed Partnerships**.
- The **Director – Energy and Watershed Partnerships** will keep a complete record of any emergency or reported emergency and, as soon as practicable, will also complete and distribute a **Notification of Emergency Response**.

Filled Notification of Emergency response forms are to be sent to Power Operations Control Room.

### **2.2.6 Inundation Maps**

Inundation maps provide sufficient information about potential flood arrival times and water levels to enable local and provincial emergency authorities to develop warning and evacuation procedures for threatened downstream communities.

The maps are based on computer model simulations of a hypothetical breach of Kenney Dam. These techniques involve making assumptions regarding the mode of dam failure and the existing downstream flows - actual conditions may differ from those assumed. The illustrated extent of the inundated areas is only approximate. Refer to [Appendix G for Inundation Maps](#) concerning a Kenney Dam Breach.

### **2.2.7 Media Contacts**

The Business Partner -Community Social Performance, Rio Tinto BC Works will be responsible for overseeing communications, including announcements, updates and releases, as well as responses to media enquiries, the co-ordination of media interviews with designated spokespeople, and media site visits.

### 2.3 Saddle Dam Breach

A Saddle Dam Breach consists of a failure of one of the nine saddle dams, the spillway, or their foundations or abutments accompanied by a large or rapidly increasing uncontrolled flow of water from the reservoir. This is the second most serious emergency involving the Nechako Reservoir. A saddle dam breach may result in extensive downstream flooding.

The following 7 step process will be taken in the event of a Kenney Dam Breach Emergency:

- Step 1: Response
- Step 2: Verification
- Step 3: Notification
- Step 4: Remedial Action
- Step 5: Reporting
- Step 6: Inundation Maps
- Step 7: Media Contacts

### 2.3.1 Response

If you observe a breach in one of the saddle dams or the spillway, or of flow conditions which indicate that a breach has occurred, you will immediately contact and report to **Plant Protection** on duty in Kitimat (250-639-8273). If another person receives a dam breach report, they will transfer the call to **Plant Protection**.

**Plant Protection** will obtain and record:

- the observer's name, current location and telephone number:
- the position and estimated size of breach:
- the estimated rate or depth of flow:
- the estimated rate of enlargement:
- the estimated time breach occurred:

### 2.3.2 Verification

**Plant Protection** will attempt to confirm that the report is genuine. Verification may include:

- recognition of the caller;
- corroborating evidence from current conditions, e.g. weather, earthquake;
- independent verification by the R.C.M.P. or other sources using the caller's name, telephone number and location;
- Rio Tinto personnel must be included in the verification process

### 2.3.3 Notification

After attempting to verify that the breach report is genuine, **Plant Protection** will immediately relay the report to **Control Room Operators** and the **Director – Energy and Watershed Partnerships** or, delegate. After whatever additional verification is deemed appropriate, the **Director – Energy and Watershed Partnerships** will immediately initiate the notifications shown in Section 9. The notifications are listed in order of priority to maximize the time available for the safe evacuation of downstream communities at risk, and the time available for remedial action.

### 2.3.4 Remedial Action

After initiating the notifications, the **Director – Energy and Watershed Partnerships** will take all practicable steps to stem the breach.

### 2.3.5 Reporting

Use form located in [Appendix B-1- Notification of Emergency Response](#).

- As soon as practicable, each person responding to an emergency or reported emergency will complete and submit a **Notification of Emergency Response** form to the **Director – Energy and Watershed Partnerships**.
- The **Director – Energy and Watershed Partnerships** will keep a complete record of any emergency or reported emergency and, as soon as practicable, will also complete and distribute a **Notification of Emergency Response**.

Filled Notification of Emergency response forms are to be sent to Power Operations Control Room.

### 2.3.6 Inundation Maps

Inundation maps provide sufficient information about potential flood arrival times and water levels to enable local and provincial emergency authorities to develop warning and evacuation procedures for threatened downstream communities.

The maps are based on computer model simulations of a hypothetical breach of a Saddle Dam. These techniques involve making assumptions regarding the mode of dam failure and the existing downstream flows - actual conditions may differ from those assumed. The illustrated extent of the inundated areas is only approximate. Refer to [Appendix G. for Inundation Maps](#) concerning a Saddle Dam Breach.

### **2.3.7 Media Contacts**

The **Business Partner, Communities Social Performance, BC Works** will be responsible for overseeing communications with the media, including announcements, updates and releases, as well as responses to media enquiries, the co-ordination of media interviews with designated spokespeople, and media site visits.

## 2.4 Extreme Flood Release

An extreme flood release is defined as a Skins Lake Spillway discharge at or near the Probable Maximum Flood (PMF) of **1653** m<sup>3</sup>/s. The PMF results from the combination of a severe hydrometeorological event followed – or preceded - by a second extreme event (Canadian Dam Association Guidelines, 2007).

The PMF flood is estimated to produce a peak daily inflow to the Nechako Reservoir of between **3566** m<sup>3</sup>/s. The Nechako Reservoir is capable of temporarily storing the major portion of these inflows. However, the PMF would require very large releases from Skins Lake Spillway of up to a maximum of approximately **1653** m<sup>3</sup>/s. These releases would be necessary to prevent excessively high water levels which could cause breaching of the dams.

The PMF would also be accompanied by a substantial rise in reservoir level which would cause flooding around the shoreline. It is anticipated that snowpack and/or weather conditions, together with monitoring of reservoir levels would provide a minimum of several days warning of the need to make very large releases.

The following 4 step process will be taken in the event of an Extreme Flood Release Emergency:

- Step 1: Notification
- Step 2: Reporting
- Step 3: Inundation Maps
- Step 4: Media Contacts



#### 2.4.1 Notification

If conditions indicate the need for very large releases from Skins Lake Spillway, the **Director – Energy and Watershed Partnerships** will initiate the notifications as shown in [Appendix A-2 - Notification Chart](#).

#### 2.4.2 Reporting

The **Director – Energy and Watershed Partnerships** will keep a complete record of any information related to the assessment of the flooding forecast, and as soon as practicable, will also complete and distribute a Notification of Emergency Response, which will include the assessed flood forecast relevant to the PMF.

Use form located in [Appendix B-1- Notification of Emergency Response](#).

- As soon as practicable, each person responding to an emergency or reported emergency will complete and submit a **Notification of Emergency Response** form to the **Director – Energy and Watershed Partnerships**.
- The **Director – Energy and Watershed Partnerships** will keep a complete record of any emergency or reported emergency and, as soon as practicable, will also complete and distribute a **Notification of Emergency Response**.

Filled Notification of Emergency response forms are to be sent to Power Operations Control Room.

#### 2.4.3 Inundation Maps

Inundation maps are based on computer model simulations of a Probable Maximum Flood (PMF) release from Skins Lake Spillway. These techniques involve making assumptions regarding various parameters and the existing downstream flows. If the PMF occurred, actual conditions may differ from those assumed. The illustrated extent of the inundated areas is only approximate. Refer to [Appendix G. for Inundation Maps](#) concerning an Extreme Flood Release.

#### 2.4.4 Media Contacts

The **Business Partner, Communities Social Performance**, Rio Tinto BC Works will be responsible for overseeing communications with the media, including announcements, updates and releases, as well as responses to media enquiries, the co-ordination of media interviews with the designated spokespeople, and media site visits.

## **3. ACCESS**

### **3.1 Road**

The dams are accessible from the north from Highway 16 by two gravel forest service roads, one near Houston, and the other at Burns Lake, which involves a ferry crossing of Francois Lake. The dams are also accessible from the north-east by roads from Highway 16 at Fraser Lake and Vanderhoof. Access roads are shown on [Appendix D-1 Access Map](#), located in the Appendix of this DEP.

### **3.2 Air**

Airstrips suitable for fixed-wing aircraft are located at Burns Lake, Fraser Lake, and Vanderhoof. The reservoir may be suitable for the landing of float planes, depending upon weather conditions. There are suitable helicopter landing sites near each of the dams. Jet fuel is available at Skins Lake Spillway and Nechako Lodge near Kenney Dam.

### **3.3 Interruption of Access - Effect of Dam Breach**

#### **3.3.1 Road**

In the event of a breach in Kenney Dam, access would still be possible from the north via the Houston forest service road, but large portions of Highway 16, including sections around the Burns Lake access road junction, and the access roads from Highway 16 at Fraser Lake and Vanderhoof would be impassable. In the event of a breach of one of the Skins Lake or Bear Creek saddle dams, road access would still be possible via Houston and Burns Lake as far as the breach, but road access to Kenney Dam would be lost.

## **4. ELECTRICAL POWER SOURCES**

### **4.1 Skins Lake Spillway**

The two gates are powered by separate electric motors. The motors are powered from underground electrical cable initiating at the Skins Lake Spillway generator building. Energy is provided by a connection to BC Hydro and in addition is backed by a 40 kW diesel generator.

The stoplogs are raised and lowered by hydraulically operated winches and, in case of emergency operation, by hydraulically operated cylinders. The hydraulic power is provided by a self-contained diesel powered portable hydraulic pump set.

### **4.2 Communication Systems**

The electrical supply for the telephone land line network is integral with the telephone lines and is provided from the provincial grid.

The radio equipment and satellite phone at the Skins Lake Spillway Attendants residence can be independently powered by a generator.

The UHF telephone at the Nechako Lodge is independently powered by generators.

### **4.3 Power Supply - Effect of Dam Breach**

The power supplies for the spillway gates and stoplogs would not be affected by a dam breach except if it is the spillway or adjacent dams that have been breached.

The interruption of land line telephone power supplies would match the interruption of land line telephone communications. The independent power supplies for the radio equipment and satellite phone at the Skins Lake Spillway Attendant's residence and the UHF telephone at the Nechako Lodge would not be affected.

## 5. WARNING SYSTEMS

A warning siren is mounted on the Skins Lake Spillway, and is sounded before changing the position of the gates, in order to warn persons in the valley immediately downstream of an impending increase in flow.

In the event of a PMF local and provincial emergency authorities will be notified of anticipated changes in spillway discharge as prescribed in this DEP, see [Section 2 - EMERGENCY SCENARIOS](#), specifically [Section 2.4 - EXTREME FLOOD RELEASE](#).

The **Business Partner, Communities Social Performance, BC Works** will be responsible for developing a communications plan.

## 6. CONSTRUCTION EQUIPMENT, MATERIAL, LABOUR & ENGINEERING EXPERTISE

### 6.1 Construction Equipment

Items of construction equipment which could be used to assist emergency repairs are located at the Skins Lake Spillway (telephone: 250-694-3532), including:

- Backhoe (4WD);
- Truck-mounted Hiab
- Pick up

### 6.2 Construction Materials

Types of construction materials which could be used to assist emergency repairs are located at the Skins Lake Spillway (telephone: 250-694-3532), including:

- Concrete mix (*Procured as required*)
- Crush rock (*Procured as required*)
- Sand (*Procured as required*)

### 6.3 Fill Materials

Sources of fill materials at each dam location are shown on Figures A2 and A3 and on the following drawings, shown on Figures A4-A8.

*Note: The following identified drawing numbers are BC Works referenced file numbers.*

Location	Material	Drawing Ref.	Appendix. Doc Ref.
<b>Skins Lake Dams No. 1, 2 and 3</b>			
Dam No.1 & 2	Rock Rip Rap	Drawing 120-SF-90	<a href="#">(Appendix D-3 – Drawing 120-SF-90 (Skins Lake Dam No. 1 &amp; 2))</a>
	Till-like material (“clay pit”)		
Dam No. 3	Rock Rip Rap	Drawing 120-191	<a href="#">Appendix D-4 - Drawing 120-191 (Skins Lake Dam No. 3)</a>
	Till-like material (“clay pit”)	Drawing 120-191 and Drawing 120-SF-91	<a href="#">Appendix D-5 - Drawing 120-SF-91 (Skins Lake Dam No. 3)</a>
<b>Bear Lake Dams</b>			
No. 1, 2 & 3	Till-like material (“clay pit”)	Drawing 117-BF-12	<a href="#">Appendix D-6 - Drawing 117-BF-12 (Bear Lake Dams No. 2 &amp; 3)</a>
	Sand and Gravel		<a href="#">Appendix D-2 – Drawing Fill Materials (Bear Lake Dam No.1)</a>
	** Riprap is available at a quarry 1.5 miles along the road to the east (St.Mary Pit)		
<b>Kenney Dam</b>			
Kenney Dam & Cutoff Creek Dams No. 1,2 &3	Impervious Fill	Drawing 113-5	<a href="#">Appendix D-7 - Drawing 113-5 (Kenney Dam location of Borrow Areas)</a>
	Gravel Filler		
	Rock Quarry		

## 7. COMMUNICATION RESOURCES

### 7.1 Telephone Facilities

Telephones land lines are located at the Skins Lake Spillway Attendant's residence. Radio communication equipment is also located at the Skins Lake Spillway Attendant's residence.

A telephone land line is located at the Nechako Lodge near Kenney Dam. The telephone operates on UHF via a repeater on Fraser Mountain.

Available communications at the Skins Lake Spillway residence include:

- Telephone 250-694-3532
- Satellite phone #1: 011-8816-224-68224
- Satellite phone #2: 011-8816-325-72811

### 7.2 Mobile Radio Phone

If the attendant is not able to be contacted on the phone or by the Sat phone, contact can be made on the mobile radio by following these instructions.

Skins Lake Communications Procedures are:

Between Bear Lake Dams and the Spillway:

Dial 1-250-845-2631 - when you hear a beep dial in the ANI # 28461 which rings the Rio Tinto truck.

Between Kenney Dams and Cut-off Creek Dams:

Dial 1-250-692-7876 - when you hear a beep press \* and dial in the ANI # 28461 which rings the Rio Tinto truck.

Dial 1-250-692-7994 - when you hear a beep dial in the ANI #28461 which rings the Rio Tinto truck.

### 7.3 Two-Way Radios

Procedures for notifying via truck radio have been updated using new province wide channels. There are truck-to-truck two-way radios in the Hiab (vehicle # 813, Motorola Serial 428TXS2286) and one mounted to the security cabinet in the attendant's office at the spillway (Motorola MaxTrac). There is one truck-to-truck two-way radio (Kenwood TK 270) which is available to install in the vehicle used by contractors on a seasonal basis.

There are three hand-held two-way radios which when not in use are kept in the attendant's office at the spillway (Motorola HT1250 Serial #749HJFA435 and Motorola HT 1250 Serial #749HFJB252).

There are no telephone facilities at the other dams. The nearest available telephone to each dam is as follows: for dam locations refer to map on Page 4, Section 1.5

<u>DAM</u>	<u>NEAREST TELEPHONE</u>	<u>NUMBER</u>
Kenney Dam	Nechako Lodge	250-412-2665
Cut-off Creek Dams	Nechako Lodge	250-412-2665
Bear Lake Dams	Skins Lake Spillway	250-694-3532

### 7.4 Interruption of Communication – Effect of Dam Breach

In the event of a breach in Kenney Dam, telephone communication with the Nechako Lodge could be interrupted, depending upon the extent of telephone system damage. Telephone communication with Skins Lake Spillway would probably still be possible via the land line, radio equipment, or satellite phone, depending upon the extent of telephone system damage in the Burns Lake area.

In the event of a breach in one of the saddle dams, other than Skins Lake No. 1 or No. 2, land line and radio telephone communication with the Spillway Attendant's residence would still be possible, but communication with Nechako Lodge could be interrupted. In the event of a breach in Skins Lake No. 1 or No. 2, radio telephone communication with the Spillway Attendant's residence would still be possible, but communication with Nechako Lodge could be interrupted.



## 8. NECHAKO RESERVOIR DEP COMMUNICATION TEST

### 8.1 General

The **Director – Energy and Watershed Partnerships** will ensure that the emergency response procedures are practiced periodically. The practices will consist of limited and full communications tests, and operational tests. During tests, notifications must commence with the words "***This is test of the notification procedure for the Nechako Reservoir***" to ensure that there is no doubt that it is a test and not an emergency.

### 8.2 Limited Communications Tests within Rio Tinto BC Operations

The **Director – Energy and Watershed Partnerships** will initiate and co-ordinate limited communications tests involving only Rio Tinto BC Operations employees at intervals which he deems appropriate based on staff changes.

### 8.3 Full Communications Tests Outside Rio Tinto BC Operations

The **Director – Energy and Watershed Partnerships** will initiate and co-ordinate a full communications test, including external agencies, at least **once a year** as part of the annual DEP document review process.

**\*Note** - The communication test plan is performed by the DEP review routing participants. Names of the participants are identified in [Appendix C-3](#) Document Review Routing.

### 8.4 Operational Tests

The planning, co-ordination, and implementation of civil emergency response plans, including warning and evacuation procedures are the responsibility of local and provincial governments. Rio Tinto BC Operations will participate in the planning and initiation of operational tests at the request of the emergency response authorities. The timing of the operational tests will be at the discretion of the emergency response authorities.

### 8.5 Reporting

The **Director – Energy and Watershed Partnerships** will ensure that each test is recorded on the log in [Appendix C-5 \(Record of Briefings, Limited and Full Communication Tests\)](#). DEP review routing participants (named in [Appendix C-3](#)) will be requested to provide feedback from the test. The team will meet post-test and feedback from the test will be collected either verbally, personal notes or by use of Test Report form [Appendix B3 \(Test Report\)](#).

The **Director – Energy and Watershed Partnerships** will prepare and distribute a brief summary of each test ( [Appendix C-6](#) - Debrief Meeting Annual DEP Review and Communication Test REPORT), noting any problems encountered and the steps taken to eliminate or overcome them in the future.

## 9. RECORD OF DOCUMENT REVISIONS

Version No	Change Description	Revised by	Reviewed by	Approved by	Date
6	Regularly scheduled review. Revised mobile radio data. Updated emergency contacts, distribution lists, titles, names.	Power Operations Mgmt	Power Operations Mgmt	Power Operations Management	2012/04
7	Annual review. Updated all references to PEP which is now known as Emergency Management BC. Updated emergency contacts, distribution lists, titles, names.	Power Operations Mgmt	Power Operations Mgmt	Power Operations Management	2013/04
8	Regularly scheduled review. Updated emergency contacts, distribution lists, titles, names.	Power Operations Management	Power Operations Mgmt	Power Operations Management	2015/04
9	Regularly scheduled review. Updated emergency contacts, distribution lists, titles, names.	Power Operations Mgmt	Power Operations Mgmt	Power Operations Management	2017/04
10	Extensive reformatting of document, including updates of Contacts and Distribution Lists.	Debbie Fossil Risk Management Coordinator	Marc Bedard Power Operations Mgmt	Andrew Czornohalan Plant Services and Power Operations Director	2019/04
11	Contacts and Distribution Lists. Document review/updates for 2019 records	Debbie Fossil Risk Management Coordinator	Marc Bedard Power Operations Mgmt	Andrew Czornohalan Plant Services and Power Operations Director	2020/11
12	Contacts and Distribution Lists. Document review/updates for 2022 records	David Silva Kemano Logistics Coordinator	DEP Steering Committee	Andrew Czornohalan Director – Energy and Watershed Partnerships	2022/12

# APPENDIX A – NOTIFICATIONS & CONTACTS

1. [Appendix A-1](#) – Emergency Contacts for Dam (Rio Tinto BC Works)
2. [Appendix A-2](#) – Notification Chart
3. [Appendix A-3](#) – DEP Distribution List & Contacts
  - a. [Provincial Government Agencies](#)
  - b. [First Nations](#)
  - c. [Municipal Government Agencies](#)
  - d. [Rio Tinto BC Works](#)

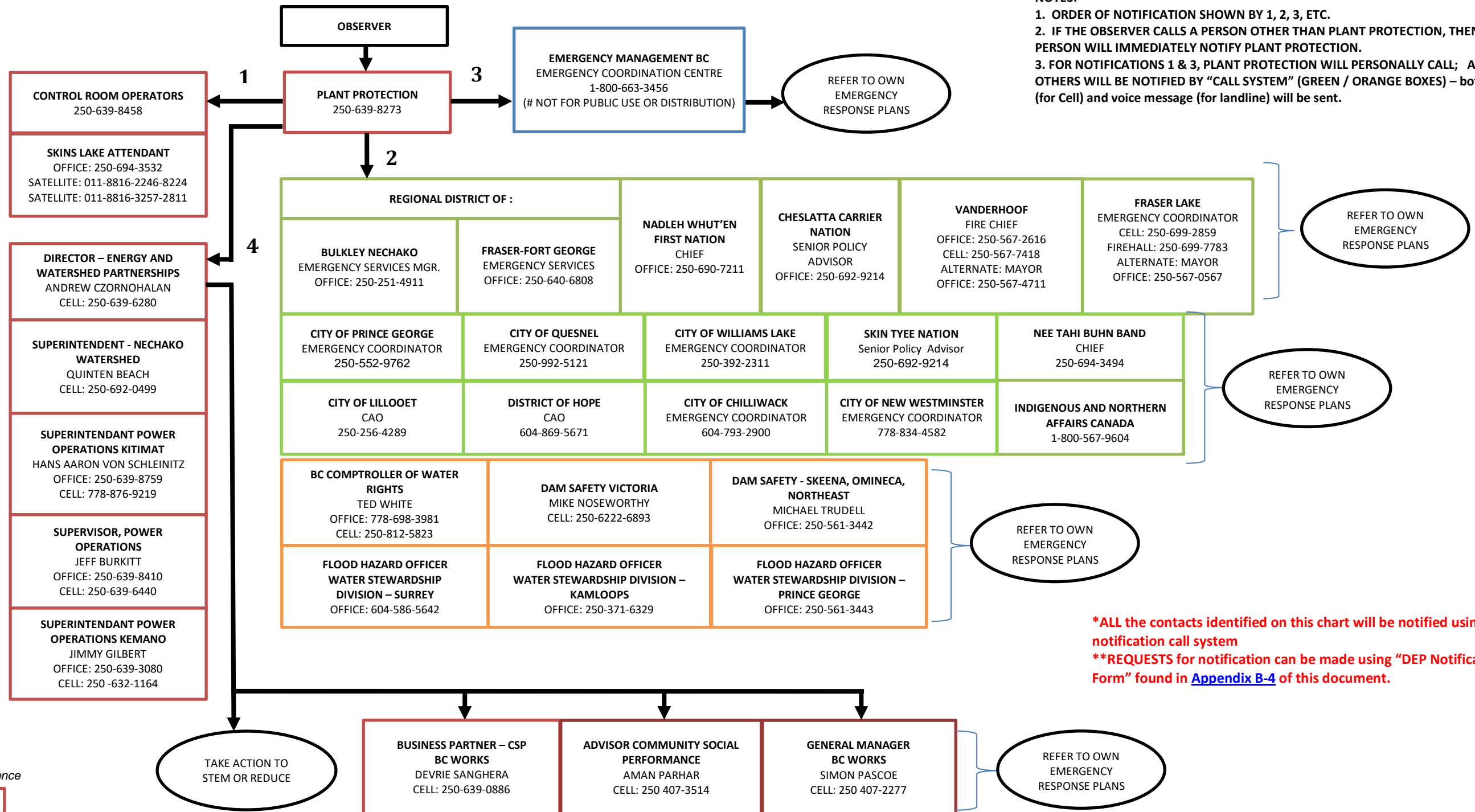
## Appendix A-1 – Emergency Contacts for Dam (Rio Tinto BC Works)

Location	Position	Name	Email Address	Office Phone Number	Contact Phone Numbers
Kitimat	Director – Energy and Watershed Partnerships	Andrew Czornohalan	Andrew.Czornohalan@Riotinto.com	250-639-8202	250-639-6280
Burns Lake	Superintendent - Nechako Watershed	Quinten Beach	Quinten.Beach@riotinto.com		250 692 0499
Vanderhoof	Advisor, Community Social Performance	Aman Parhar	aman.parhar@riotinto.com		250 407 3514
Kitimat	Superintendent – Power Operations Kitimat	Hans Aaron Von Schleinitz	hans.vonschleinitz@riotinto.com	250-639-8759	778-876-9219
Kitimat	Land Management & Operation Permit Advisor	David Silva	david.silva@riotinto.com		250-632-1194
Kitimat	Supervisor Power Operations	Jeff Burkitt	Jeff.Burkitt@Riotinto.com	250-639-8410	250-639-6440
Skins Lake Spillway	Spillway Attendant	Cheslatta Contracting	spillway@cheslattacontracting.ca	250-694-3532	250-692-6329 250-699-1005
Kemano	Superintendent – Power Operations Kemano	Jimmy Gilbert	Jimmy.Gilbert@riotinto.com	250-639-3080	250 639-6175
Kitimat	Business Partner - Community Social Performance	Devrie Sanghera	devrie.sanghera@riotinto.com		250-639-0886
Kitimat	Regional Security Officer Western Region	Ken Isaak	Ken.Isaak@Riotinto.com	250-639-8344	250-639-6253
Kitimat	Business Partner - HSE BC Works	Brynjar Hallmannsson	brynjarh@riotinto.com		778-876-8441
Kitimat	General Manager BC Works	Simon Pascoe	simon.pascoe@riotinto.com		250 407 2277

\* C: Cellular Phone Number

NECHAKO RESERVOIR DAM EMERGENCY PLAN  
**NOTIFICATION CHART**  
 DAM ALERT, KENNEY DAM BREACH, SADDLE DAM BREACH, EXTREME FLOOD RELEASE

- NOTES:**
1. ORDER OF NOTIFICATION SHOWN BY 1, 2, 3, ETC.
  2. IF THE OBSERVER CALLS A PERSON OTHER THAN PLANT PROTECTION, THEN THAT PERSON WILL IMMEDIATELY NOTIFY PLANT PROTECTION.
  3. FOR NOTIFICATIONS 1 & 3, PLANT PROTECTION WILL PERSONALLY CALL; ALL OTHERS WILL BE NOTIFIED BY "CALL SYSTEM" (GREEN / ORANGE BOXES) – both text (for Cell) and voice message (for landline) will be sent.



**\*ALL the contacts identified on this chart will be notified using our notification call system**  
**\*\*REQUESTS for notification can be made using "DEP Notification Request Form" found in Appendix B-4 of this document.**

\*One Call Now reference

- DEP RioTinto Mgmt
- DEP Stakeholder
- DEP Stakeholder

Appendix A-3 – DEP Distribution List & Contacts

**Provincial Government Agencies**

Contact		Mailing Address	Physical Address	Telephone	Copy # Issued
BC Water Stewardship	Sean Staplin	PO Box 5000, Smithers BC V0J 2N0	Skeena Region, MOE, 3726 Alfred Ave, Smithers BC	250-877-0091	10
Dam Safety - Victoria	Mike Noseworthy	PO Box 9340, Victoria BC V8W 9M1	3rd Floor, 395 Waterfront Cres, Victoria BC	250-387-3265 c- 250-380-8849	11
Dam Safety – Skeena Omenica, Northeast	Michael Trudell	5th Floor – 499 George Street Prince George BC V2L 1R5	5th Floor – 499 George Street Prince George BC V2L 1R5	250-645-9422	12
BC Comptroller of Water Rights	Ted White	PO Box 9340, Victoria BC V8W 9M1	2975 Jutland Road, Victoria BC	778 698-3981	13
EMCR – Northwest - Terrace	Chrissy Bennet	1B – 3215 Eby Street, Terrace BC V8G 2X8	1B – 3215 Eby Street, Terrace BC V8G 2X8	215-615-4800	39
EMCR Northeast – Prince George	Tony Fiala	3235 Westwood Drive Prince George, B.C. V2N 1S4	3235 Westwood Drive Prince George, B.C. V2N 1S4	250-612-4172	
EMCR Coordination Centre				1-800-663-3456	
EMCR – Southwest - Surrey	Ken Meeks	14292 Green Timbers Way, Surrey BC V3T 0J4	14292 Green Timbers Way, Surrey BC V3T 0J4	604-586-4390	15
EMCR – Central - Kamloops	Andrew Morrison	1255-D Dalhousie Dr, Kamloops BC V2C 5Z5	1255-D Dalhousie Dr, Kamloops BC V2C 5Z5	250-371-5240	16
ECOMM 911	Julie de Decker	3301 E. Pender Street Vancouver. B.C. V5K 5J3	3301 E. Pender Street Vancouver. B.C. V5K 5J3	604-369-4854	34
BC Ambulance Service	Provincial Operations Manager Team	5901 Delesalle Street, Burnaby, BC V5J 0G8	5901 Delesalle Street, Burnaby, BC V5J 0G8	604-828-4510	35
Vancouver Airport	Carla Hanson	PO Box 44638, YVR Domestic Terminal RPO Richmond, BC V7B 1W2	3211 Grant McConachie Way Link Building, L5 Richmond BC V7B 0A4	604-276-6124	38
First Nation Emergency Services Society	Jamie Svedsen (Interim Preparedness and Response Manager)	102 - 70 Orwell Street North Vancouver BC V7J 3R5	102 - 70 Orwell Street North Vancouver BC V7J 3R5	778-694-9211	

**\*Note** – With Electronic version of DEP now available on-line for download (*link on cover page of this document*), hard copy holders will be contacted to confirm if they will continue to keep hard copy.

## First Nations

Contact		Mailing Address	Physical Address	Telephone	Copy # Issued
Cheslatta Carrier Nation	Mike Robertson (Senior Policy Advisor)	PO Box 909 Burns Lake BC, V0J 1E0	1215 Southbank School Rd, Burns Lake BC V0J 1E0	250-692-9214	17
Skin Tye Nation	Rosemarie Skin (Chief)	6914 Campbell Rd, Burns Lake BC, V0J 1E0	6914 Campbell Rd, Burns Lake BC, V0J 1E0	250-694-3517	18
Nee Tahi Buhn Band	Ray Morris (Chief)	RR#2, Site 7, Comp 28 Burns Lake, BC	47975 Olson Rd, Burns Lake, BC V0J 1E0		19
Nadleh Whut'en First Nation	Larry Nooski (Chief)	PO Box 36 Fort Fraser, BC V0J 1N0	1416 Nautley Rd, Fort Fraser BC V0J 1N0	250-552-9762	20

**\*Note** – With Electronic version of DEP now available on-line for download (*link on cover page of this document*), hard copy holders will be contacted to confirm if they will continue to keep hard copy.

## Municipal Government Offices

Contact		Mailing Address	Physical Address	Telephone	Copy # Issued
Regional District of Bulkley Nechako	Deborah Jones Middleton (Emergency Services Manager)	PO Box 820 Burns Lake, BC V0J 1E0	37 3rd Ave, Burns Lake BC V0J 1E0	250-251-4911	22
Regional District of Bulkley Nechako	Jason Blackwell (Regional Fire Chief)	PO Box 820 Burns Lake, BC V0J 1E0	37 3rd Ave, Burns Lake BC V0J 1E0	250-692-0928	
Regional District of Fraser-Fort George	Aimee Alspaugh (Emergency Services Coordinator)	155 George St, Prince George BC V2L 1P8	155 George St, Prince George BC V2L 1P8	250-640-6808	23
Cariboo Regional District	Stephanie Masun (Manager of Emergency Programs)	Suite D 180 North 3rd Ave Williams Lake, BC V2G 2A4	Suite D 180 North 3rd Ave Williams Lake, BC V2G 2A4	250-855-9246	32
Village of Fraser Lake	Sarrah Storey (Mayor)	PO Box 430 Fraser Lake BC, V0J 1S0	210 Carrier Cres, Fraser Lake BC, V0J 1S0	250-699-1681	24
District of Vanderhoof	Kevin Moutray (Mayor)	PO Box 900, Vanderhoof BC, V0J 3A0	160 Connaught St, Vanderhoof BC, V0J 3A0	250-567-0567	21
District of Vanderhoof	Ian Leslie (Fire Chief)	PO Box 900, Vanderhoof BC, V0J 3A0	160 Connaught St, Vanderhoof BC, V0J 3A0	250-567-2616	
City of Prince George	Tanya Spooner (Emergency Programs Coordinator)	1100 Patricia Blvd. Prince George BC, V2L 3V9	1100 Patricia Blvd. Prince George BC, V2L 3V9	250-552-9762	25
City of Prince George	Walter Babicz (City Manager)	1100 Patricia Blvd. Prince George BC, V2L 3V9	1100 Patricia Blvd. Prince George BC, V2L 3V9	250-561-7605	
City of Quesnel	Ron Paull (Mayor)	410 Kinchant St, Quesnel BC, V2J 7J5	410 Kinchant St, Quesnel BC, V2J 7J5	250-992-2111	26
City of Williams Lake	Evan Dean (Fire Chief)	450 Mart St, Williams Lake BC, V2G 1N3	450 Mart St, Williams Lake BC, V2G 1N3	250-392-1794	
City of Williams Lake	Brendan Foote (Mayor)	450 Mart St, Williams Lake BC, V2G 1N3	450 Mart St, Williams Lake BC, V2G 1N3	250-392-1778	27
City of Lillooet	Laurie Hopfi (Mayor)	PO Box 610, Lillooet BC, V0K 1V0	615 Main St, Lillooet BC, V0K 1V0	250-256-3207	28
City of Lillooet	Darren Oike (Fire Chief)	PO Box 610, Lillooet BC, V0K 1V0	615 Main St, Lillooet BC, V0K 1V0	250-256-1694	
District of Hope	Wilfried Viktor (Mayor)	PO Box 609, Hope BC, V0X 1L0	325 Wallace St, Hope BC, V0X 1L0	604-869-5671	29
City of Chilliwack	Sharon Gaetz (Mayor)	8550 Young Rd, Chilliwack BC, V2P 8A4	8550 Young Rd, Chilliwack BC, V2P 8A4	604-793-2900	30
City of New Westminster	Cory Hansen (Emergency Coordinator)	#1 East Sixth Avenue East\New Westminster, BC V3L 4G6	#1 East Sixth Avenue East\New Westminster, BC V3L 4G6	778-834-4582	31

**\*Note** – With Electronic version of DEP now available on-line for download (*link on cover page of this document*), hard copy holders will be contacted to confirm if they will continue to keep hard copy.



## Rio Tinto BC Works

**\*PLEASE NOTE** - Refer to [Appendix A-1 – Emergency Contacts for Dam \(Rio Tinto BC Works\)](#) for complete list of contacts, as this list only contains those persons with copies of the DEP!

Contact		Mailing Address	Physical Address	Telephone	Copy # Issued
Superintendent - Nechako Watershed	Quinten Beach	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-692-0499	1
BC Works General Manager	Simon Pascoe	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250 407-2277	2
Director – Energy and Watershed Partnerships	Andrew Czornohalan	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-639-6280	3
Business Partner – CSP BC Works	Devrie Sanghera	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-639-0886	4
Supervisor Power Ops/Maintenance Ops	Jeff Burkitt	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-639-8410	5
Plant Protection - Main Gate	Dispatch	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-639-8273	6
Kitimat Control Room	Operators	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-639-8200	7
Kemano Incident Commander	George LeBleu	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-639-3152	8
Skins Lake Spillway				250-694-3532	9
Superintendent Power Operations Kitimat	Hans Aaron Von Schleinitz	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-639-8759	33
Vanderhoof Office – Extra Copies	Aman Parhar	158 Stewart Street, PO Box 25, Vanderhoof, BC V0J 3A0	158 Stewart Street, PO Box 25, Vanderhoof, BC V0J 3A0	250 407 3514	40-41-42
Rio Tinto Kitimat – Extra Copies	David Silva	PO Box 1800, Kitimat BC, V8C 2H2	1 Smeltersite Rd, Kitimat BC, V8C 2H2	250-632-1194	

**\*Note** – With Electronic version of DEP now available on-line for download (*link on cover page of this document*), hard copy holders will be contacted to confirm if they will continue to keep hard copy.

## APPENDIX B – FORMS

1. [Appendix B-1](#) – Notification of Emergency Response
2. [Appendix B-2](#) – Diary of Events
3. [Appendix B-3](#) – Test Report
4. [Appendix B-4](#) – Request for Notification of Emergency



### Notification of Emergency Response

**Important** : To be issued within 24 hours of any emergency or reported emergency by Skins Lake Attendant, Plant Protection, on-duty Power Control Room Operator, and Operations Director.

**Report is to be submitted to Power Control Room!**

To: \_\_\_\_\_

Date: \_\_\_\_\_

From: \_\_\_\_\_

File: \_\_\_\_\_

<b>Date of Occurance:</b>	
---------------------------	--

<b>Description of Problem:</b>	

<b>Person Notified:</b>	
-------------------------	--

<b>Action Taken:</b>	

<b>Action Proposed:</b>	

cc: (as applicable)



## Diary of Events

**Important** : To be issued within 24 hours of any emergency or reported emergency by Skins Lake Attendant, Plant Protection, on-duty Power Control Room Operator, and Operations Director.

**Report is to be submitted to Power Control Room**

**To:** Director – Energy and Watershed Partnerships,  
 Rio Tinto,  
 P.O. Box Box 1800  
 Kitimat, BC V8C 2H2  
**Email:** [andrew.czornohalan@riotinto.com](mailto:andrew.czornohalan@riotinto.com)

**Date:** \_\_\_\_\_

**From:** \_\_\_\_\_

<b>Location of Incident:</b>	
------------------------------	--

<b>Summary of Incident::</b>	

<b>Names of Persons involved:</b>		

<b>Agencies notified and time called:</b>	

<b>Action Taken and Present Condition:</b>	

<b>Further Action Planned</b>	<b>Taken and Present Condition:</b>	

cc: (as applicable)

Appendix B-3 - Test Report



# TEST REPORT

**To:** Mr. Andrew Czornohalan  
 Director – Energy and Watershed Partnerships  
 Rio Tinto  
 P.O. Box 1800  
 Kitimat, BC V8C 2H2  
*Email:* [andrew.czornohalan@riotinto.com](mailto:andrew.czornohalan@riotinto.com)

**Date:** \_\_

**File:** \_\_\_\_\_

**Type of Test:**

- From:** \_\_\_\_\_ Limited Communications Test
- \_\_\_\_\_ Full Communications Test
- \_\_\_\_\_ Operational Test

**Time and Date First Notified:** \_\_\_\_\_

**Notified by:** \_\_\_\_\_

**Notifications Made:**

Name:	Agency(ies)	Time of Call

<b>Message Received / Passed on:</b>	
<b>Comment on Test (If space is insufficient use additional sheet(s)) :</b>	

**Appendix B-4 - Request for Notification of Emergency**

**REQUEST for Notification (BC Works DEP)**

**\*Please Note** – This form is to be added to the RioTinto one call now notification list for Dam Emergencies. In the event of an emergency, Rio Tinto will notify you as per information provided below using the “One Call Now” notification system. For voice/text messages, this will be a recorded message only, not a person to person communication. **\*PLEASE NOTE – it is your responsibility to enact your emergency response plan upon receiving actual emergency notification and follow instructions accordingly.**

<b>Date:</b>	
--------------	--

**Please Check box ✓ for appropriate notification destination type:**

Community Organization       Government Agency

**Please specify Organization Name (if this is a Community Organization or Government Agency request) :**

--

**Contact Person Name :**

--

**Contact Location/Address :**

--

**City / Town :**

--

**Postal Code :**

--

**Contact Phone Number :**

--

**Message Preference (please check ✓):**     Voice Message    and/or     Text Message

*\*Please note – The contact Phone Number provided will be notified by programmed message for any Nechako DEP events. Upon receipt of this form indicating Text Message request; RIO TINTO will send you a text message requesting that you Opt-in with instructions to complete the set-up. Please follow the instructions when you receive this text message.*

Completed forms can be Emailed to [ken.isaak@riotinto.com](mailto:ken.isaak@riotinto.com) **OR** Mailed to following address:

TO: Rio Tinto  
 P.O. Box 1800  
 Kitimat, BC V8C 2H2  
**RE: DEP Notification Request**

**OFFICE Use Only: \* Attention BC Works Plant Protection (One Call list : DEP Notification REQs)**

Date Request Received: \_\_\_\_\_

Process Date: \_\_\_\_\_      Processed By: \_\_\_\_\_

## APPENDIX C – DOCUMENT CONTROL (for DEP)

1. [Appendix C-1](#) – Letter of Understanding
2. [Appendix C-2](#) – Request for Revision
3. [Appendix C-3](#) – Document Review Routing
4. [Appendix C-4](#) – Record of Review by Outside Agencies
5. [Appendix C-5](#) – Record of Briefings, Limited and Full Communication and Operational Tests
6. [Appendix C-6](#) - Debrief Meeting Annual DEP Review and Communication Test REPORT (Template)

**Appendix C-1 - Letter of Understanding**

Date: \_\_\_\_\_

**Mr. Andrew Czornohalan**  
**Director – Energy and Watershed Partnerships**  
Rio Tinto  
P.O. Box 1800  
Kitimat, BC V8C 2H2  
*Email:* [andrew.czornohalan@riotinto.com](mailto:andrew.czornohalan@riotinto.com)

Dear Mr. Czornohalan:

Re: Nechako Reservoir Dam Emergency Plan

We acknowledge receipt of Copy #\_\_\_\_\_ of the Nechako Reservoir Dam Emergency Plan (DEP) prepared by Rio Tinto Aluminum. In the unlikely event of a breach or dam alert at any of the Nechako Reservoir Dams, or in the event of a severe flood release, we will co-operate in every way possible and as outlined in the DEP, in expediting action to mitigate the effects of the emergency, including assistance with alerting and, if necessary, evacuating the public which would be endangered.

We understand that we are to advise you of changes in our data recorded in the DEP, and that we may contribute information at any time to update or otherwise revise the Nechako Reservoir DEP for currency.

We request that we be provided with an updated copy of the DEP or errata sheets as they are produced. We appreciate the opportunity to participate in the DEP development.

Yours truly.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and Title



Revision Form

To: **Director – Energy and Watershed Partnerships**  
**Rio Tinto**  
**P.O. Box 1800**  
**Kitimat, BC V8C 2H2**  
*Email:* [andrew.czornohalan@riotinto.com](mailto:andrew.czornohalan@riotinto.com)

Date: \_\_\_\_\_

From: \_\_\_\_\_

File: \_\_\_\_\_

Proposed Revision:	

cc: (as applicable)

**For Office Use Only:**

Approved/Not Approved: \_\_\_\_\_

Date: \_\_\_\_\_

Actioned: \_\_\_\_\_

Date: \_\_\_\_\_

**Appendix C-3 - Document Review Routing**

Name	Title	Review Date	Comments
Andrew Czornohalan	Director – Energy and Watershed Partnerships Partnerships		
Quinten Beach	Superintendent, Nechako Watershed		
Jeff Burkitt	Supervisor System Operations		
Hans Aaron Von Schleinitz	Superintendent, Power Operations Kitimat		
Jimmy Gilbert	Superintendent, Power Operations Kitimat		
Aman Parhar	Advisor CSP		
Greg Daugherty	Plant Protection		
Ken Isaak	Coordinator, Emergency & Prevention Services		

**Appendix C-4 - Record of Review by Outside Agencies**

AGENCY	DATE	REMARKS
SECTION HEAD – MFLNRO - DAM SAFETY SECTION SCOTT MORGAN	May 6/2019	Page 36 – Notifications print outside margin, Page 37 – Change Dam Safety resource names in PG to M.Trudell and Ted White  APPENDIX D – did not print clearly – recommend reissue of higher resolution  *COPY of communication in record of 2019 Debrief DEP Review and Comm Test

**Appendix C-5 - Record of Briefings, Limited and Full Communications and Operational Tests**

<b>DATE</b>	<b>INITIATOR</b>	<b>DESCRIPTION</b>	<b>REMARKS</b>
May 17/02	D. McDonagh (SL Attendant)	Drill - Breach of Saddle Dam #3	Outside Agencies require training on use of DEP Manual
			Notification Chart requires updating
			Map to be created showing location of all Dams (D. McAndrew)
			Discussion on necessity of placing emergency contact info at each dam
Aug. 30/04	G. Geeraert (SL Attendant)	Drill - Breach of Dam	Notification Chart requires updating
Nov. 25/05	Skins Lake Attendant	Drill - Breach of Kenney Dam	OK
Oct. 20/06	Al Grier (SL Attendant)	Drill - Breach of Kenney Dam	Notification Chart requires updating
Nov. 7/08	SLS Attendant	Drill – Breach of Kenney Dam	Notification Chart requires updating
Nov. 6/09	SLS Attendant	Drill – Breach of Saddle Dam #3	OK
Nov. 18/10	SLS Attendant	Drill – Breach of Kenney Dam	Notification Chart requires updating
June 20/2019	RT Plant Protection	Initiate Drill for DEP Communication Test	Debrief was held on July 5/2019. Records of Debrief in Doc Control system
Sept 16/2020	DEP Review Team	Initiate Drill for DEP Communication Test	Debrief on Sept 25 <sup>th</sup> 2020. Review of 2019 actions and 2020 actions developed

## Appendix C-6 – Debrief Meeting Annual DEP Review and Communication Test

### Debrief Meeting Annual DEP Review and Communication Test REPORT (Template)

#### DEP Review Team Participants

Name	Role

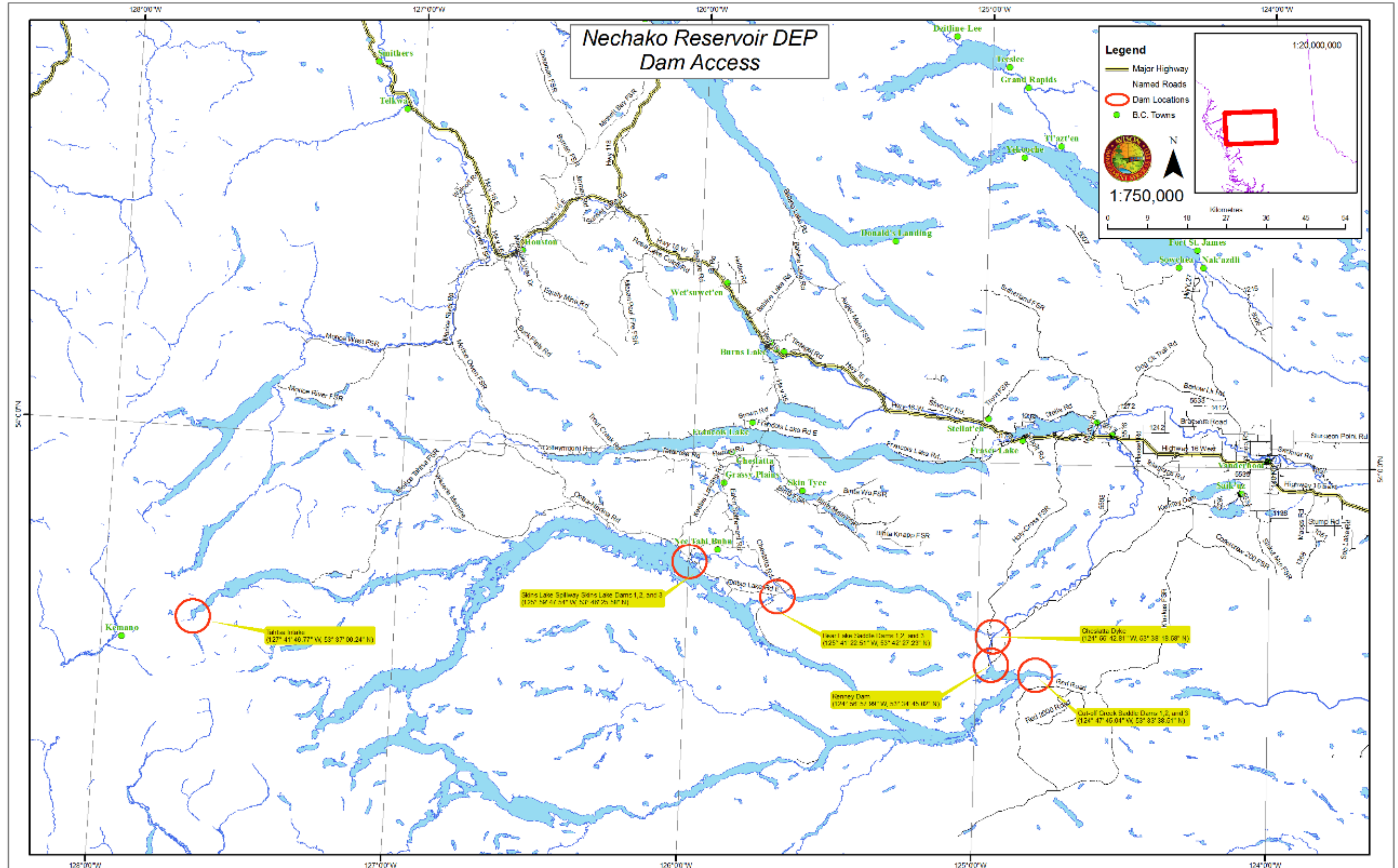
#### Contents

1. Objectives
  - Identify the objective of review for current year for the DEP Document and Communication Test
  - Status of previous recommendations and improvements
2. Introduction (provide the plans for current year and what happened)
  - DEP Document Review process
  - Stakeholder DEP Distribution / Communication planning
  - Communication Test
3. Observation (information gathered from Post-Test meeting, Meetings, etc)
  - Observation / Learning
    - Recommendation / Action Log
4. Conclusion and Next steps
5. Appendix (*items to be included as evidence*)
  - Meeting Minutes of the DEP REVIEW
  - Communication Message (Used During Test)
  - Communication Test - One Call Now Report (Email)
  - Communication Test - One Call Now Report (Phone)
  - Communication Test - One Call Now Report (SMS)
  - *Other pertinent emails, communication records, etc*

## APPENDIX D – ACCESS MAPS & DRAWINGS

1. [Appendix D-1](#) – Access Maps
2. [Appendix D-2](#) – Fill Materials (Bear Lake Dam No.1)
3. [Appendix D-3](#) – Drawing 120-SF-90 (Skins Lake Dam No. 1 & 2))
4. [Appendix D-4](#) – Drawing 120-191 (Skins Lake Dam No. 3)
5. [Appendix D-5](#) – Drawing 120-SF-91 (Skins Lake Dam No. 3)
6. [Appendix D-6](#) – Drawing 117-BF-12 (Bear Lake Dams No. 2 & 3)
7. [Appendix D-7](#) – Drawing 113-5 (Kenney Dam location of Borrow Areas)

Appendix D-1 - Access Map



Appendix D-2 – Drawing Fill Materials (Bear Lake Dam No.1)

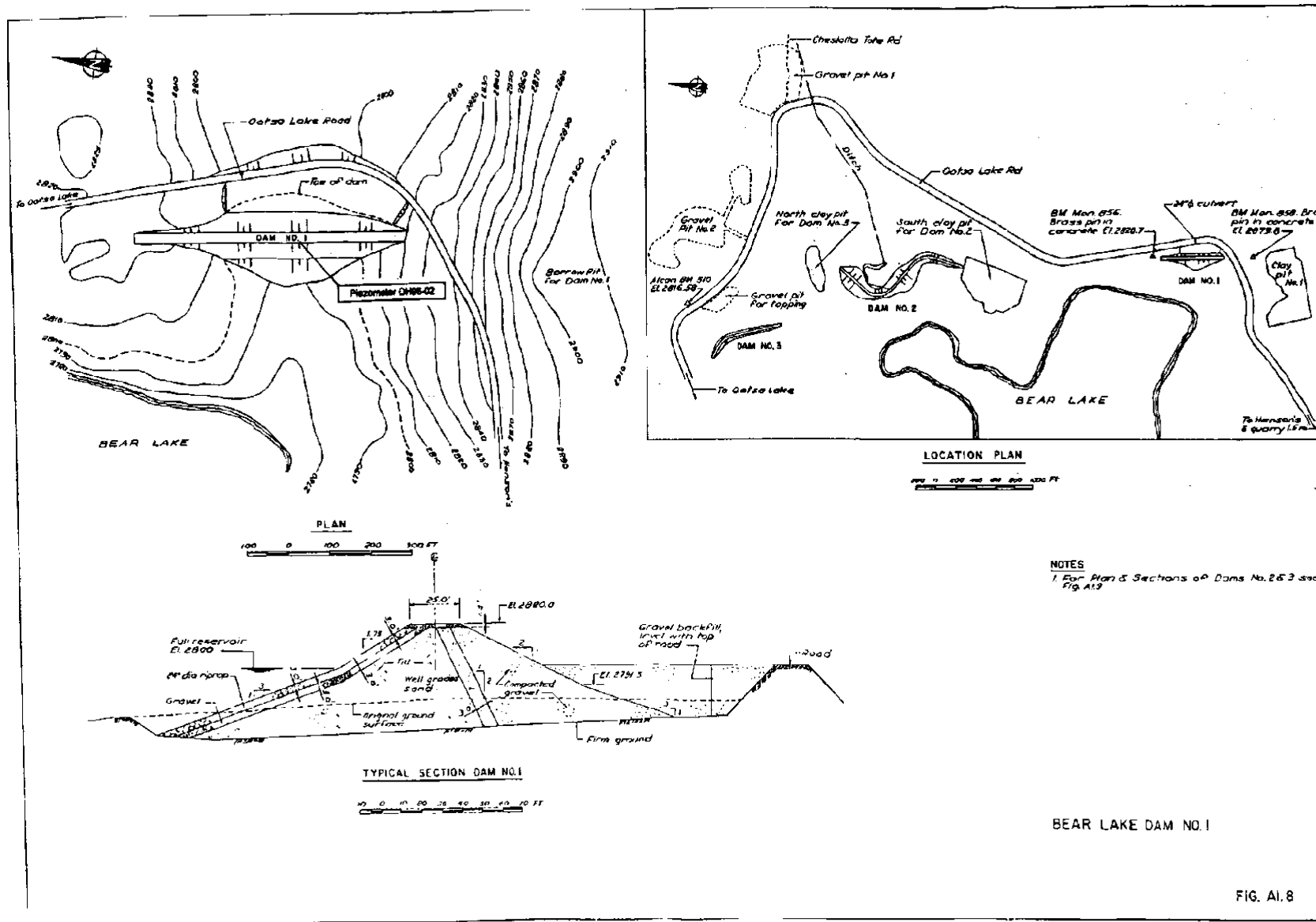
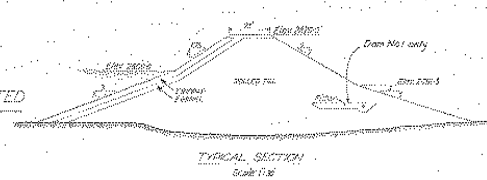
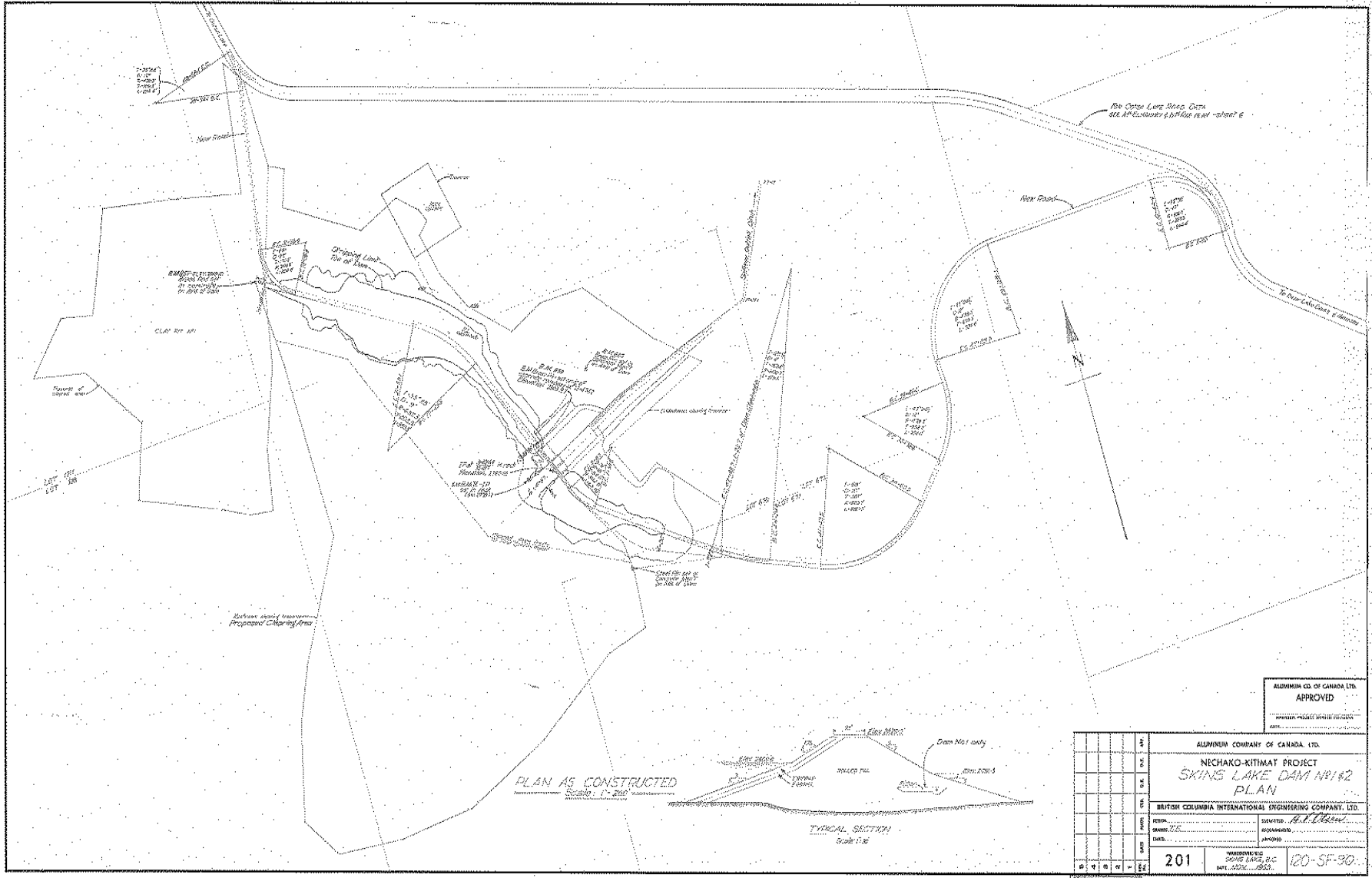


FIG. A1.8

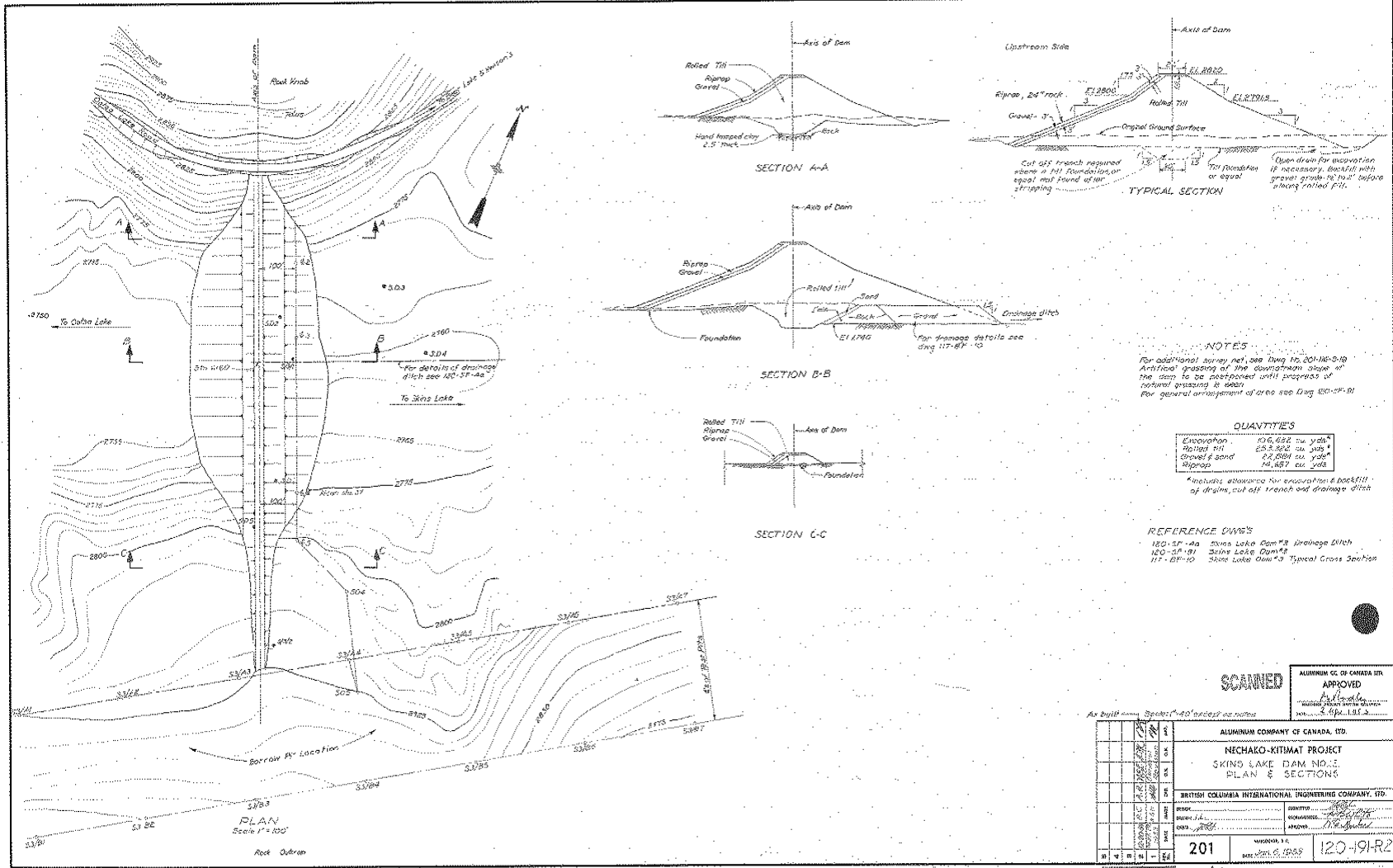


Appendix D-3 – Drawing 120-SF-90 (Skins Lake Dam No. 1 & 2)



ALUMINUM CO. OF CANADA, LTD. APPROVED	
ALUMINUM COMPANY OF CANADA, LTD. NECHAKO-KITIMAT PROJECT SKINS LAKE DAM NO. 1 & 2 PLAN	
BRITISH COLUMBIA INTERNATIONAL ENGINEERING COMPANY, LTD.	
DESIGNER: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DATE: 1983	DRAWN: <i>[Signature]</i> DATE: 1983
201	120-SF-90
AO-1983a-KT	

120-SF-90



**NOTES**  
 For additional survey net see Engg 120-190-S-19  
 Artificial grading of the downstream slope of the dam to be postponed until progress of natural grading is clear  
 For general arrangement of area see Engg 120-5F-81

**QUANTITIES**

Excavation	136,422 cu yds
Rolling till	25,838 cu yds
Gravel & sand	27,894 cu yds
Riprap	14,687 cu yds

\*Includes allowance for excavation & backfill of drains, cut-off trench and drainage ditch

**REFERENCE DWGS**  
 120-5F-41a Skins Lake Dam #3 Drainage Ditch  
 120-5F-191 Skins Lake Dam #3  
 117-BF-10 Skins Lake Dam #3 Typical Cross Section

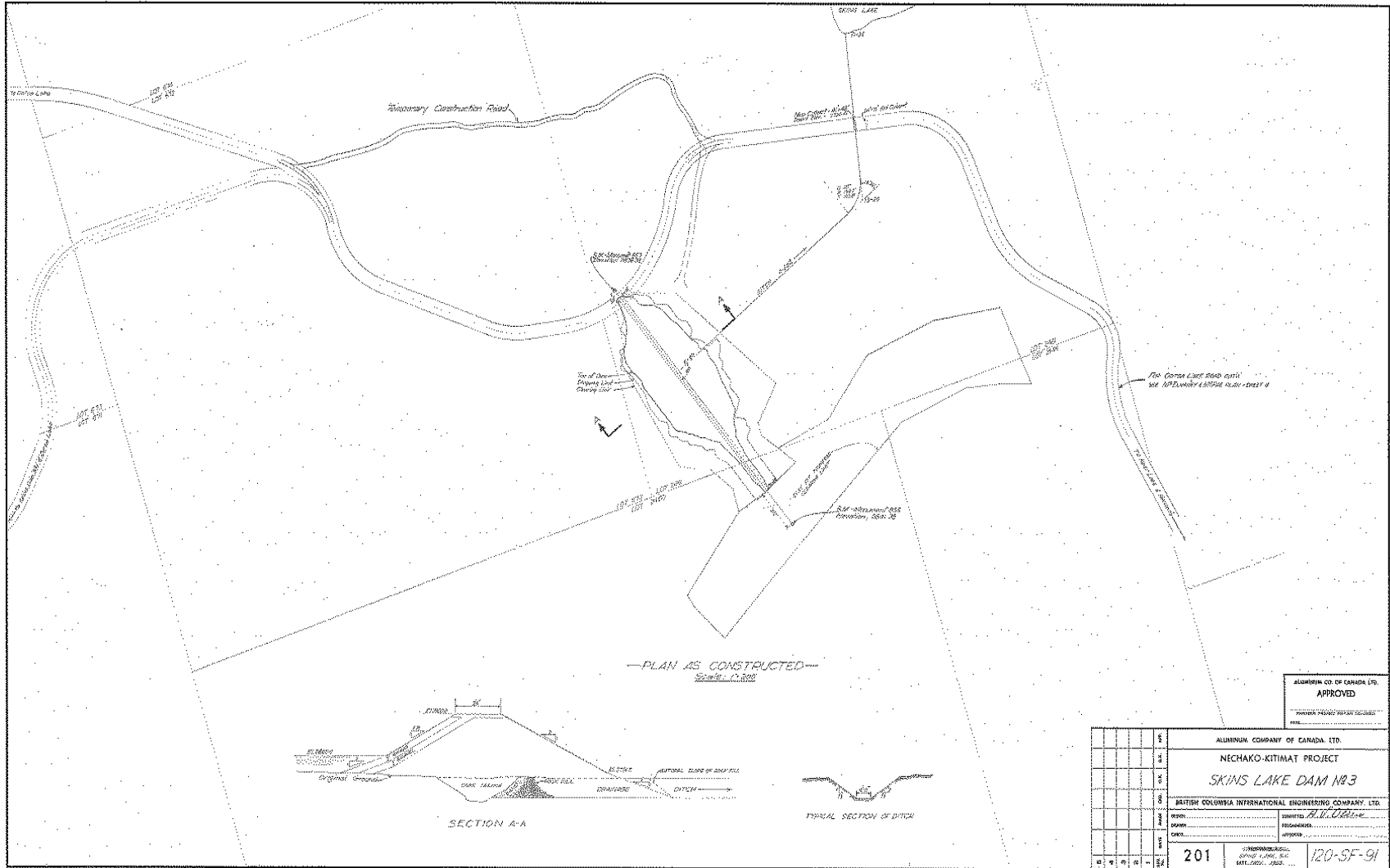
As built items specified on drawings are shown

NO.	DATE	BY	CHKD
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

ALUMINUM CO. OF CANADA LTD.  
 APPROVED  
 [Signature]  
 BRITISH COLUMBIA INTERNATIONAL ENGINEERING COMPANY, LTD.  
 PROJECT: NECHAKO-KITIMAT PROJECT  
 SKINS LAKE DAM NO. 3  
 PLAN & SECTIONS  
 SHEET NO. 201  
 DATE: JUN 6, 1959  
 120-491R2  
 A-19884-KT

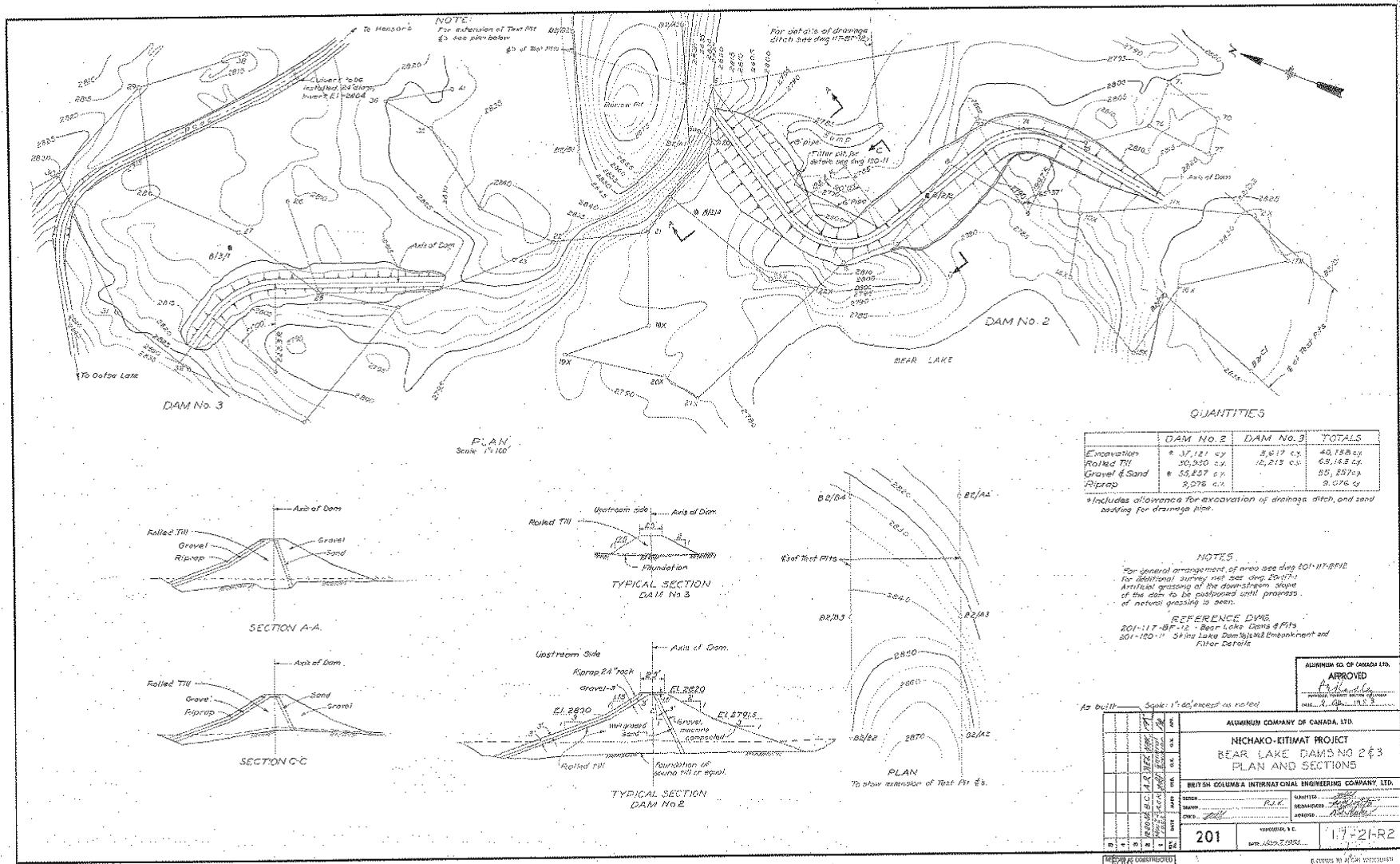
A-19884-KT

Appendix D-5 - Drawing 120-SF-91 (Skins Lake Dam No. 3)

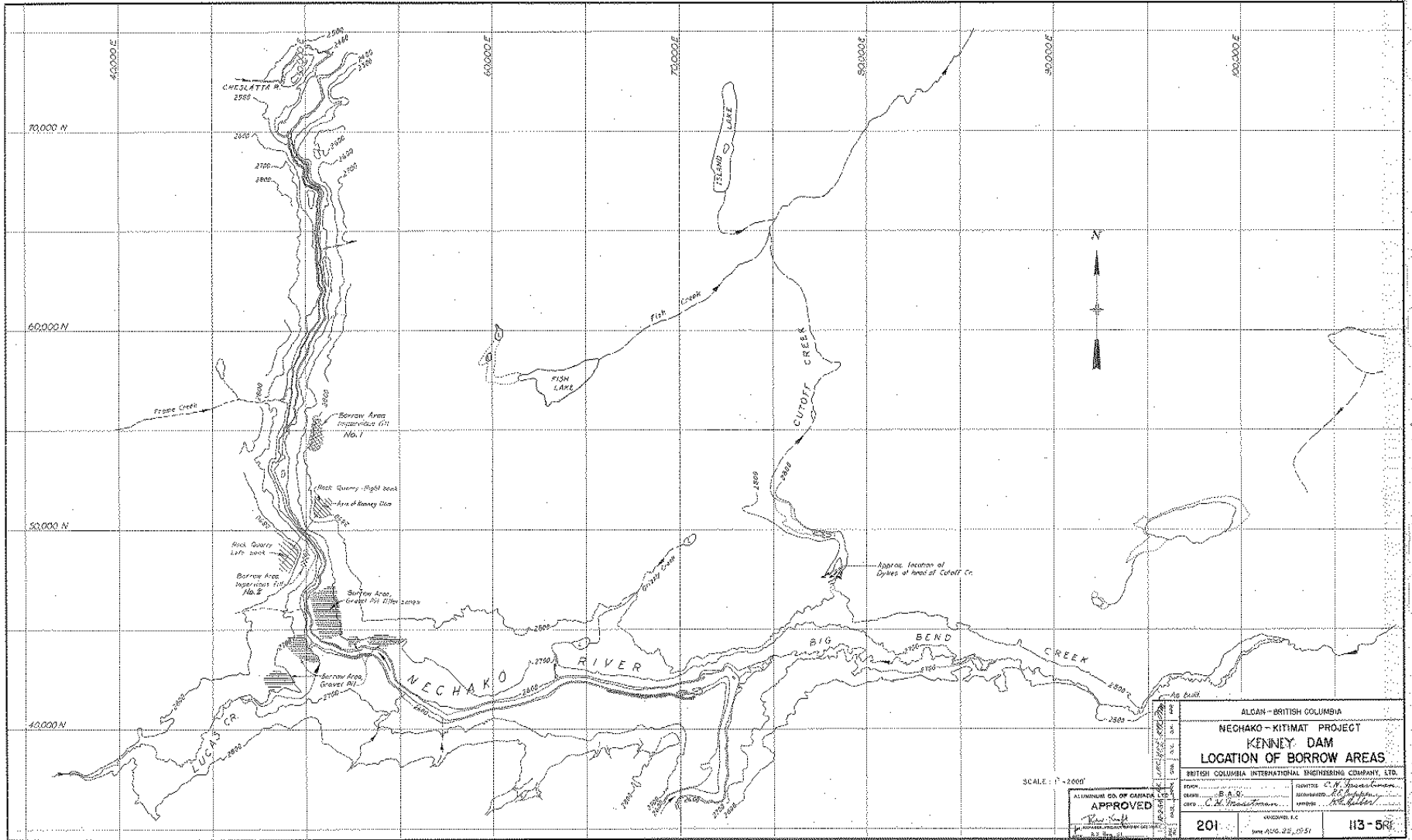


120-SF-91

Appendix D-6 - Drawing 117-BF-12 (Bear Lake Dams No. 2 & 3)



Appendix D-7 - Drawing 113-5 (Kenney Dam location of Borrow Areas)



# APPENDIX E – OTHER EMERGENCY RESPONSE GUIDANCE

## 1. [Appendix E-1](#) – Other Emergency and Response Guidance Chart

- [Figure 1](#). Assumed Breach for Kenney DAM
- [Figure 2](#). Assumed Breach for Skins Lake DAM 3
- [Figure 3](#). Flood discharge Hygrographs resulting from assumed Kenney DAM Breach
- [Figure 4](#). Flood Elevation resulting from assumed Kenney DAM Breach
- [Figure 5](#). Flood Elevation resulting from assumed Kenney DAM Breach
- [Figure 6](#). Flood Elevation resulting from assumed Kenney DAM Breach
- [Figure 7](#). Flood Discharge Hygrographs resulting from assumed Skins Lake DAM 3 Breach
- [Figure 8](#). Flood Elevation resulting from assumed Skins Lake DAM 3 Breach
- [Figure 9](#). Flood Elevation resulting from assumed Skins Lake DAM 3 Breach
- [Figure 10](#). Flood Elevation resulting from assumed Skins Lake DAM 3 Breach
- [Figure 11](#). Flood Discharge Hygrographs resulting from assumed Extra Flood Release
- [Figure 12](#). Flood Elevation resulting from Extreme Flood Release
- [Figure 13](#). Flood Elevation resulting from Extreme Flood Release

**Appendix E-1 – Other Emergency and Response Guidance Chart**

\*NOTE: The following graphs and figures contained in this section are provided to reference the following situations:

<b>Other Emergencies</b>	<b>Situation and Important Information</b>	<b>*Response Type</b>
<b>Landslides</b>	Landslides upstream or downstream could affect the stability of the dams and must be reported to the Power Control Room, who will inform the Operations Director who will take appropriate action including who caused the slide, monitor to determine ongoing movement, and post warning signs.	<b>1</b>
<b>Severe storms</b>	Heavy rainfall could lead to erosion of dam slopes, and high winds, heavy snowfall, or icing conditions could lead to equipment damage. Inspections should be carried out and repair all damage caused by storms.	<b>3</b>
<b>Fire</b>	Forest fires are unlikely to be damaging to any of the reservoir structures but the Skins Lake Spillway residence and facilities may be at risk. Report forest fires to BC Wildfire Service (1-800-663-5555) and Plant Protection (250-639-8273).	<b>3</b>
<b>Oil, Hazardous substances or pesticide spills</b>	Refer to Rio Tinto BC Operations Management Manuel. Report to Plant Protection (250-639-8273).	<b>1</b>
<b>Major fish or wildlife losses in reservoir</b>	A significant loss of fish or wildlife will be recorded and reported to the Operations Director. The observer will record details of the loss, including species, number, location, causes and any other relevant information. The Operations Director will notify the Fish and Wildlife Branch and the federal Department of Fisheries and Oceans, and notify and update the Manager, Communication and Communities, BC Works.	<b>1</b>
<b>Drownings or accidents in reservoir</b>	All accidents in the reservoir will be reported to the Plant Protection, who will report to the R.C.M.P. as soon as possible. If personnel learn indirectly of an accident already reported to the R.C.M.P., the event will be reported to the Operations Director who will notify and update the Manager, Communication and Communities, BC Works.	<b>2</b>
<b>Criminal Activity</b>	All criminal activity in the vicinity of the Nechako Reservoir will be reported to the Plant Protection, who will report to the R.C.M.P. as soon as possible and notify and update the Manager, Communication and Communities, BC Works.	<b>2</b>

**\* Response Type 1: Non Dam Emergency or other emergency, monitor event that is slowly developing**

**\* Response Type 2: Emergency requiring R.C.M.P. direct involvement**

**\* Response Type 3: Inspection of all Dams and Spillway and repair if needed**

Figure 1. Assumed Breach for Kenney Dam

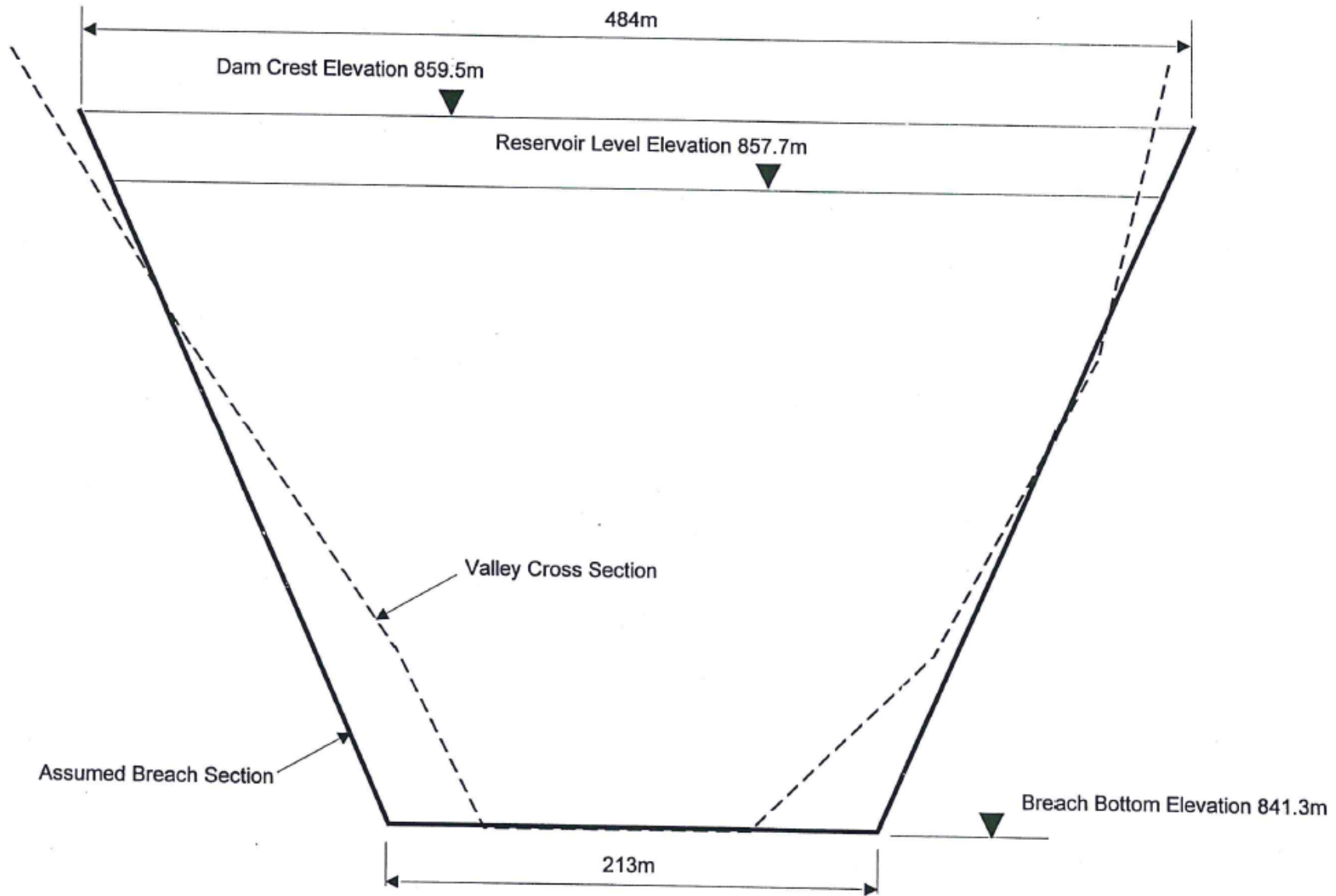




Figure 2. Assumed Breach for Skins Lake DAM 3

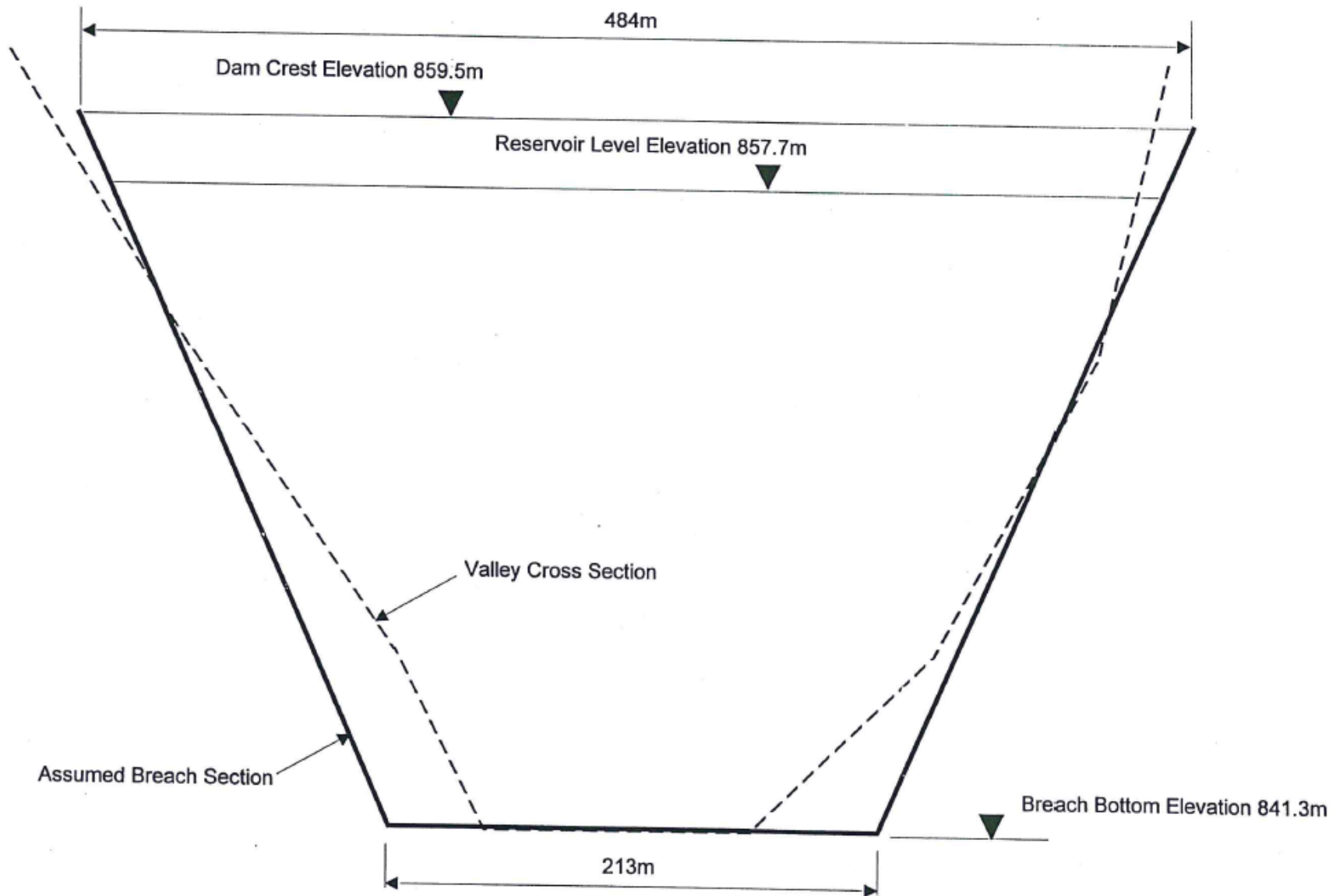


Figure 3. Flood discharge Hydrographs resulting from assumed Kenney DAM Breach

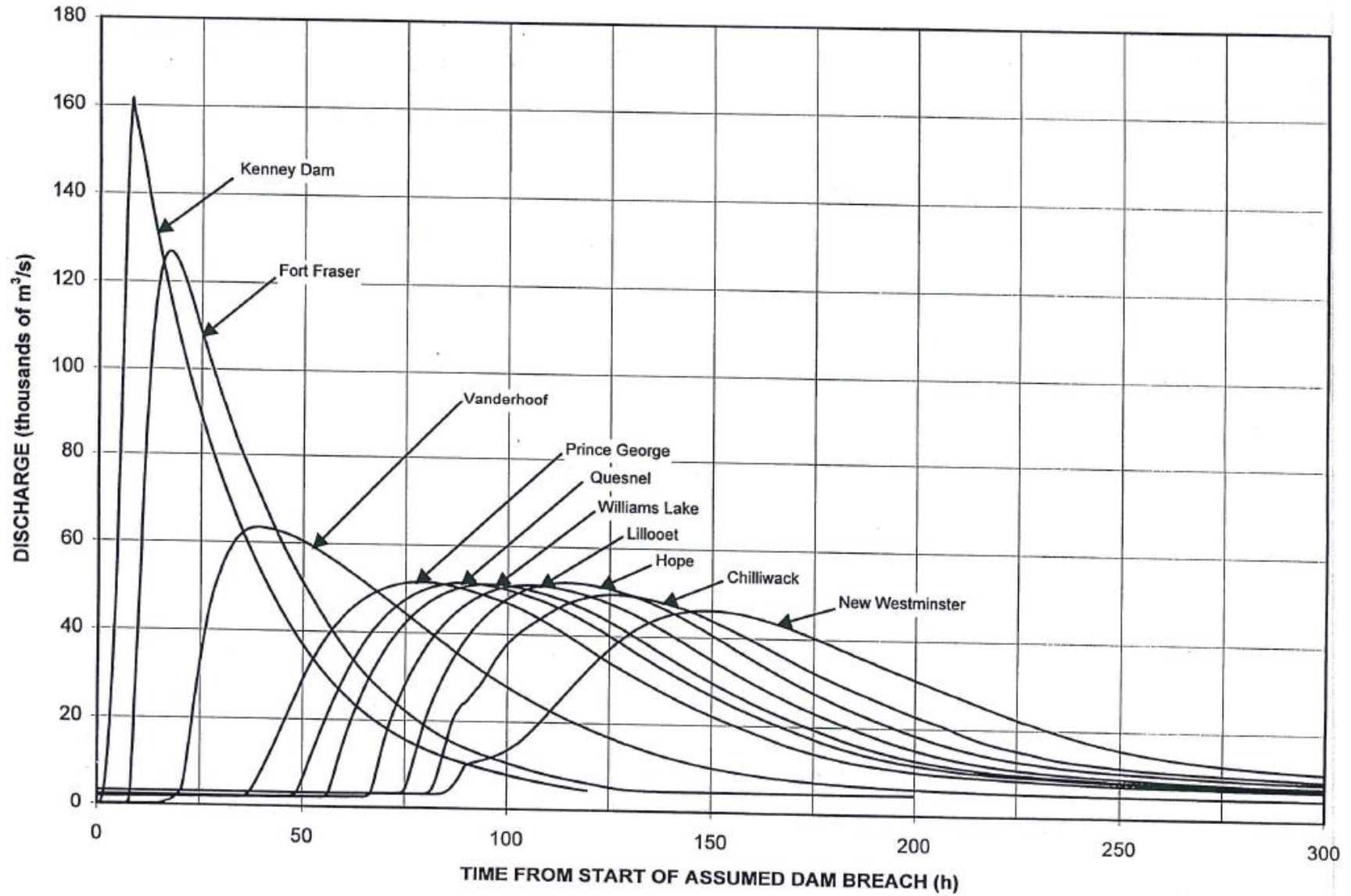


Figure 4. Flood Elevation resulting from assumed Kenney DAM Breach

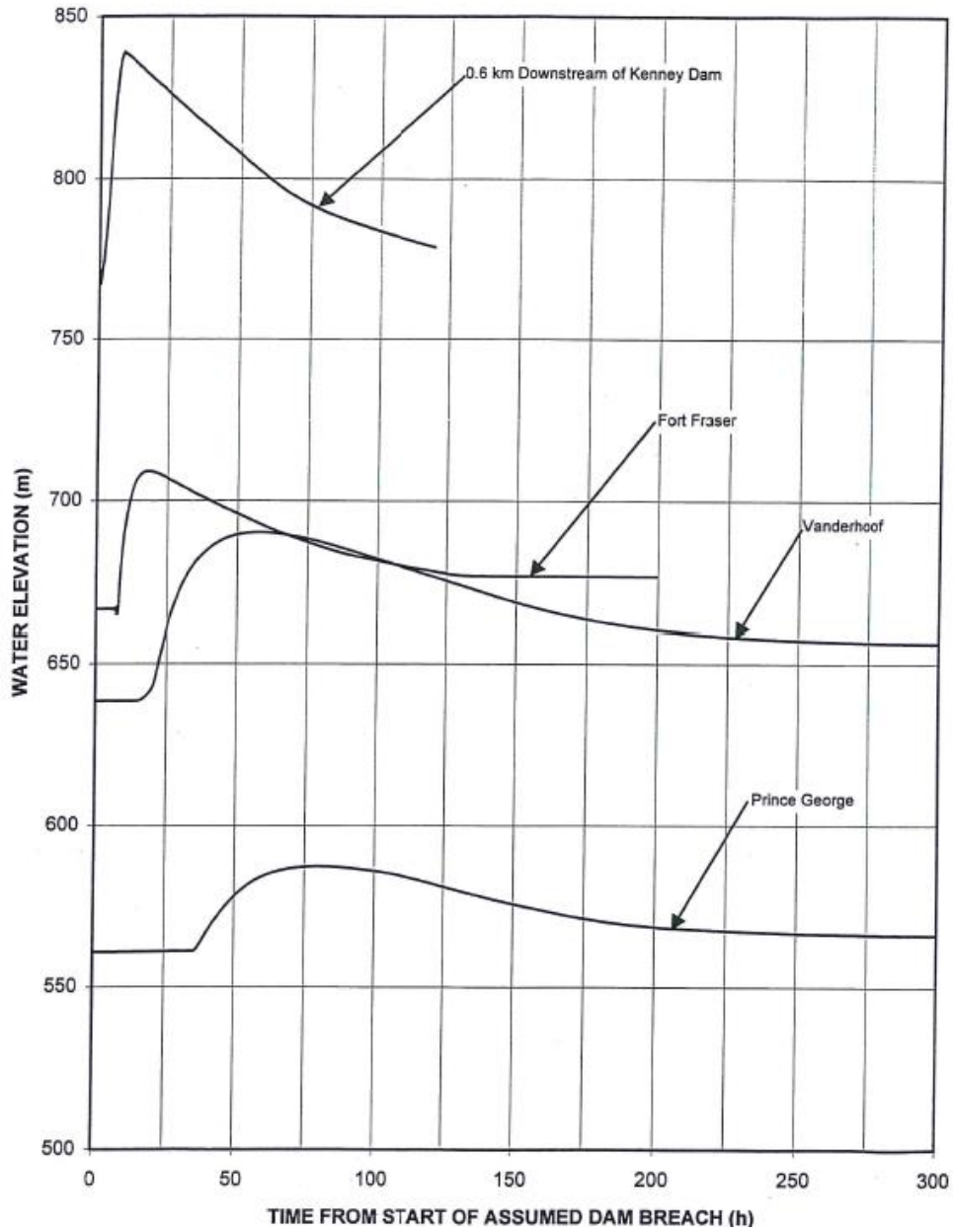


Figure 5. Flood Elevation resulting from assumed Kenney DAM Breach

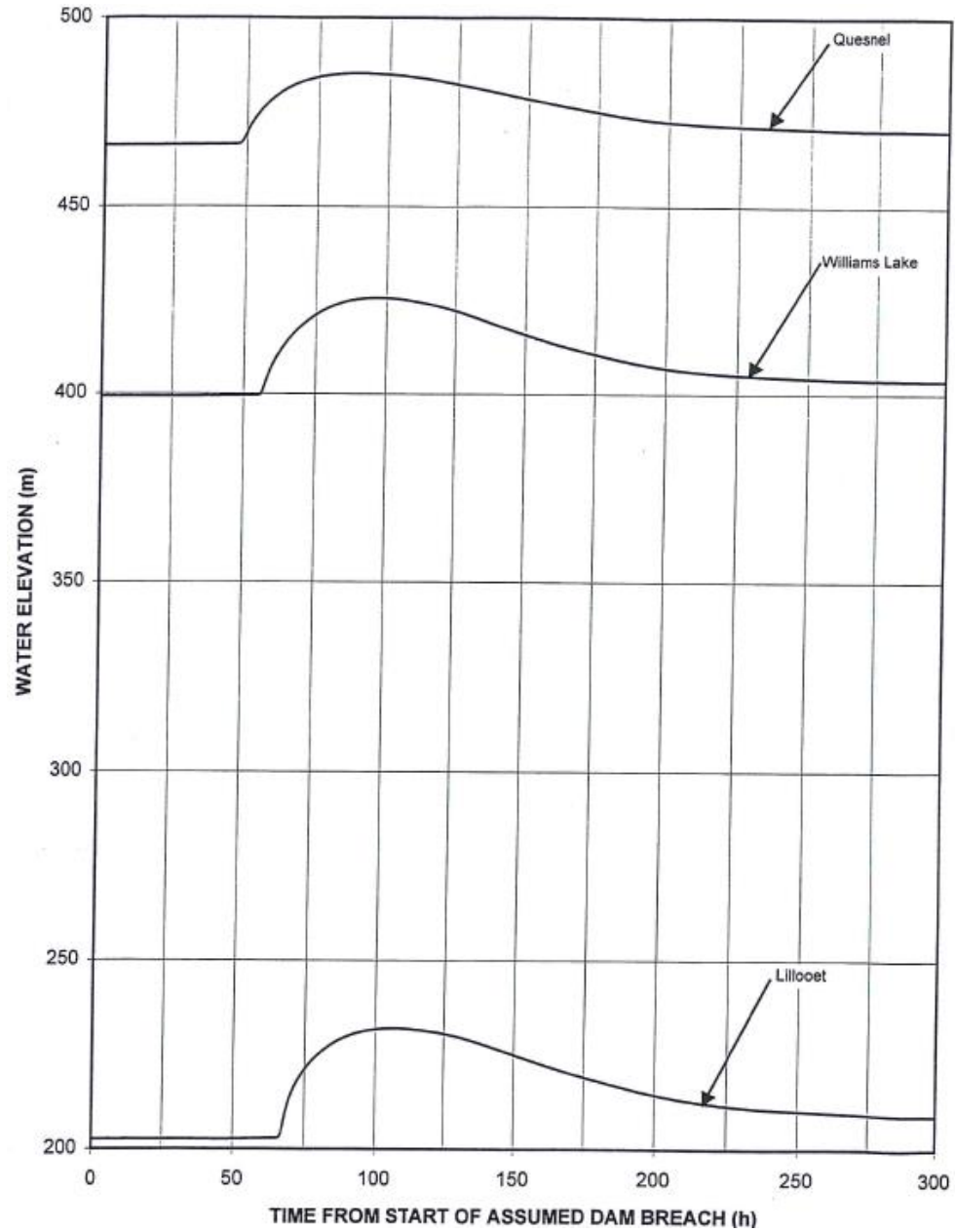


Figure 6. Flood Elevation resulting from assumed Kenney DAM Breach

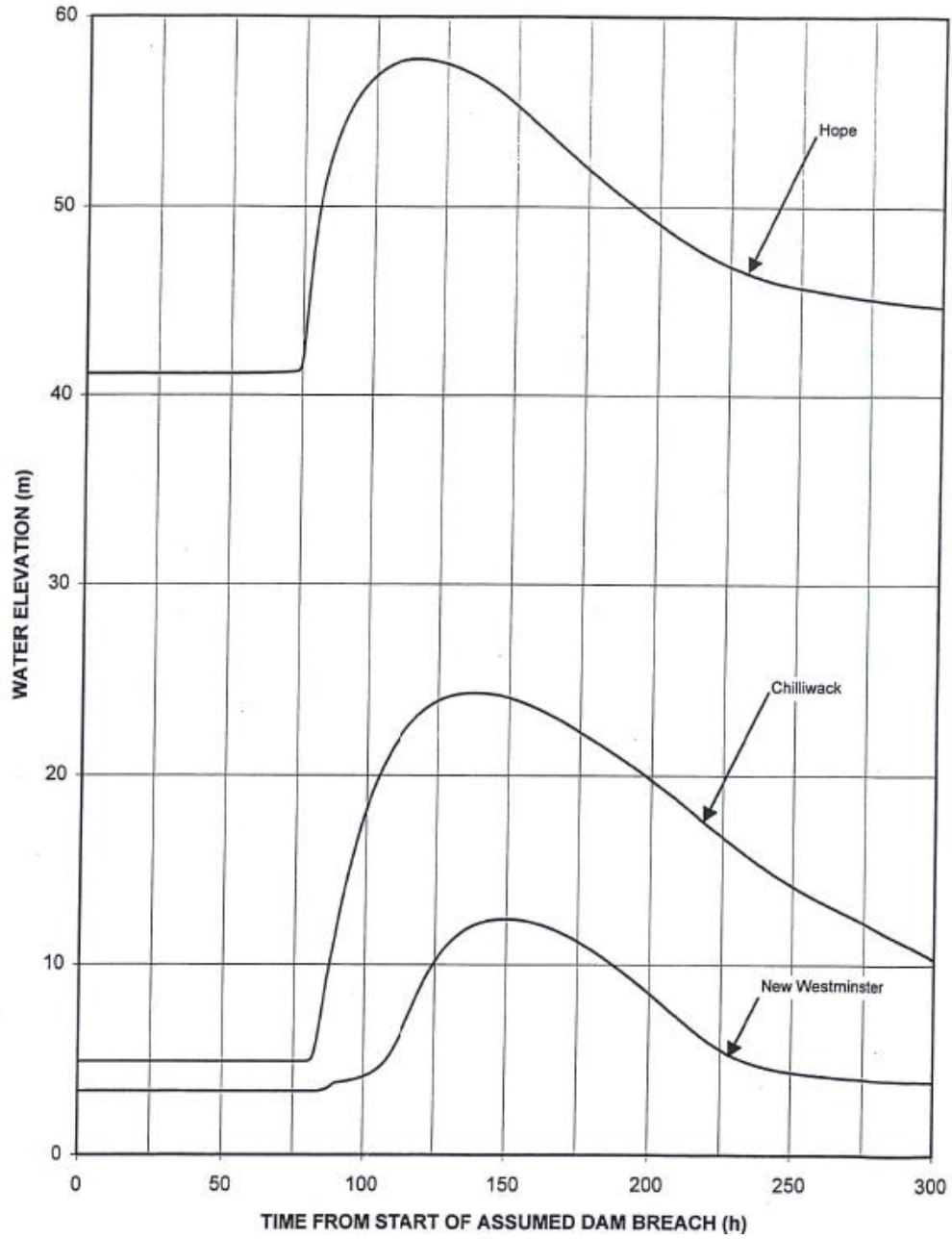


Figure 7. Flood Discharge Hydrographs resulting from assumed Skins Lake DAM 3 Breach

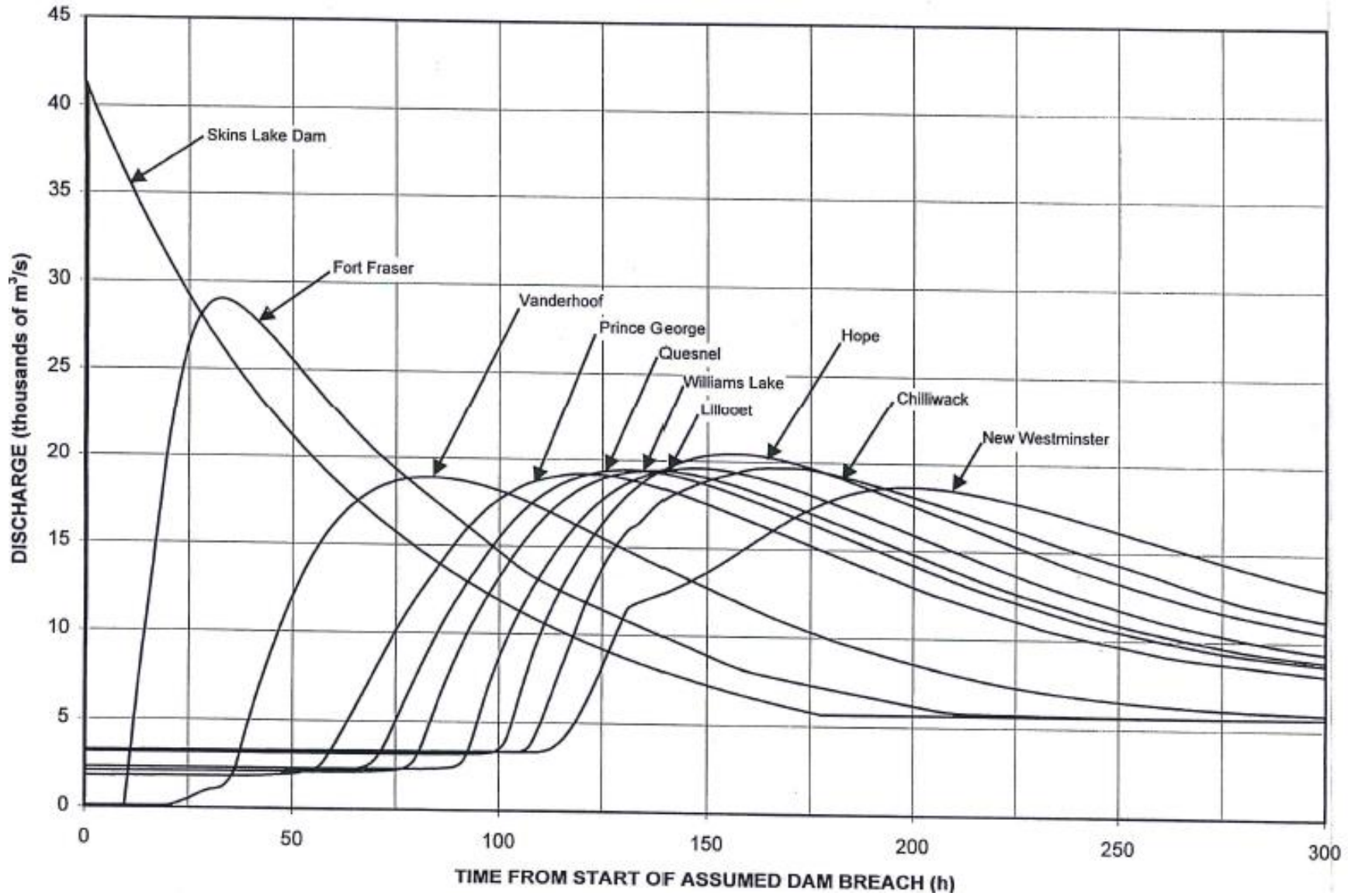


Figure 8. Flood Elevation resulting from assumed Skins Lake DAM 3 Breach

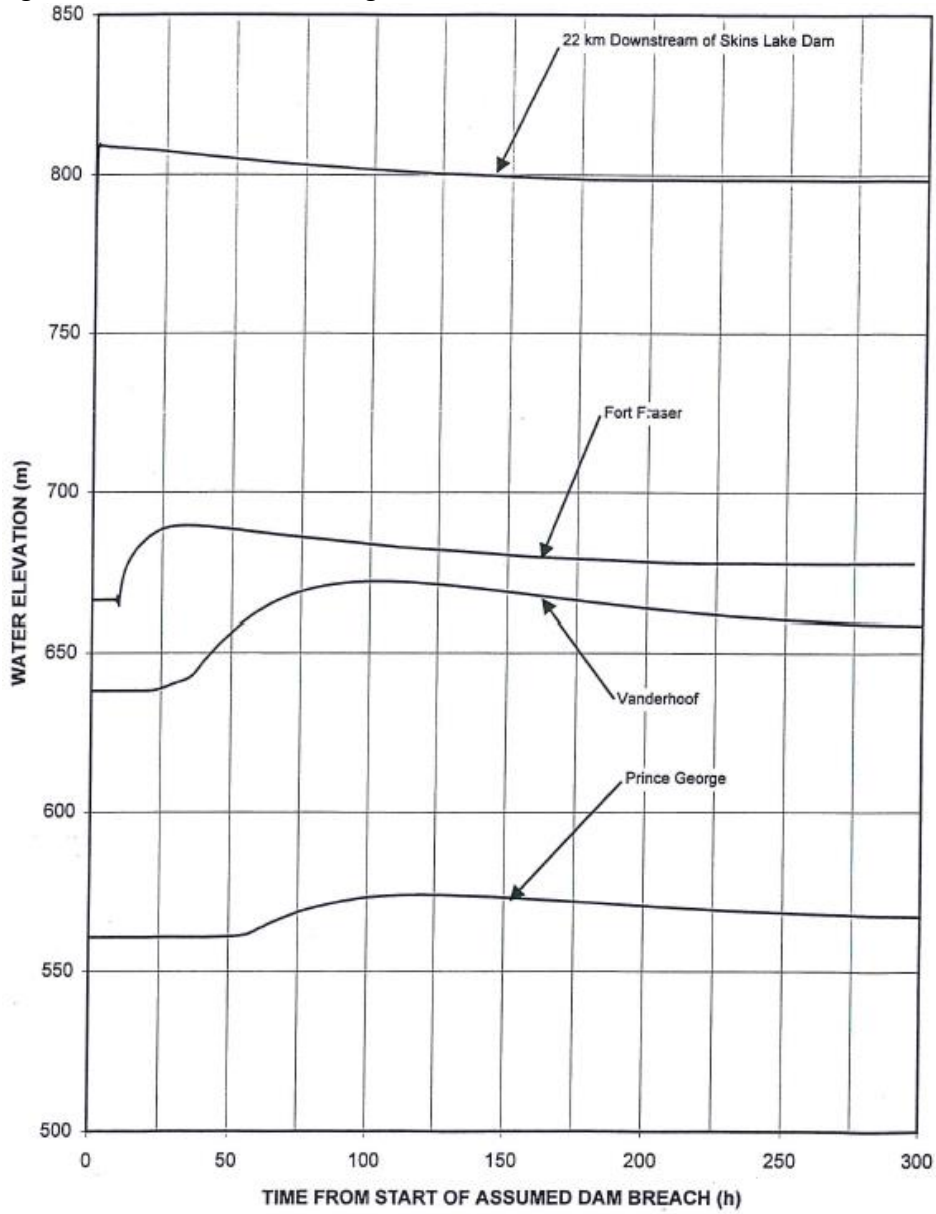


Figure 9. Flood Elevation resulting from assumed Skins Lake DAM 3 Breach

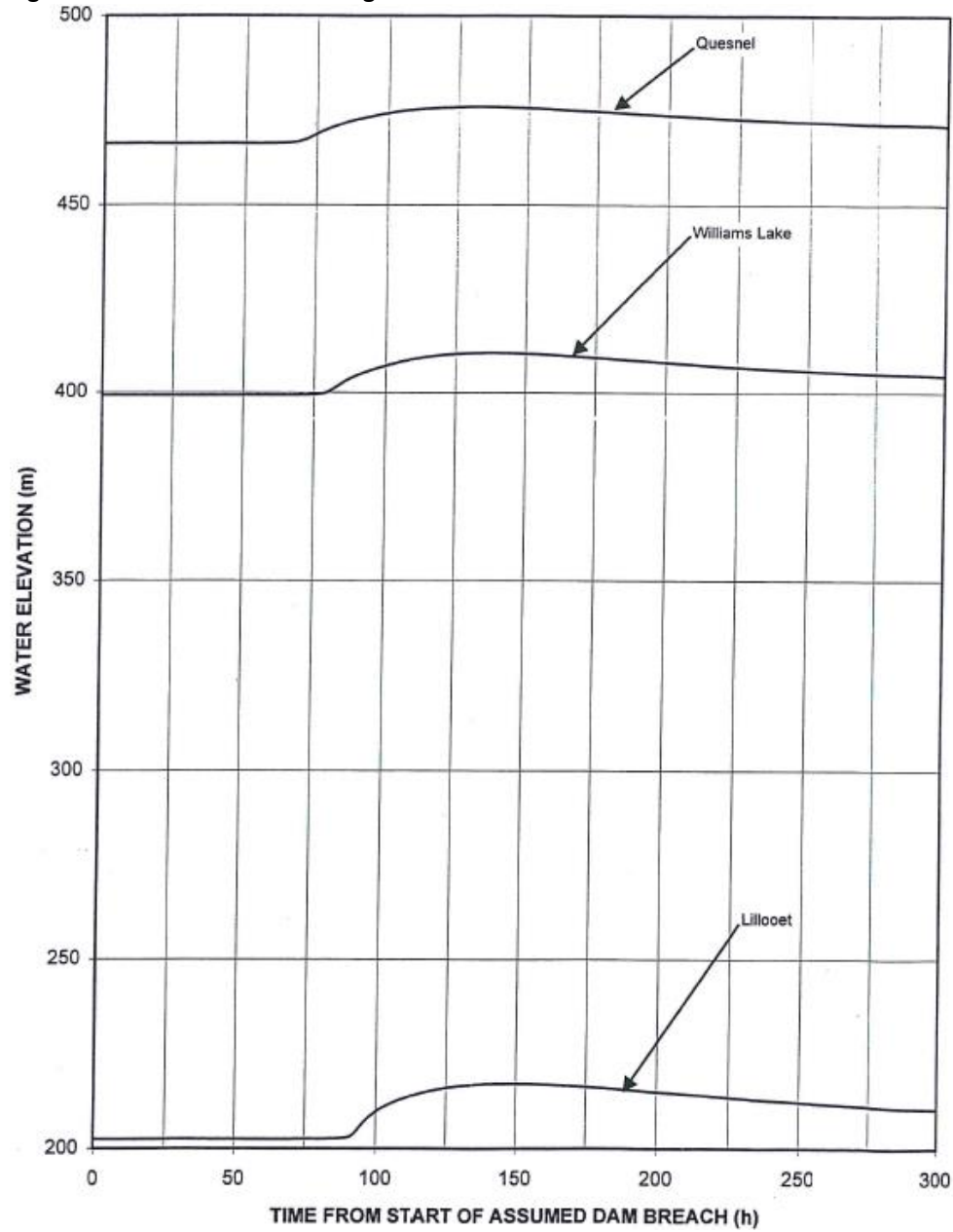




Figure 10. Flood Elevation resulting from assumed Skins Lake DAM 3 Breach

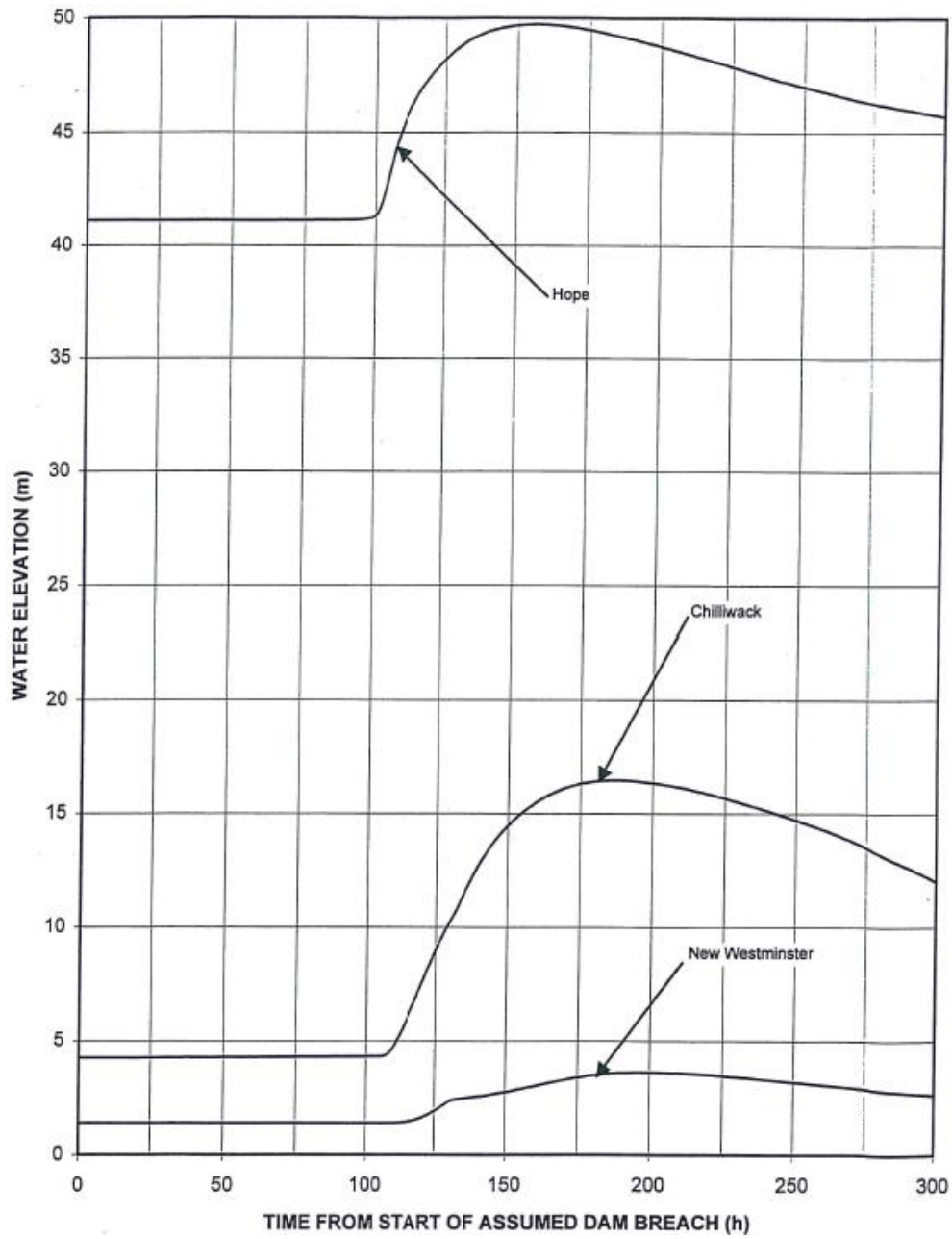


Figure 11. Flood Discharge Hydrographs resulting from assumed Extra Flood Release (All Areas)

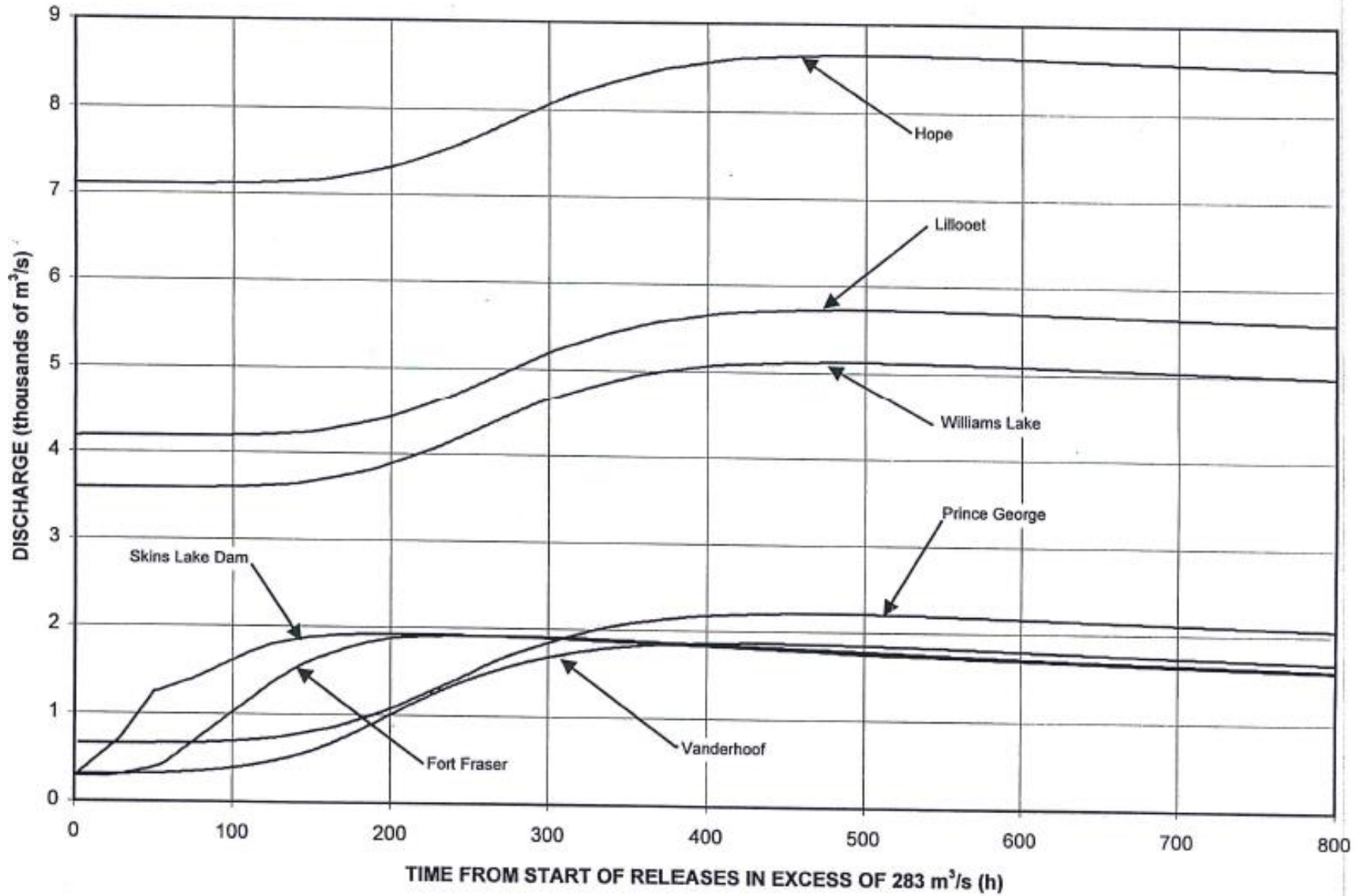


Figure 12. Flood Elevation resulting from Extreme Flood Release (Skins Lake, Fort Fraser, Vanderhoof & Prince George)

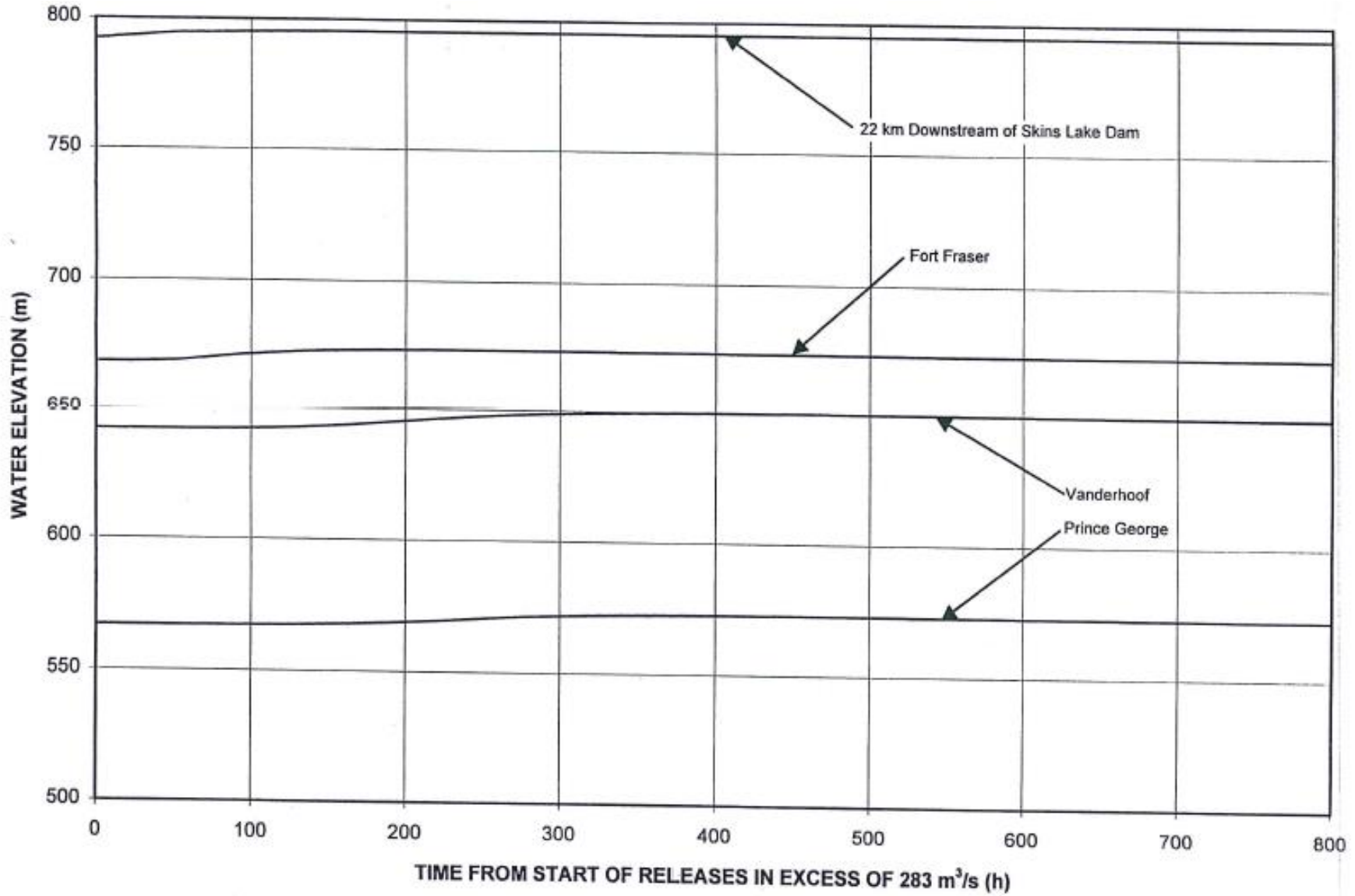
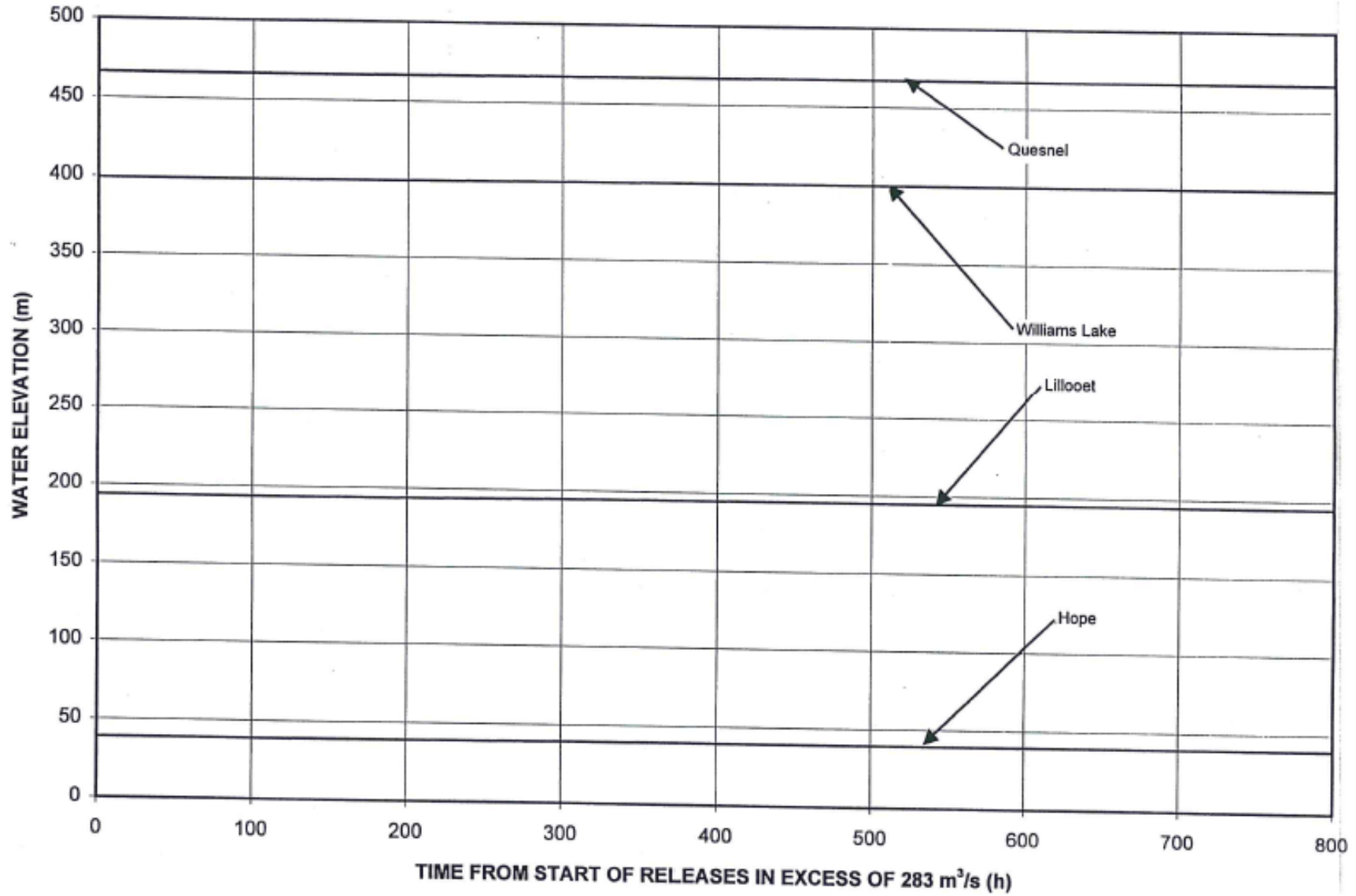


Figure 13. Flood Elevation resulting from Extreme Flood Release (Quesnel, Williams Lake, Lillooet & Hope)



# APPENDIX F – GUIDANCE FOR DETERMINING THE EMERGENCY LEVEL

Event	Situation	Emergency level*
Earth spillway flow	Reservoir water surface elevation at spillway crest or spillway is flowing with no active erosion	1
	Spillway flowing with active gully erosion	2
	Spillway flow that could result in flooding of people downstream if the reservoir level continues to rise	2
	Spillway flowing with an advancing headcut that is threatening the control section	3
	Spillway flow that is flooding people downstream	3
Embankment overtopping	Reservoir level is 1 foot below the top of the dam	2
	Water from the reservoir is flowing over the top of the dam	3
Seepage	New seepage areas in or near the dam	1
	New seepage areas with cloudy discharge or increasing flow rate	2
	Seepage with discharge greater than 10 gallons per minute	3
Sinkholes	Observation of new sinkhole in reservoir area or on embankment	2
	Rapidly enlarging sinkhole	3
Embankment cracking	New cracks in the embankment greater than 1/4-inch wide without seepage	1
	Cracks in the embankment with seepage	2
Embankment movement	Visual movement/slippage of the embankment slope	1
	Sudden or rapidly proceeding slides of the embankment slopes	3
Instruments	Instrumentation readings beyond predetermined values	1
Earthquake	Measurable earthquake felt or reported on or within 50 kilometers of the dam	1
	Earthquake resulting in visible damage to the dam or appurtenances	2
	Earthquake resulting in uncontrolled release of water from the dam	3
Security threat	Verified bomb threat that, if carried out, could result in damage to the dam	2
	Detonated bomb that has resulted in damage to the dam or appurtenances	3
Sabotage/ vandalism	Damage to dam or appurtenance with no impacts to dam function	1
	Modification to the dam or appurtenances that could adversely impact the functioning of the dam	1
	Damage to dam or appurtenances that has resulted in seepage flow	2
	Damage to dam or appurtenances that has resulted in uncontrolled water release	3

\* Level 1: Nonemergency unusual event, slowly developing

\* Level 2: Potential dam failure situation, rapidly developing

\* Level 3: Urgent; dam failure appears imminent or is in progress

# APPENDIX G – INUNDATION MAPS FOR DAM BREACH AND EXTREME FLOOD (Web Link)

The Inundation Maps are located at our stakeholder Nechako Reservoir website (Get Involved Nechako) at the following link ;

[https://www.getinvolvednechako.ca/learn-more-our-operations?tool=qanda#tool\\_tab](https://www.getinvolvednechako.ca/learn-more-our-operations?tool=qanda#tool_tab)

Below lists the maps available for referencing geographical locations from Skins Lake to Vancouver (Map Sheets # 1 – 74). Inundation Map file (per area) that can be found at the website above for access, are as follows;

1. **Inundation Overview Map** (*BC Province – Cover page*)
2. **Skins Lake Spillway** (*Maps 1 thru 9*)
3. **Fort Fraser** (*Maps 10 thru 12*)
4. **Vanderhoof** (*Maps 13 thru 18*)
5. **Prince George** (*Maps 19 thru 27*)
6. **Quesnel** (*Maps 28 thru 34*)
7. **Williams Lake** (*Maps 35 thru 46*)
8. **Lillooet** (*Maps 47 thru 57*)
9. **Hope** (*Maps 58 thru 60*)
10. **Chilliwack** (*Maps 61 thru 70*)
11. **New Westminster** (*Maps 71 thru 74*)