PEACE RIVER REGIONAL DISTRICT

Emergency Executive Committee Meeting

A G E N D A

for the meeting to be held on Wednesday, February 10, 2016
in the Regional District offices, Dawson Creek, BC
commencing at 10:00 a.m.

Committee Chair: to be determined

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1. **CALL TO ORDER:**

2. **Election of Chair:**

2. **NOTICE OF NEW BUSINESS:**

3. **ADOPTION OF THE AGENDA:**

4. **ADOPTION OF THE MINUTES:**
   M-1 Emergency Executive Committee Meeting Minutes of July 23 (SAR), 2015

5. **BUSINESS ARISING FROM THE MINUTES:**

6. **CORRESPONDENCE:**

   C-1 **Re: Update on the regime progress and notice of upcoming engagement efforts**
   a) December 21, 2015 Spills Response Regime Project - Environmental Protection Division
   b) January 2016 update – delay on the launch of the 2015/2016 public consultation
   (referred from the Regional Board January 14, 2015)

   C-2 January 26, 2016 EMBC Public Volunteer Service Lifeline Award – seeking nominations.

7. **REPORTS:**
   R-1 February 4, 2016 report from Dan Ross, Protective Services Manager regarding the draft 2016 Emergency Services Planning Budget

   R-2 February 3, 2016 report from Dan Ross, Protective Services Manager regarding Emergency Program Act consultation and engagement.

   R-3 February 3, 2016 report from Trish Morgan, GM of Community and Electoral Area Services regarding Dam Safety – next steps.

8. **NEW BUSINESS:**

9. **ITEMS FOR INFORMATION:**
   I-1 Emergency Incident Register
   I-2 October 22, 2015 BC Association of Emergency Managers (BCAEM) regarding release of Emergency Management BC (EMBC) Strategy to advance support for local authority emergency management programs.
   I-3 For Reference - “PRRD Emergency and Disaster Service Establishment Bylaw No. 1598, 2005” and “PRRD Emergency and Disaster Operations Bylaw No. 1599, 2005”
   I-4 PRRD Emergency Management Program Directive

10. **ADJOURNMENT:**

PEACE RIVER REGIONAL DISTRICT

M-1

EMERGENCY EXECUTIVE COMMITTEE MEETING MINUTES

DATE: Thursday, July 23, 2015
PLACE: Regional District offices, Dawson Creek, BC

PRESENT: Director Brad Sperling, Chair
Director Lori Ackerman
Director Dan Rose
Alternate Director, Arlene Boone
Chris Cvik, Chief Administrative Officer
Trish Morgan, General Manager of Community and Electoral Services
Dan Ross, Protective Services Manager
Jill Rickert, Community Services Coordinator

1) Call to Order — The meeting was called to order at 9:29 a.m.

ADOPTION OF THE AGENDA:

2) Adoption of the Agenda — MOVED by Director Rose, SECONDED by Director Ackerman, that the Emergency Executive Committee Meeting agenda for July 23, 2015 be adopted as presented

1. **CALL TO ORDER:** **Director Sperling to chair**
2. **Adoption of the Agenda:**
3. **MINUTES:**
   M-1 Emergency Executive Committee Meeting Minutes of June 30, 2015
4. **BUSINESS ARISING FROM THE MINUTES:**
5. **DELEGATION:**
6. **CORRESPONDENCE:**
7. **REPORTS:**
   R-1 July 15, 2015 - Jill Rickert, Community Services Coordinator, 2015 Search and Rescue Allocation Recommendations
8. **NEW BUSINESS:**
9. **ITEMS FOR INFORMATION:**
10. **ADJOURNMENT:**

CARRIED

MINUTES:

3) M-1 — MOVED by Director Ackerman, SECONDED by Director Rose that the Emergency Executive Committee Meeting Minutes from June 30, 2015 be adopted.

CARRIED

BUSINESS ARISING FROM THE MINUTES:

4) Discussion: — Follow up items from June 30th meeting – Trish Morgan indicated that staff are currently working on issues surrounding large and small dam safety, notification of neighbors, permit process for facilities, regulating body for use on agriculture lands specifically related to public safety and emergency response. Director Rose questioned who manages breech of dam and Director Sperling questioned liability of PRRD. Dan Ross stated working with Forest, Lands, and Natural Resource Operations and information will be forthcoming.

DELEGATION:

5) None

CORRESPONDENCE:

6) None

REPORTS:

7) R-1 MOVED by Director Rose, SECONDED by Alternate Director Boone, that the 2015 Search and Rescue grant allocations be approved as follows, provided the Emergency Executive Committee has the authority under bylaw 1599 to approve the grants; failing that authority the Emergency Executive Committee recommends that the 2015 Search and Rescue allocations, as listed below, be referred to the Regional Board and/or the Rural Budgets Administration Committee for approval

Chetwynd Search and Rescue	$ 6,000.00
North Peace Search and Rescue	$ 7,276.41
South Peace Emergency Rescue	$ 6,723.59
Tumbler Ridge Search and Rescue	$ 2,000.00
Total	**$22,000.00**

CARRIED

NEW BUSINESS:

8) None

ITEMS FOR INFORMATION:

9) None

ADJOURNMENT:

10) Adjournment MOVED by Director Rose, SECONDED by Director Ackerman, that the meeting be adjourned.

CARRIED

The meeting adjourned at 9:44 a.m.

Brad Sperling,
Chair

Jill Rickert,
Community Services Coordinator

Received DC Office December 21/15

C-1

From: WWW ENVMail ENV:EX [mailto:env.mail@gov.bc.ca]
Sent: December-21-15 1:24 PM
To: prrd dc <prrd.dc@prrd.bc.ca>
Subject: British Columbia's Spill Response Regime

Reference: 293776

December 21, 2015

Her Worship Mayor Lori Ackerman
and Members of the Board
Peace River Regional District
Email: prrd.dc@prrd.bc.ca

Dear Her Worship Mayor Lori Ackerman:

On June 15, 2015, the Honourable Mary Polak, Minister of Environment, announced that British Columbia will be creating a world class spill response regime to address a wide range of potential land and marine-based spills. We intend to build that new regime collaboratively with First Nations, communities, local governments, industry and other regulators.

I am sending this letter to provide you with an update on the regime progress and notice of our upcoming engagement efforts. We will be engaging a broad range of First Nations, industry organizations, communities, stakeholders and regulators on a new report which will set out the details of our proposed new spill response regime.

I encourage your organization to provide detailed comments on the new report through our online information portal on the ministry's Land Based Spill Preparedness and Response in British Columbia website at www.gov.bc.ca/spillresponse. From this webpage, you can subscribe to receive updates which will notify you when new content is posted, including the new report. As noted, we anticipate the new report being available mid-January 2016 and we will provide you with another notice just prior the commencement of our formal engagement.

In the meantime, we invite you to review the previously published intentions papers and the results of a past Spill Response Symposium posted on the portal.

If you have any questions about the new proposal or the engagement process, I encourage you to contact Ms. Sara Bacic, Logistics Coordinator for the Spill Response Regime. She can be contacted at Sara.Bacic@gov.bc.ca.

Sincerely,

Anthony Danks
Executive Director
Spills Response Regime Project
Environmental Protection Division

Spill Preparedness & Response in B.C.

World-Leading Spill Response Regime

On June 15, 2015 the Province announced plans to proceed with developing and implementing a world-leading spill response regime.

UPDATE (Jan 22, 2016): The launch of the 2015/2016 public consultation on the world-leading Regime program will begin once a third intentions paper is completed and published here. Current estimates are for March, 2016. Please check back for more details or use the "Subscribe" box to request email updates.

Our government is taking strong and decisive action to develop a world-leading provincial spill regime which will put B.C. at the forefront of environmental protection. Collaboration across industry sectors will work to ensure the safety of people, property and the environment (air, land and water) from spills.

Based on extensive consultation, the Ministry of Environment (Ministry) is updating the current spill preparedness and response in B.C. Enhanced government oversight and the addition of specific new rules and requirements are intended to confirm industry and government's ability to respond fast and effectively to spills anywhere in B.C.

The Regime will enhance response to address all types of spills that cause pollution or threaten public safety, regardless of their source, with pipelines being just one area of focus.

Design Principles

In June 2015, the Ministry announced seven agreed upon key elements for the design of this world-leading regime:

1. Polluter pays - this principle is already in effect in B.C. and will not change. Companies that spill or pose the risk of having a spill should be responsible for the costs associated with preparing for and responding to a spill.
2. Risk-based requirements - all spillers will be required to meet new response requirements. The requirements for planning and preparedness will be based on a defined risk threshold which will consider toxicity and volume.
3. Avoids unnecessary duplication - recognizing there are some effective and collaborative spill response procedures in place in certain sectors, supplementation is still required to ensure environmental protection and also ensure British Columbia's system can be considered world-leading.
4. Fair and transparent process - government has committed to continued dialogue through consultation on the development of new legislation and regulations.
5. Opportunities for First Nations and communities in preparedness, response and recovery - active engagement by First Nations and communities on all aspects of a world-leading system are considered key to the successful design, implementation and operations.
6. Strong government oversight - new requirements will provide both clarity and certainty for spillers, meet public and First Nations expectations and maximize the protection of the environment.

7. Continuous improvement - government is committed to continuous improvement ensuring a sustainable world-leading system by applying lessons learned from exercises, incidents and other jurisdictions. Additionally, any technological innovations will continue to be adopted.

Subscribe to our E-link

To receive email updates on the BC Spill Response Regime, please subscribe here.

Please note, if you subscribed previously and did not receive a welcome e-mail, you may not have been added. Please subscribe again.

Thank you for your interest and patience while we develop our consultation platform.

C-2

From: "TRAN EMBC NEA Admin TRAN:EX" <EMBC.NEAAdmin@gov.bc.ca>
Date: January 26, 2016 at 11:59:19 AM MST
To: Graig <graig@pearen.ca>, Ken McCauley <chewiemm@hotmail.com>, "fghrs@telus.net" <fghrs@telus.net>, Ken McCauley <chewiemm@hotmail.com>, RSLwhite <rslwhite@telus.net>, "Schaad, Allen" <allen@technapro.com>, "Allison Starr - Ft. Nelson SAR" <astarr@theedge.ca>, Angela Forseille <angela.forseille@gmail.com>, BCSARA NEA North <northeast@bcsara.com>, "Bob Zimmerman" <rzimmerman@shaw.ca>, Brandy Studley <studley@live.com>, "Brian Lamond" <blamond@spectraenergy.com>, Craig Waters <craig.l.waters@gmail.com>, Craig Waters <craig.l.waters@amec.com>, Dale Mason <Dale.Mason@telus.net>, Don Wheeler <dwheeler@wei.org>, "Eastwood, Michael S FLNR:EX" <Michael.Eastwood@gov.bc.ca>, Fraser Koroluk <bcvsar@yahoo.ca>, "Gerald Schut (gerald.schut@telus.net)" <gerald.schut@telus.net>, Grant MacPherson <grantmac@telus.net>, Greg Taylor <gvtaylor@shaw.ca>, "Herzog, Knut FLNR:EX" <Knut.Herzog@gov.bc.ca>, James Seely <jseeley@telus.net>, Jean Michal Lessard <lessardjm@gmail.com>, Jeff Smedley <smedley1@telus.net>, Jeramy Smith <jeramy_smith@hotmail.com>, "Jones, Keith A FLNR:EX" <Keith.A.Jones@gov.bc.ca>, Kerry Clark <kccsclark@gmail.com>, Lawrence Napier <napierlr@hotmail.com>, Lee Bowd <Lbowd1@gmail.com>, Linda Zimmerman <llz378@hotmail.com>, Linnea Cross <macsargirl@yahoo.com>, Lucky McDonough <lmcdonou@telus.net>, "MacRae, Heather FLNR:EX" <Heather.MacRae@gov.bc.ca>, Marcel Woodill <jamzmarcelwoodill@yahoo.ca>, "Mulyk, Hugo ENV:EX" <Hugo.Mulyk@gov.bc.ca>, Paul Airey <bkap@wlake.com>, PG SAR President <president@pgsar.ca>, PGSAR - Secretary <secretary@pgsar.ca>,

Cc: "Alexander, Debbie A TRAN:EX" <Debbie.Alexander@gov.bc.ca>
Subject: PSLV Awards - ACTION REQUIRED

To: Emergency Social Services Directors
Search and Rescue Groups
SAR Regional Representatives
Road Rescue Groups
Amateur Radio Regional Representative

Emergency Management BC will once again recognize a provincial volunteer in each of the five Public Service Lifeline disciplines. A nomination for each service is sought from within each region and a panel of EMBC staff then selects the provincial award recipient for each volunteer discipline. In addition, we are also seeking nominations for the Lifetime Achievement Award. No forms for this award exist. It was started to recognize those who may not fit the normal award criteria and is intended to be flexible.

We ask that you join us in very important task of recognizing outstanding volunteers by submitting a nomination. A nomination form and a page outlining the criteria and nomination process are attached.

The PSLV Awards **winners will be formally announced and recognized at a ceremony that takes place at the provincial parliament buildings in Victoria this Spring.**

If you know an outstanding volunteer in one of our Public Safety Lifeline Volunteer (PSLV) sections (ESS, SAR, PEP Air, Road Rescue, and Radio Communications), please submit a completed nomination form to our office prior to **FEBRUARY 19, 2016.** Any additional back-up (letters of support from tasking agencies, local governments, mayors, or….) should also be included with the nominations.

Public Safety Lifeline
Volunteer Services Annual Awards

NOMINATION
AWARD CATEGORIES

Search and Rescue
Emergency Social Services
PEP Air Rescue
Road Rescue
Provincial Emergency Radio Communications (Amateur Radio)

CRITERIA

- Is a member of the volunteer service in which nominated;
- Demonstrated multiple years of commitment;
- Currently resides in the region nominated;
- Has not previously received a PEP volunteer recognition award;
- Has committed time, talent and energy;
- Contribution has had a lasting benefit for the community, and/or
- Demonstrated leadership in support of service.

NOMINATION PROCESS

- An award nominee should be selected for each volunteer service from each region.
- Complete the attached nomination form.
- Forward completed nomination to PEP Regional Manager (refer to separate address list).
- The Regional Manager will consult with the regional service representative and forward one regional nominee for each discipline to Victoria.
- Provincial award recipients will be selected by a panel in Victoria.
- Please ensure that the outstanding qualities of the nominee are fully documented.

Annual Volunteer Recognition Award — Nomination Form

Emergency ManagementBC

Name (please print) | Phone (include area code)

Address

Occupation | Is nominee a EMBC Volunteer? YES ☐ NO ☐

Email Address

Indicate Volunteer's Category (may be more than one):

PEP Air ☐ **Emergency Social Services** ☐ **Road Rescue** ☐
Search & Rescue ☐ **Emergency Communications** ☐ **Lifetime Achievement** ☐

Following are the names of two people or organizations who would be prepared to support the nomination:

Name | Phone

Address

Name | Phone

Address

The following is a biographical sketch of the outstanding qualities of the nominee and my reasons for naming this nominee **(please feel free to add additional pages)**:

Name of Nominator (please print) | Phone

Address of Nominator

Signature of Nominator | Date

To be completed by the authorized Volunteer Services Representative and EMBC Regional Manager ONLY.

Comments of Volunteer Service Representative:

Comments of EMBC Regional Manager:

Signatures:

EMBC Regional Manager

Volunteer Services Representative

Date: _____

Peace River Regional District
REPORT

R-1

To: Emergency Executive Committee Date: February 4, 2016

From: Dan Ross, Protective Services Manager

Subject: 2015 Review/ 2016 Emergency Services Budget

RECOMMENDATION(S):
That the Emergency Executive Committee accept the 2016 Emergency Services budget as presented and that it be forwarded to the Board for approval in the 2016 Annual Financial Plan.

BACKGROUND/RATIONALE:

The 2016 work plan for Emergency Services is as follows:

1. The following courses have been submitted to Emergency Management BC (EMBC) for funding to be offered in the PRRD in 2016. Still awaiting confirmation from EMBC.

Region	Code	Course Name	Location	Date	
NEA	EMRG1320	EOC Essentials	PRRD Dawson Creek	Early April 2016	Priority 1
NEA	EMRG1334	Information Officer	City of Dawson Creek	End April 2016	Priority 7
NEA	EMRG1332	EOC Logistics Section	City of Fort St. John	May 2016	Priority 2
NEA	EMRG1331	EOC Planning Sections	District of Taylor	End May 2016	Priority 4
NEA	EMRG1136	Emergency Evacuations	City of Fort St. John	October 2016	Priority 5
NEA	EMRG1330	EOC Operations Section	City of Dawson Creek	November 2016	Priority 3
NEA	EMRG1120	Conducting HRVA	District of Taylor	January 2017	Priority 6

2. In late 2015 the PRRD was approached by a company hired by EMBC to develop an agriculture emergency plan template. Once the template is developed it will be sent to the PRRD for our input into its strengths and shortcomings. From that a finalized template will be developed to be used across the Province. As part of the process it was determined that there may be an opportunity to run an EOC exercise in the PRRD allowing testing of the template. Majority of costs for the exercise will be covered by the Province. The EOC exercise will be dependent on the template development and implementation.

3. The emergency transfer switch and back-up generator program will continue into 2016 beginning in the North Peace with Wonowon School/Hall. This site was identified as an ideal location in prior years. Staff have been in discussion with School District 60, who concurs that this site would be an ideal location for an emergency transfer switch and is in support of the PRRD moving ahead. An email request has been sent to Wonowon Horse Club, who is responsible for the hall, to discuss this opportunity. Once this is completed, staff will work with all parties to develop a Memorandum of Understanding so work can begin.

Other locations in the rural communities are being examined and a list of potential sites is under development and once sites are determined a report will be brought to the EEC for discussion on which to move forward on.

4. The manmade hazard plan has been a budget item for a number of years. In 2015 at the direction of EEC the hazards related to dugouts was investigated. It was determined that there is no liability to the PRRD in the approval procedure of dugouts as the PRRD is not a signing authority on the application process but simply are notified of each application. It was also determined that the process of maintaining a data base of non-registered dugouts was problematic at best as FLNRO had attempted it in the past but found it was almost impossible to account for their locations short of extensive overflights of the complete PRRD. Dam safety is still an ongoing concern in who's jurisdiction does it fall to warn downstream residents of an emergency. This issue was addressed in the recent responses to the EMBC Changes to the Emergency Program Act paper. It has been the PRRD's opinion that the Province should legislate the owner of the hazard is responsible to provide residents notifications in the event of an emergency.

   $5,000 is allotted in the 2016 budget for this project but staff is seeking EEC direction whether to table this item until the Province updates the Emergency Management Legislation or to continue to seek compliance from stakeholders despite the gap in legislation.

5. The weather station project will continue this year with identification of a number of sites in the PRRD in which to install the weather stations. Weather stations will be installed at sites that currently have power and internet connection (PRRD transfer stations) this summer. The BC Grain Producers have worked to install stations around the region, while Fort St John currently operates two stations and Taylor is looking to add a station in 2016 as well. These stations will/do feed into the Weather Farm website where the public can access weather information for their own use.

   Sites Identified by Ag Producers
   - Buick Creek
   - Prepatou
   - Doig Creek
   - Rose Prairie
   - Cecil Lake
   - Goodlow
   - Tomslake
   - Upper Halfway
   - Groundbirch
   - Kelly Lake

   Additional PRRD Sites
   - Moberly Lake
   - Wonowon
   - Pink Mountain
   - Hasler
   - Prespatou

6. Regional Emergency Feasibility Plan has been deferred until 2017. The subject of a regional approach to both Emergency Management and Emergency Social Services (ESS) was broached at the last Emergency Program Coordinators (EPCs) meeting, while there was little to no support for emergency management, there was some support for a regional approach to ESS. Many of the EPCs felt there were too many

compatibility and training issues between organizations to move forward on regionalizing Emergency Management; however a regional model for ESS may provide overall better service to the residents. This issue will be brought up again in 2017 to see if there is any interest in pursuing the topic further.

7. Community Specific Evacuation Plan was started in 2014 for the Moberly Lake area residents, as a direct result of the McAllister Fire and Hudson's Hope evacuation. In the fall of 2014, community members, including local First Nations, stakeholders and local governments came together to create a plan that would ensure the needs of all community members were identified and addressed in the plan. As a result of this process, a draft plan was developed and distributed to all groups for review and feedback. The plan will be completed in 2016 through continued community consultation.

8. The development of a business continuity plan will be reassessed in 2017. Administration is working towards updating our records management system and once a plan has been developed staff can start moving forward with a business continuity plan.

9. The recovery plan is slated for 2019 as it is also very much dependent on the business continuity planning. Once business continuity is addressed then the recovery planning model can be developed.

10. The acquisition of flood response supplies will continue into 2016. A total of four sandbag containers have been purchased to date and it is planned to add 2 more in 2016. These containers are currently stored at the Dawson Creek Transfer Station and will be placed in strategic locations allowing rural residents easy access to sandbags in the event of a flood emergencies.

11. Debris Management Plan is tentatively set for 2018 as this is an extremely large project that will require a large amount of staff time to undertake and coordination with the Environmental Services Department.

12. Staff will examine and opportunities and costs associated with planning and coordinating a regional training/conference in partnership with industry and other government organizations in 2017. A report will be brought forward for the Committee's consideration in 2016.

    For many years the Cariboo Regional District hosted a 1 to 2 day conference and integrated EMBC's spring readiness event into the program. EMBC's spring readiness event brings together experts in a number of fields to provide a forecast of the upcoming flood and fire season, discuss changes to EMBC policy, etc. This concept could be integrated into a forum or conference that also brings in guest speakers to provide more in depth discussion and presentation on issues within our region (e.g., FireSmart Principles in relation to oil and gas). It would also provide an opportunity for networking and to review roles and responsibilities of the differing agencies in attendance.

FINANCIAL CONSIDERATION(S): Please see the budget presented.

COMMUNICATIONS CONSIDERATION(S): None

OTHER CONSIDERATION(S): None

DRAFT

R-1

Service	Regional	**Portfolio**	Emergency Executive Committee
Fund	General Operating - 01	**Staff**	GM of Community and Rural Electoral Services
Category	**2510 Emergency Planning**	**Requisition Exhibit**	24

DRAFT

(Used same, 2% inflation, or actual)

2016 Category	Acct #	See Note	Account Name	2015 Budget	2015 Actual	2015 Variance	2016 Budget	2017 Budget	2018 Budget	2019 Budget	2020 Budget
REVENUE											
2510 Emergency Planning											
01-1-2510-	110		Requisition - Electoral	185,711	185,711	-0	**140,825**	561,161	527,779	566,111	485,433
01-1-2510-	116	8	Interest on Reserve		2,222	2,222		-	-	-	-
01-1-2510-	155	1	Admin Fees	226,519	226,519	0	**228,616**				
01-1-2510-	57		Recovered Costs		66	66					
01-1-2510-	175		PEP Task Number Reimbursements		330	330		-	-	-	-
01-1-2510-	190		Unappropriated surplus	71,682	71,682	-0	**116,825**	-	-	-	-
			Total Category Revenue	483,912	486,530	2,618	**486,267**	561,161	527,779	566,111	485,433
			Tax Rates (based on current year assessments)>>	0.010	Change from LY	(0.003)	0.007	0.030	0.028	0.030	0.026
			Total Amount to Requisition:	185,711	Requisition/Parcel Tax		**140,825**	561,161	527,779	566,111	485,433
			140,825		Grants						
			Prior Year Requisition:		Borrowing Proceeds						
			185,711		Trsf. From Reserves						
			Change from Prior Year	71,682	Prior Year Surplus		**116,825**				
			-44,886	226,519	Other		**228,616**	-	-	-	-
EXPENDITURES				483,912			486,267	561,161	527,779	566,111	485,433
2510 Emergency Planning											
01-2-2510-	200	1	Wages	254,917	240,996	-13,921	**272,924**	278,382	283,950	289,629	295,421
01-2-2510-	205	1	Benefits	60,777	50,446	-10,330	**82,064**	83,705	85,379	87,087	88,828
01-2-2510-	206	1	WCB	2,818	2,647	-172	**2,779**	2,835	2,892	2,949	3,008
01-2-2510-	210	5	Travel, Conferences & Workshops	15,000	6,086	-8,914	**8,000**	8,160	8,323	8,490	8,659
01-2-2510-	211		Travel, Use of RD Vehicles	2,900	2,900		**6,600**	2,958	3,017	3,078	3,139
01-2-2510-	215		Meals	2,000	287	-1,713	**500**	510	520	531	541
01-2-2510-	216		Meetings	1,500	94	-1,406	**500**	510	520	531	541
01-2-2510-	218		Memberships	2,000	919	-1,081	**1,500**	1,530	1,561	1,592	1,624
01-2-2510-	230		Telephone & Internet	2,500	1,961	-539	**2,000**	2,040	2,081	2,122	2,165
01-2-2510-	240	7	Advertising & Promotion	7,500	185	-7,315	**2,000**	2,040	2,081	2,122	2,165
01-2-2510-	242		Training - EOC Tabletop & RD Staff	5,000	1,280	-3,720	**2,000**	2,040	2,081	2,122	2,165
01-2-2510-	243		Community Emergency Preparedness	2,500	-	-2,500	**2,500**	2,550	2,601	2,653	2,706
01-2-2510-	244	3	Trsf Switches & Back-up Generators	20,000	-	-20,000	**20,000**	20,400	20,808		
01-2-2510-	245	6	Emergency Plan Update		-					25,000	
01-2-2510-	248	6	Man-made Hazards Project	5,000	-	-5,000	**5,000**	5,100			
01-2-2510-	249		Weather Stations	7,500	-	-7,500	**7,500**	7,650			
01-2-2510-	250		Legal	1,500	-	-1,500	**1,500**	1,530	1,561	1,592	1,624
01-2-2510-	260		Insurance	3,000	2,961	-39	**2,900**	3,121	3,183	3,247	3,312
01-2-2510-	261		Administration Fees	10,000	10,000		**10,000**	10,000	10,000	10,000	10,000
01-2-2510-	272		Reg. Emerg. Management Feasibility Stuc	15,000	-	-15,000		15,000			
01-2-2510-	273		Community Specific Evacuation Plans	7,500	-	-7,500	**1,000**		15,000		
01-2-2510-	274		Flood inundation mapping		-						
01-2-2510-	275		Business Continuity Plan		-			55,000			
01-2-2510-	276		Recovery Plan		-					65,000	
01-2-2510-	295		Emergencies (From Reserve if required)		-						
01-2-2510-	347		Flood Response Supplies	4,000	2,809	-1,191	**4,000**	4,080	4,162	4,245	4,330
01-2-2510-	362		Supplies - office & computer & EOC	4,000	1,581	-2,419	**4,000**	4,080	4,162	4,245	4,330
01-2-2510-	400	2	Grant - Search & Rescue	22,000	22,000		**22,000**	22,440	22,889	23,347	23,814
01-2-2510-	433		Debris Management Plan						25,000		
01-2-2510-	500		Operations ESS (Emerg. Social Services)	5,000	-	-5,000	**5,000**	5,100	5,202	5,306	5,412
01-2-2510-	571		EOC Emergencies Reimbursed Task #		330	330		-	-	-	-
01-2-2510-	572		Non-Emergency Reimbursed by Task #		-						
01-2-2510-	600		Transfer to Operating Reserve	20,000	20,000		**20,000**	20,400	20,808	21,224	21,649
01-2-2510-	610	8	Transfer Interest on Reserve		2,222	2,222		-	-	-	-
			Total Category Expenditures	483,912	369,705	-114,208	**486,267**	561,161	527,779	566,111	485,433
			Surplus (deficit) carry forward		116,825		*2,354*				
							0.49%	*Operating Reserve: Dec. 31*			*251,700*
								Maximum (plus interest) $250,000			

Budget Notes: *Approved at Feb. 19 EEC meeting.*

1	Full Wages of GM of Community & Rural Electoral Services, Community Services Coordinator and Protective Services Manager charged to here and other functions pay portion back as revenue to this function. 1/2 GM wages covered by EA
2	Grants to various S&R based on formulas - maximum $22K rural.
3	Equip rural halls with transfer switches. *Not done - carry forward.*
4	
5	Combined Travel, Conferences & Workshops (includes attendance at a major conference, plus workshops, plus other regional conferences)
6	At Emergency Executive Committee (EEC) on Nov. 21/13 adjustment made to use the Man-Made Hazards Project $17,500 for the Emergency Plan Update - completed in 2014. Man-Made Hazards planned last year but *not done - carry forward.*
7	Distribution in the 2 major newspaper inserts to residents Plus public education
8	Accounting requirement to show interest earned on reserves (In/Out) with no tax effect. Recording purposes only - no budget.

Total Employee costs for this function	105,054

EXHIBIT 24

R-1

Emergency Planning

Category
1-2510

Basis of Apportionment: Converted Hospital Assessment - Land & Improvements

DRAFT

Tax Rate or Other Limitations: Greater of $ 250,000

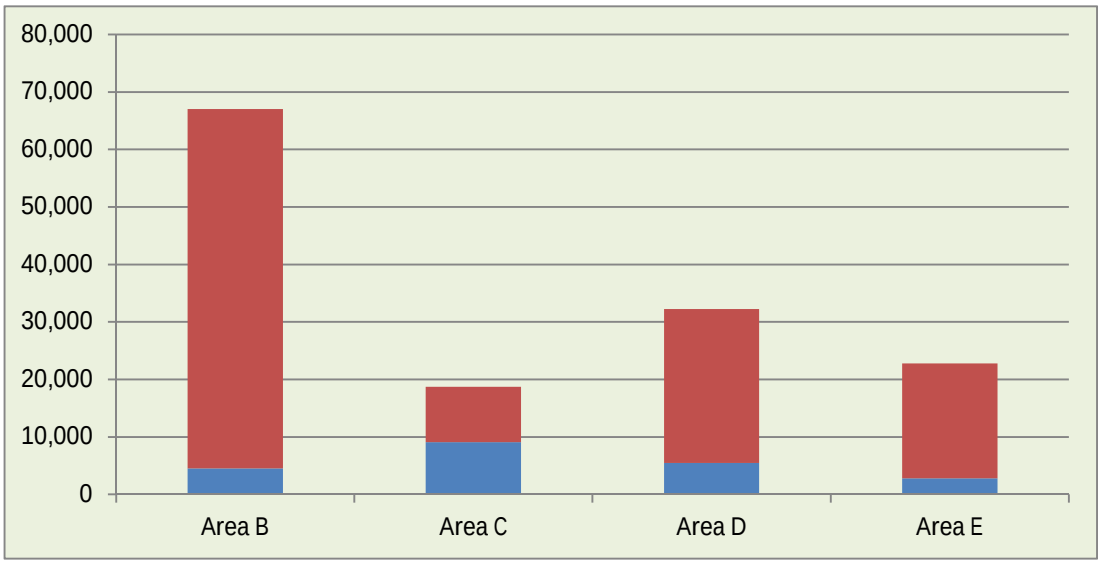
Bylaw No. 1598, 2005 Or, the product of 0.03 per $1,000 taxable value (L & I)

Max. Product $ 233,488

DRAFT	Requisition Amount	Tax Rate Per 1000	Figures for Apportionment	Percent	Prior Year Adjustment	Adjusted Requisition
Area B	67,037	0.007	899,571,178	47.60%	(26)	67,011
Area C	18,744	0.007	251,526,749	13.31%	(18)	18,726
Area D	32,260	0.007	432,902,178	22.91%	144	32,405
Area E	22,784	0.007	305,732,888	16.18%	(100)	22,683
See Area E Jurisdiction Split Below						
Total	**140,825**	0.007	**1,889,732,993**	100.00%	(0)	140,825
Area E - Jurisdiction 759	22,513		302,102,411	98.81%	(99)	22,414
Area E - Jurisdiction 760	271		3,630,477	1.19%	(1)	269
	22,784		305,732,888	100%	(100)	22,683

	Last Year	Change %	Change $
Requisition	185,711	-24.2%	(44,886)
Assessment	1,768,968,111	6.8%	120,764,882
Tax Rate	0.010	-29.0%	(0.003)

Class 1 - Residential Total All Other Classes



Peace River Regional District
REPORT

To: Emergency Executive Committee Date: February 3, 2016

From: Dan Ross, Protective Services Manager

Subject: EMERGENCY PROGRAM ACT CONSULTATION AND ENGANGEMENT

RECOMMENDATION(S):
That the Emergency Executive Committee refer the following report to the Board for permission to submit comments to Emergency Management BC on the proposed changes to the *Emergency Program Act* by February 19, 2016; and that the report be included as a late item on the February 11, 2016 Board agenda.

BACKGROUND/RATIONALE:

EMBC has published a discussion paper on "The Legislative Framework for Emergency Management in B.C." The goal of the paper is to review the act and ensure it provides a solid legal foundation in setting out responsibilities and authorities during an emergency or disaster. The report discusses the challenges of the current legislation and possible solutions to these challenges. EMBC is seeking stakeholders input into the discussion paper and its suggestions. In reviewing the report staff has identified the following areas of concern in the recommendations of the paper.

Discussion 3:
Definition of "local authority" (Page 8)
Proposal 1:

1. The proposal is to amend the definition of 'local authority' in the EPA to include Treaty First Nations and the Nisga'a. The document doesn't mention Treaty 8. Will Treaty 8 First Nations be included in this proposal?

2. Currently there is an agreement in place between the Province and Aboriginal Affairs and Northern Development Canada whereby the Province will assist First Nations with response and recovery in the same manner as they assist other local governments. The challenge is that many First Nations do not have adequate emergency plans and lack training – there also seems to be no requirement for them to have this in place. During an emergency the Province does not allocate sufficient resources to assist First Nations communities with responding to an emergency, implementing declarations and evacuation orders, etc. From experience, the Province has asked neighbouring local authorities to assist our First Nations neighbours. Although we are happy to assist, even when it stretches our own resources, they need to be provided with adequate support and funding from the Province and Federal Government throughout the continuum of emergency management.

It is recommended that the Province and Federal Governments need to clarify the roles and responsibilities of non-treaty First Nations and provide them with adequate support, training and funding supported through legislation.

Discussion 5:
Assigning provincial emergency planning, response and recovery responsibilities (Page 10)
Proposal 1: Recommends providing the authority for the Minister to require other ministries to prepare emergency plans ONLY AFTER CONSULTING WITH THEM. As such they are proposing to include this courtesy as a matter of legislation to other ministries but not local governments as noted on page 13.

Discussion 6:
Ministerial Authority to Direct Emergency Planning. (Page 12)

Proposal 1: Concern over the proposal to allow the Minister for the Act to 'order' a local authority to change its local emergency plan. The concern with this language is that it gives the Province too much authority in the development of the plan. Under this proposal, the province could technically order a local authority to develop a 'Cadillac plan' and the local authority would not have the ability to challenge the authority claiming a lack of resources (people and funds).

It is recommended to change this wording such that the Minister may order a local authority to develop a plan in such instances where a plan does not exist and only after consultation with the local authority.

Discussion 7:
Private Sector and Non-Government Agencies (Page 13)

Proposal 2: If owners are to provide information about 'critical infrastructure', it needs to be clear in the legislation that this information needs to be provided to the province, otherwise, it will end up the responsibility of the Regional District to gather this information and we do not have the time or resources. This is important considering the change contemplated on Page 13 whereby they provide the Minister may 'order' a local authority to make changes to its' local emergency plan. It also needs to be legislated that owners of critical infrastructure are responsible in mitigation of all risks presented by their infrastructure not just the risk in the immediate area. For instance BC Hydro should be responsible for developing and maintaining a notification system for all downstream residents in the event of a dam breach and this should not be a Regional District responsibility. Oil and gas companies are responsible to notify and respond to emergencies affecting the public as a result of their operations - BC Hydro should be held to the same standard.

It is recommended that:
1) The Province of BC be tasked with collecting, maintaining and sharing information regarding critical infrastructure; and
2) Owners of critical infrastructure be required to have systems in place to notify residents of an emergency caused by their operations and that they further be required to respond to the emergency to the same standard that oil and gas operators are required in the Province of BC.

Discussion 9:
State of Emergency (page 17)

Proposal 1: The proposal is to include criteria or a test to guide local authorities in decision as to whether to issue a state of emergency. This criteria already exists. If a local authority does not require the use of one or more of the powers provided in section 10 (1)(d) through (l) of the Act, then a state of emergency is not required.

A better option would be for the Province to conduct a provincial campaign explaining to the public when and why a state of emergency is required. In our experience local authorities consider very seriously the effects of issuing a state of emergency before it is issued. The challenge often comes from the public who don't understand that the state of emergency is not required in order for a local authority to respond to an emergency or enact their emergency plan.

Proposal 2: The proposal is to allow the collection, use or disclosure of information during a state of emergency is supported as it would assist all responding agencies to assist the public through this sharing of information. Under the current situation it can be difficult to collect or share information between agencies even when a joint incident command post or joint emergency operations centre has been established.

Discussion 10:
Evacuation Orders (Page 18)

Proposal 1: Ordering evacuations for minors is in place today and it is voluntary for competent adults. If a person chooses to remain on their property knowing the risks, this should be the extent of it. If evacuations are mandatory, there could be situations where the police have to use force to remove people from their own property. This will cause un-necessary delays and increase the potential for confrontations as police deal with residents who may have barricaded themselves in their homes. As the draft mentions, police are already 'extremely burdened in times of crisis….' so why create additional situations that will add to the burden?

Discussion 11:
Employment Protection (Page 20)

Proposal 1: Consideration for employment protection should NOT be given to volunteers who have not been ordered to provide assistance unless the person(s) have first out sought permission to provide assistance from their employer. A person should not be able to volunteer without being ordered unless their employer is agreeable. In addition, if a person is ill or injured as a result of providing assistance during an emergency, any related costs should be the responsibility of the Province. This could include employees who go off on illness (i.e., stress leave) as a result of the emergency they have been providing assistance on. Without this protection, an employer's disability (weekly indemnity, long term disability, worker's compensation) costs could be negatively impacted.

STRATEGIC PLAN RELEVANCE:
"The PRRD will provide cost effective access to protective and emergency services, including 911 call answer services by 2018 to its residents."

FINANCIAL CONSIDERATION(S): None at this time.

COMMUNICATIONS CONSIDERATION(S): None

OTHER CONSIDERATION(S):

Please see the attached information from Emergency Management BC.

R-2

BRITISH COLUMBIA

January 11, 2016 Reference: 252888

Dear Union of B.C. Municipalities and Local Governments:

Re: Discussion of the Emergency Program Act

As Minister of State for Emergency Preparedness, I am pleased to announce the release of *Prepared and Resilient: A Discussion Paper on the Legislative Framework for Emergency Management in British Columbia.*

This document is intended to support an online consultation and engagement with British Columbians through a dialogue about the current *Emergency Program Act* (the Act), which sets out the key responsibilities and authorities to guide and enable experts at the local and provincial levels in preparing for, responding to and recovering from emergencies and disasters.

It is our intention to review the Act to ensure that it provides a solid legal foundation to meet whatever challenges that may come our way here in this province, be they small scale emergencies contained at the local level or catastrophic events affecting a region or even possibly the entire province.

The Act was first introduced in 1993 and has undergone few changes since. While legislation may not be top of mind when we think about being prepared for an emergency or disaster, it is the key source of responsibilities and authorities required to empower elected officials and emergency management personnel to take the right actions at the right time.

Prepared and Resilient describes challenges in the current legislation as well as proposals for possible changes. The challenges and proposals reflect recent changes some Canadian jurisdictions have made to modernize their emergency management laws, as well as the findings and recommendations of two recent reports here in B.C.—the 2014 earthquake preparedness reports of the Auditor General and Henry Renteria.

The input we receive from you and other stakeholders through this consultation will be a key component to informing our government's review of the Act and, ultimately, any decision to move forward with the introduction of possible legislative changes.

.../2

Ministry of Transportation and Infrastructure

Office of the Minister of State for Emergency Preparedness

Mailing Address:
Parliament Buildings
Victoria BC V8V 1X4

The consultation period begins on January 11, 2016, with the release of the paper, and will continue until February 19, 2016, at 4:00 p.m. Please submit your formal responses to citizenengagement@gov.bc.ca before the end of the consultation period.

In order to promote that transparency of this review, any submission from your organization, or other stakeholders who have been invited to participate, may be posted on http://engage.gov.bc.ca/emergencyprogramact/ The web site contains a list of all stakeholders who have received invitations to participate. Please include the name of your organization in your submission. To protect your privacy or the privacy of any other members of your organization, please do not include your personal phone number or e-mail address in your submission.

Emergency management is fundamentally about partnerships. We must all continue to work together to ensure a prepared and resilient B.C. I am therefore looking forward to hearing the feedback and thoughts you and the members of your organization may have for possible improvements to the legislative framework for emergency management in B.C.

Sincerely,

Naomi Yamamoto
Minister of State

BRITISH COLUMBIA

Prepared and Resilient

A discussion paper on the legislative framework for emergency management in British Columbia

JANUARY 2016

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Message from the Minister

As Minister of State for Emergency Preparedness, I am pleased to announce the release of *Prepared and Resilient: A Discussion Paper on the Legislative Framework for Emergency Management in British Columbia*. This document is intended to support a consultation that will engage stakeholders in a dialogue about emergency management legislation in British Columbia.

When we think about being prepared for an emergency or disaster I think it is fair to say that legislation is not top of mind. Nevertheless, we must recognize that the coordination and synergies of emergency management experts in this province—whether at the local or provincial level—starts with understanding and fulfilling key emergency management responsibilities and having the appropriate authority to take the right actions at the right time when faced with an emergency or disaster. That's where legislation comes in: to establish the legal framework for a prepared and resilient British Columbia.

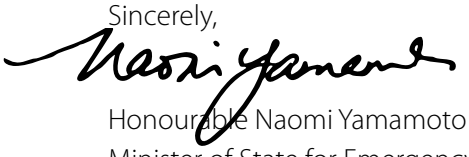
The *Emergency Program Act* is the key piece of legislation for emergency management in British Columbia. The Act, which was introduced in 1993, sets out roles and responsibilities for local authorities and the provincial government in preparing for, responding to and recovering from emergencies and disasters. The Act also sets out the authority for local government or the province to declare a state of emergency and to use emergency powers to protect the health, safety or welfare of people and to limit damage to property.

A key challenge with the Act and its regulations—and a principal reason for this consultation and engagement—is that while best practices in the field of emergency management in B.C. and elsewhere have evolved significantly over the past two decades, the *Emergency Program Act* has remained largely unchanged since its introduction and has never been the subject of a full and open review as proposed herein. The time has therefore come for us to examine the Act to ensure it provides the solid legal foundation we need here in B.C. to meet whatever challenges may come our way, be they small scale emergencies contained at the local level or catastrophic events affecting a region or even possibly the entire province.

This consultation acknowledges recent changes some other Canadian jurisdictions have made to modernize their emergency management laws. The engagement has also been shaped by findings and recommendations of the 2014 earthquake preparedness reports of the Auditor General and Henry Renteria, the former head of California's Office of Emergency Services who consulted with stakeholders on earthquake preparedness issues and priorities.

Ultimately, though, it is the input and feedback that we receive from interested British Columbians on the challenges and proposals outlined herein that will best inform the development of any changes to the law. It is my hope that this consultation will engage British Columbians in a dialogue so that together we can create legislation that supports a prepared and resilient B.C.

Sincerely,



Honourable Naomi Yamamoto
Minister of State for Emergency Preparedness

Executive Summary

The Premier's mandate letter to Minister of State for Emergency Preparedness Naomi Yamamoto directs the Minister to lead a review of the *Emergency Program Act* (Act) to ensure the legislation is up to date and effective in managing the impacts of emergencies in British Columbia, providing a report back to Cabinet Committee on Secure Tomorrow on or before March 31, 2016.

This engagement is intended to be a key component of the review of the legislation. It highlights several key challenges in the Act and seeks input from stakeholders on proposals for possible legislative changes so that government may better understand what improvements if any may be needed to ensure the Act is up to date and effective.

The specific examples of challenges presented in this consultation fall into one of the following three discussion areas, with each including proposals for possible changes to the Act for consideration and input of stakeholders:

A. Modernizing fundamental concepts and structure of the Act:

1. Phases of emergency management (prevention, preparedness, response and recovery);
2. Definition of emergency and disaster; and
3. Definition of local authority.

B. Clarifying roles and responsibilities:

4. Emergency Management BC;
5. Provincial emergency planning, response and recovery responsibilities;
6. Ministerial authority to direct emergency planning; and
7. Provincial authority for private sector and non-government agencies.

C. Supporting emergency response and recovery:

8. Shared responsibilities for emergency response;
9. State of Emergency;
10. Evacuation orders; and
11. Employment protection.

Stakeholder input on the identified challenges and discussion questions may be submitted to ***citizenengagement@gov.bc.ca*** by Feb. 19, 2016. In order to promote the transparency of the review and engagement process, submissions received from stakeholders who Minister Yamamoto invited to provide input may be posted to Emergency Management BC's website. Submissions from members of the public posted to the website forum will be reviewed and incorporated into the review process along with the other stakeholder submissions.

Context of a Review of the *Emergency Program Act*

OVERVIEW OF THE LEGISLATIVE FRAMEWORK

The *Emergency Program Act* provides the legislative framework for the management of disasters and emergencies within British Columbia. This framework defines responsibilities of local authorities, provincial ministries and crown corporations along with the responsibility for the Province's emergency management program. It requires local authorities, ministries, crown corporations, and government agencies to develop plans and programs to prepare and respond to emergencies and disasters in the Province. It also provides local authorities, the Minister responsible for the Act, and the Lieutenant Governor in Council, with the ability to declare a state of emergency in order to access the extraordinary powers required to co-ordinate emergency responses.

Supporting the *Emergency Program Act* are three regulations made under the authority of the statute:

- *Emergency Program Management Regulation* identifies duties and responsibilities of provincial ministries and government corporations in relation to specific hazards and generally in the event of an emergency;
- *Local Authority Emergency Management Regulation* outlines roles and responsibilities of Local Authorities; and
- *Compensation and Disaster Financial Assistance Regulation* establishes the framework for the provisions of disaster financial assistance.

WHY REVIEW THE ACT?

The time is ripe to review the *Emergency Program Act* to ensure it is effective in supporting the management of emergencies in British Columbia. The current iteration of the *Emergency Program Act* dates back to 1993 and has been subject to a small number of limited amendments since then. Over the last two decades various events and operational responses have prompted the provincial government and other partners in emergency management to consider and revise operational practices and procedures.

A further factor contributing factor are the 2014 reports of the Office of the Auditor General and Henry Renteria on earthquake preparedness. These reports further highlighted where changes may be necessary to improve the preparedness of British Columbians in relation to the possible occurrence of a catastrophic event.

Finally, the Premier's July 30, 2015 mandate letter to Minister Yamamoto directs the Minister to lead a review of the Act to ensure the legislation is up to date and effective in managing the impacts of emergencies in British Columbia and reporting back to Cabinet Committee on Secure Tomorrow on or before March 31, 2016. This consultation is intended as a key step in achieving a review as envisioned in the mandate letter by engaging stakeholders in a discussion about what improvements if any may be needed to ensure the Act is up to date and effective.

SCOPE OF REVIEW

This engagement identifies 3 main challenges in the Act and broken out into the following discussion areas:

A. Modernizing fundamental concepts and structure of the Act

B. Clarifying roles and responsibilities

C. Supporting emergency response and recovery

The list of challenges and examples presented for discussion and consideration are focussed on the Act and not the regulations. However, this does not preclude comments and input on any of the regulations as potential changes to the Act could also have implications for matters set out under the regulations.

Finally, the discussions presented here are not intended to be an exhaustive list. It is hoped that the items raised here will generate thought and discussion that will result in a broad range of items for government to consider.

OVERVIEW OF REVIEW PROCESS

Minister Yamamoto sent letters to key stakeholders on the release date of this engagement to invite them to provide submissions on the challenges and proposals outlined herein. In order to promote the transparency of the review and engagement process, submissions received from stakeholders who received invitations may be posted to Emergency Management BC's website. A list of these stakeholders is also provided on the website.

Other interested stakeholders, including members of the public, may also make submissions. Any submissions received from individuals or organizations who did not receive invitation letters from Minister Yamamoto will also be reviewed and incorporated into the review process; these submissions will be collected via the EMBC website forum.

Submissions will be received up to Feb. 19, 2016, at 4 p.m. At the closing of the consultation period, all submissions will be reviewed and analyzed for themes and suggestions that can be compiled and presented by Minister Yamamoto to the Cabinet Committee on Secure Tomorrow on or before March 31, 2016, in accordance with the Minister's mandate letter.

Challenges and Proposals

Discussion Area A:
Modernizing fundamental concepts and structure of the Act

Discussion 1:
The phases of emergency management

Background:

Emergency management is a universal term for the systems and processes used for preventing or reducing the impacts of disasters on communities. Emergency management is conceptualized in four phases: prevention/mitigation, preparedness, response and recovery.

This phased approach is an internationally recognized standard for defining and understanding different aspects of emergency management and is integral to the systems and processes in BC that local authorities and government use to minimize vulnerability to hazards and for coping with disasters. For example, over the last two decades local authority and government emergency plans, which are a central feature of the *Emergency Program Act*, have come to be understood as plans related to preparedness for, prevention and mitigation of, response to and recovery from an emergency and its effects.

Challenge in the current legislative framework:

While the *Emergency Program Act* references aspects of the phased approach to emergency management, it is important that the terms prevention, preparedness, response and recovery are used consistently throughout the legislation. Consideration should be given to structuring the Act to reflect the distinct subject matter of the phases whereby separate parts are established for each phase, with powers and duties for local authorities and the provincial government set out in each part.

The Act's current name should also better reflect the emergency management focus of the act. The current name reflects the role of the Provincial Emergency Program, which has been superseded by Emergency Management BC. See Discussion Area B, Discussion 4. As well, "emergency program" is not defined and, while the term "program" is used in numerous sections in the Act, it may be unclear in some sections as to what this term means in relation to the phases of emergency management.

A further consideration is the definition of "local authority emergency plan" and "provincial emergency plan". These definitions do not currently emphasize that emergency planning involves all phases of emergency management.

Relevant sections in the legislation:

- Title of the Act
- Part 1—Definitions and Application
- Part 2—Administration
- Part 3—Emergencies, Disasters and Declared Emergencies

Proposal:

Consideration should be given to the following potential changes to the Act:

1. Renaming it the *Emergency Management Act*.
2. Restructuring the Act so that it contains parts reflecting the phases of emergency management (i.e. a part dedicated to preparedness, a part dedicated to response etc.)
3. Removing the term "emergency program" and references to "program" or "programs" throughout.
4. Defining an "emergency plan" as a plan under the Act to prepare for, prevent, mitigate against, respond to and recover from an emergency and its effects.

Discussion 2:
Definition of "emergency"

Background:

A definition of an "emergency" is essential to emergency management legislation. In the *Emergency Program Act*, the term "emergency" gives meaning to other important concepts such as emergency plans, emergency programs, emergency measures, and states of emergency.

The current definition of emergency in the Act provides that it is a "present or imminent event or circumstance that is caused by accident, fire, explosion, technical failure or the forces of nature …". A "disaster", on the other hand, is a subset of an emergency. The Act defines a disaster as a calamity that is caused by accident, fire, explosion or technical failure or by the forces of nature and has resulted in serious harm to people or widespread damage to property.

Challenge in the current legislative framework:

BC's legislation limits the definition of an emergency to a specific set of causes, which raises a question as to whether some events or circumstances may fall outside the scope of the Act. Similar legislation in other provincial jurisdictions generally uses broader language that puts an emphasis on defining an emergency based on what could or does result from an event, situation, or condition. Many other jurisdictions have also included damage to the environment in the definition of emergency.

Relevant sections in the legislation:

- Section 1 of the *Emergency Program Act*

Proposal:

1. Consider removing the potential causes in the definition of 'emergency' and clarify that an emergency includes a disaster. The following definitions from other Canadian jurisdictions may be a helpful guide in revising the definition of 'emergency' in BC:
   - Manitoba's *Emergency Measures Act* defines 'emergency' as follows:

     "a present or imminent situation or condition that requires prompt action to prevent or limit (a) the loss of life; or (b) harm or damage to the safety, health or welfare of people; or (c) damage to property or the environment"
   - Alberta's *Emergency Management Act* defines 'emergency' as follows:

     "an event that requires prompt co-ordination of action or special regulation of persons or property to protect the safety, health or welfare of people or to limit damage to property"
   - Ontario's *Emergency Management and Civil Protection Act* defines emergency as follows:

     "a situation or an impending situation that constitutes a danger of major proportions that could result in serious harm to persons or substantial damage to property and that is caused by the forces of nature, a disease or other health risk, an accident or an act whether intentional or otherwise"
2. Consider including damage to the environment in the definition of emergency.

Additional information for consideration:

- Manitoba's *Emergency Measures Act*: ***https://web2.gov.mb.ca/laws/statutes/ccsm/e080e.php***
- Alberta's *Emergency Management Act*: ***http://www.qp.alberta.ca/documents/Acts/E06P8.pdf***
- Ontario's *Emergency Management and Civil Protection Act*: ***http://www.ontario.ca/laws/statute/90e09***
- Nova Scotia's Emergency Management Act: ***http://nslegislature.ca/legc/***

Discussion 3:
Definition of "local authority"

Background:

Four treaties have been ratified to date under the BC Treaty Process with the Maa-Nulth First Nations, Tsawwassen First Nation, Tla'amin Nation, and Yale First Nation. In addition, a treaty was implemented outside of the treaty process with the Nisga'a in 2000.

All of the modern treaties implemented or ratified provide that Treaty First Nations and the Nisga'a Lisims Government have the "rights, powers, duties and obligations of a local authority under federal and provincial law in respect of emergency preparedness and emergency measures" on Treaty Lands. This includes specific law making authority in relation to emergency preparedness and emergency measures, as well as authority to declare a state of local emergency and exercise the powers of a local authority in accordance with federal and provincial laws in respect of emergency measures.

Challenge in the current legislative framework:

The *Emergency Program Act* defines a 'local authority' as one of the following:

- A municipality
- Regional district
- National park subject to an agreement between the province and the government of Canada

The definition does not currently include Treaty First Nations or the Nisga'a Lisims Government. As the Treaty First Nations have the status of local authorities for the purposes of the *Emergency Program Act*, consideration needs to be given to modernizing the definition of 'local authority' in the Act to ensure proper alignment with the provisions of the treaties. This change will further reinforce the continued coordination of activities and shared responsibilities between the provincial government, Treaty First Nation governments, local governments, and other institutions to work together to mitigate, prepare for, respond to and recover from disasters.

Relevant sections in the legislation:

- Sections 1, 5, 6, 8, 10, 12, 13, 14, 15, 18, 19 of the *Emergency Program Act*
- Local Authority Emergency Management Regulation
- Compensation and Disaster Financial Assistance Regulation

Proposal:

1. Consider changing the definition of 'local authority' to include Treaty First Nations, including the Nisga'a Lisims Government.
   - Consider the impact of this proposal in relation to all provisions in the Act that are applied to local authorities.
   - This proposal is subject to provincial government consultation with the Treaty First Nations and the Nisga'a Lisims Government in accordance with treaty obligations.

Additional information for consideration:

BC Treaties:

- Under the BC Treaty Process: ***http://www.bctreaty.net/files/treaties-and-agreements-in-principle.php***
- Nisga'a Final Agreement: ***http://www.nnkn.ca/files/u28/nis-eng.pdf***

Discussion Area B:
Clarifying roles and responsibilities

Discussion 4:
Emergency Management BC

Background:

Emergency management requires cross-agency, cross-government and inter-jurisdictional coordination and integration to ensure effective delivery of emergency management services.

Emergency Management British Columbia (EMBC) was established in 2006 to take on the responsibilities of its predecessor, the Provincial Emergency Program (PEP), and to take on the role as the lead coordinating agency in the provincial government for all emergency management activities.

EMBC provides executive coordination, strategic planning, and multi-agency facilitation and strives to develop effective working relationships in an increasingly complex emergency management environment. 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. Additionally, EMBC engages provincial, national and international partners to enhance collective emergency preparedness.

Challenge in the current legislative framework:

The *Emergency Program Act* does not currently reference Emergency Management BC. Instead, the Act continues to reference the Provincial Emergency Program.

Relevant sections in the legislation:

- Section 2 of the *Emergency Program Act*
- Section 2 of the Emergency Program Management Regulation

Proposal:

1. Establish Emergency Management BC in legislation and remove references to the Provincial Emergency Program.
2. Clarify the responsibilities of the director of EMBC to include the following:
   - Lead the coordination of all provincial government emergency management activities,
   - Provide advice and assistance to other authorities—provincial and local authorities—in their emergency management responsibilities,
   - Establish and maintain a provincial emergency management system to standardize provincial emergency response activities, and
   - Reduce risk by promoting and supporting emergency preparedness, prevention and mitigation, response and recovery initiatives.

Additional information for consideration:

- EMBC website: ***http://www.embc.gov.bc.ca/index.htm***
- EMBC's strategic plan: ***http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/embc-strategic-plan.pdf***

Discussion 5:
Assigning provincial emergency planning, response, and recovery responsibilities

Background:

Under section 4(1) of the *Emergency Program Act*, the Minister responsible for the Act is required to prepare provincial emergency plans respecting preparation for, response to and recovery from emergencies and disasters.

The Act also provides authority under section 28(2)(a) for the Lieutenant Governor in Council (LGIC) to assign responsibilities to ministries, boards, commissions or government corporations or agencies for the preparation and implementation of emergency plans, including arrangements to deal with emergencies and disasters.

The Emergency Program Management Regulation contains requirements for ministers and government corporations to develop emergency plans. The responsibility for ministers to make provincial emergency plans for specific hazards is assigned in Schedule 1 of the Regulation. Schedule 2 of the regulation sets out duties of ministers and government corporations in the event of an emergency.

Challenge in the current legislative framework:

The Ministerial responsibility under the Act for preparing provincial emergency plans and the LGIC authority to assign responsibility for provincial emergency plans requires clarification. The Minister responsible for the Act does not prepare all provincial emergency plans respecting preparation for, response to and recovery from emergencies and disasters. This responsibility is distributed across government ministries and agencies, a process that is more accurately reflected in schedule 1 of the EPM Regulation.

However, the feasibility of assigning emergency planning and other duties by way of regulation is questionable. Emergency management practices have evolved considerably over the last two decades and will continue to do so. The process of updating and changing provincial emergency responsibilities through amendments to a regulation can be cumbersome and not well suited to responding to changes in the dynamic emergency management environment.

A further matter in the context of provincial emergency management responsibilities is the extent to which the legislative framework should capture public organizations such as school boards and health authorities, which do not fall under the definition of Government Corporation. Henry Renteria acknowledged concerns of many stakeholders respecting emergency management plans and capacities across specific sectors (p. 19). While other public bodies with various degrees of independence from government engage with government ministries in emergency planning processes, the question of government's responsibility to ensure coordination of planning, response and recovery duties when and where necessary should be considered.

Relevant sections in the legislation:

- Sections 4 and 28 of the *Emergency Program Act*
- See the *Emergency Program Management Regulation*

Proposal:

1. Consider removing the current scheme from the Act whereby the Lieutenant Governor in Council (LGIC) assigns emergency planning, response and recovery duties by regulation and provide for the following in the Act:
   - An authority for the minister responsible for the Act to require other ministers, after consulting with them, to prepare emergency plans in relation to specified hazards.
   - An authority for the Minister responsible for the Act to require, after consultation, that a minister, government corporation, or other prescribed public bodies prepare emergency plans in relation to carrying out specific emergency response and recovery duties.
2. In order to support the proposed changes outlined above, other amendments would be required, including the following:
   - Define 'hazard' as something that may cause, or contribute substantially to the cause of, an emergency.
   - Move the existing requirements in section 3 of the Emergency Program Management Regulation respecting emergency planning to the Act.
   - Provide an LGIC regulation creating the authority to prescribe public bodies for the purposes of the Act.

Additional information for consideration:

- Henry Renteria's 2014 report on B.C. Earthquake Preparedness: ***http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/renteria_eq_consultation_report_2014.pdf***

Discussion 6:
Ministerial authority to direct emergency planning

Background:

Effective emergency planning is essential to emergency management. In B.C., local governments lead the initial response to emergencies and disasters in their communities and, as required under the Act, they prepare emergency plans and maintain an emergency management organization to ensure the safety of citizens when a situation escalates beyond the first responder level.

Under section 4(2)(f) of the Act, the Minister has the authority to review and recommend changes to a local emergency plan. Currently, Emergency Management BC works with its partners in local governments to provide advice and guidance on the development of local emergency plans.

Challenge in the current legislative framework:

While the Minister has authority under the Act to review and recommend changes to a local emergency plan, the minister does not have authority to require that a local authority make changes to their plans in situations where a cooperative approach has not been productive to address a significant issue with a plan.

Most other jurisdictions in Canada provide the Minister responsible with authority to review and, if necessary, require changes to emergency plans. Manitoba has a clear and comprehensive scheme under section 8 of that province's Act for the Minister to require revisions to local authority emergency plans as well as those across the provincial government. Ontario's Act provides authority for the Minister to set standards for plans under section 14 of that province's Act. Section 9 of Alberta's Act provides that the Minister responsible may "review and approve or require the modification of provincial and emergency plans and programs".

Henry Renteria referenced the expectation many stakeholders in British Columbia have with respect to provincial government leadership in setting standards respecting emergency plans and programs. Specifically, he stated that Emergency Management BC must "provide more clarity regarding the expectations of local authorities in the area of emergency management" in support of his recommendation that EMBC's authority be augmented to set minimum standards for emergency management programs.

Relevant sections in the legislation:

- Section 4 of the *Emergency Program Act*

Proposal:

1. Consider the addition of authority to provide that the Minister responsible for the Act may make an order requiring a local authority to change its local emergency plan where the minister has reviewed the plan and recommended modifications.
    - The authority should only be available to the Minister after the Minister has recommended modifications to an emergency plan and this authority should parallel the authority of the Minister to require revisions/changes to provincial emergency plans established by other ministries, government corporations and other agencies.

Additional information for consideration:

- Alberta's *Emergency Management Act:* ***http://www.qp.alberta.ca/documents/Acts/E06P8.pdf***
- Manitoba's *Emergency Measures Act:* ***https://web2.gov.mb.ca/laws/statutes/ccsm/e080e.php***
- Ontario's *Emergency Management and Civil Protection Act:* ***http://www.ontario.ca/laws/statute/90e09***
- Henry Renteria's 2014 report on B.C. Earthquake Preparedness: ***http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/renteria_eq_consultation_report_2014.pdf***

Discussion 7: Private sector and non-government agencies

Background:

It is vital that critical infrastructure function through an emergency—a community's ability to respond and recover from a disaster requires restoration of and access to water, food, electricity, communications and other critical infrastructure.

In his 2014 *British Columbia Earthquake Preparedness: Consultation Report*, Henry Renteria wrote that entities such as private sector organizations and NGOs have a responsibility to those that depend on their services, particularly those organizations that provide critical goods and services, which, if disrupted or destroyed, would have a serious impact on the health, safety, security or economic well-being of citizens.

While Renteria's report acknowledges the efforts to date of Emergency Management BC to work with critical infrastructure (CI) partners through the establishment of a cross sector CI Steering Committee, he recommended the following key action to enhance the engagement of private sector and non-government organizations in emergency management as well support province-wide risk analysis:

> *"As a backdrop to voluntary engagement, the provincial and federal government must mandate appropriate private sector preparedness, including sharing of CI information and engagement in joint planning with emergency management organizations" (p. 28).*

Private sector and non-governmental emergency management responsibilities is an emergent topic in other provincial jurisdictions. For example, in 2013, Manitoba introduced changes to its *Emergency Measures Act* to require private sector critical service

providers to prepare business continuity plans, as well as authority for the minister responsible to order these providers to take required measures during a state of emergency, including the implementation of any part of a business continuity plan.

Challenge in the current legislative framework:

In BC, the *Emergency Program Act* provides some specific powers during a state of emergency to local authorities and government in relation to the restoration of essential facilities and the distribution of essential supplies.

However, the Act does not set out responsibilities of private sector and non-government organizations respecting planning for and the prevention/mitigation of emergencies, nor any requirements for owners of critical infrastructure assets to provide information about their assets or their emergency plans regarding those assets.

Relevant sections in the legislation:

- Sections 5, 10 and 13 of the *Emergency Program Act*

Proposal:

1. Consider changes to the *Emergency Program Act* similar to Manitoba's to define "critical services" and require providers of these services to undertake business continuity planning as prescribed by regulation.
    - Manitoba's Act requires that critical service providers submit business continuity plans to the co-ordinator of the province's Emergency Measures Organization for review and approval.
2. Consider an authority to require owners of critical infrastructure assets to provide information about these assets as prescribed by regulation for the purposes of supporting efficient and effective emergency planning, prevention/mitigation, response and recovery.
    - Any change to the legislation in this regard would need to be supported by a definition of "critical infrastructure assets"; outline how such information would be provided; and provide for the confidentiality of the information.
    - Henry Renteria referred to "critical infrastructure" as "those physical and information technology facilities, networks, services and assets, which, if disrupted or destroyed, would have a serious impact on the health, safety, security, or economic well-being of Canadians or the effective functioning of governments in Canada" (p. 26).

Additional information for consideration:

- Henry Renteria's 2014 report on B.C. Earthquake Preparedness: ***http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/renteria_eq_consultation_report_2014.pdf***
- Manitoba's *Emergency Measures Act*: ***http://web2.gov.mb.ca/laws/statutes/ccsm/e080e.php***

Discussion Area C:
Supporting emergency response and recovery

Discussion 8:
Shared responsibility for emergency response

Background:

The *Emergency Program Act* provides that local authorities and the provincial government are to prepare emergency plans and implement them when "an emergency exists or appears imminent or a disaster has occurred or threatens."

Section 7 of the Act provides that the Minister or designated person in a provincial emergency plan may cause the plan to be implemented if, in the opinion of the Minister or the designated person, an emergency exists or appears imminent. Section 8 provides that a local authority or a person designated in the local authority's local emergency plan may cause the plan to be implemented if, in the opinion of the local authority or the designated person, an emergency exists or appears to exist.

The *Emergency Program Management Regulation* sets out that provincial emergency plans may include plans and procedures to assist local authorities with response and recovery from emergencies that "are of such magnitude that the local authorities are incapable of effectively responding to and recovering from them."

Challenge in the current legislative framework:

A key aspect of emergency management is the sharing of responsibilities between local authorities and the province. In general, provincial government policy is that a local authority is responsible for planning for and responding to any emergency in its jurisdictional area with local resources and resources available to them through mutual aid/assistance agreements. This approach acknowledges that a local authority's knowledge about its community—its people, history, risks, vulnerabilities, operational requirements and services—is critical to planning for, responding to and recovering from emergencies.

The province provides advice and support to the local authority responding to an emergency. Where the scope of an emergency exceeds a local authority's resources, the province coordinates the provision of provincial resources to assist the local authority. In some cases, the provincial government has statutory obligations with respect to emergencies. For example, when it comes to wildfires under the Wildfire Act that do not affect developed areas, the provincial government responds, not local authorities.

While this 'shared responsibility' framework to emergency response is generally understood and accepted by stakeholders, it is not reflected in the Act. One consequence of this, in combination with the current scheme in the legislative framework for assigning provincial emergency responsibilities, is that from time to time confusion may result as to whether a local authority or the province should be implementing emergency plans in certain circumstances. Such confusion can undermine the coordinated and collaborative approaches essential for effective emergency management.

Relevant sections in the legislation:

- Sections 7 and 8 of the *Emergency Program Act*
- Section 3 of the *Emergency Program Management Regulation*

Proposal:

1. Consider the addition of provisions in the Act that set out the following in respect of local authorities:

- Establish that a local authority is responsible for:
  - Assessing the threat to health, safety, or welfare of people or damage to property and the environment posed by an emergency;
  - Assessing the resources required to respond to and recover from the emergency; and
  - Implementing its local emergency plan and using local authority resources to respond to and recover from the emergency.
- Provide that a local authority may implement one or more provisions of its local emergency plan in relation to responding to and recovering from an emergency if:
  - If the local authority is of the opinion that an emergency exists or is imminent in the local authority's jurisdictional area; the local authority has declared a state of emergency; or a provincial state of emergency has been declared.

2. Consider the addition of provisions in the Act that set out the following in respect of the provincial government:

- A Minister (or designate) is responsible for implementing one or more provisions of the Minister's provincial emergency plan to provide provincial assistance and support to a local authority's response to and recovery from an emergency if the following occur:
  - The scale of the emergency exceeds the response and recovery resources of the local authority and/or
  - The Minister is required under provincial law to provide provincial resources for emergency response and recovery.
- Emergency Management BC is responsible for:
  - Communicating with a local authority in relation to an emergency within the jurisdictional area of the local authority, which includes:
    - Monitoring the needs of a local authority in responding to and recovering from emergencies;
    - Providing advice when necessary to local authorities responding to and recovering from emergencies; and
    - Communicating and providing advice when necessary to a Minister in relation to an emergency in the jurisdictional area of a local authority.

Discussion 9:
State of emergency

Background:

The *Emergency Program Act* authorizes both local authorities and the province to declare a state of emergency. Once a state of emergency is declared, the level of government making the declaration may do "all acts and implement all procedures" that it considers necessary to prevent, respond to or alleviate the effects of an emergency or disaster, including one or more of the following:

- Acquire or use any land or personal property considered necessary;
- Authorize or require any person to render assistance of type the person is qualified to provide or that otherwise is or may be required;
- Authorize the entry into any building or on any land, without warrant;
- Cause the demolition or removal of any trees, structures or crops if the demolition or removal is considered necessary; and
- Procure, fix prices for or ration food, clothing, fuel, equipment, medical supplies, or other essential supplies.

Challenge in the current legislative framework:

The authority for a local government or the province to undertake "all acts and implement all procedures" it considers necessary to address an emergency or disaster is a very broad and sweeping power. While legislation in most other Canadian jurisdictions provides a similar approach to the declaration of emergencies and the exercise of emergency powers as BC's Act, Ontario's Emergency Management and Civil Protection Act notably establishes criteria to guide when a state of emergency should be declared, as well as criteria for the making of orders during declared emergencies.

The emergency powers in the *Emergency Program Act* are generally consistent with those powers provided in similar legislation in other Canadian jurisdictions; however, some jurisdictions have recently included additional powers. Ontario's legislation provides authority to require a person to collect, use or disclose information and this authority is contingent on the information collected only being used for the purpose of preventing, responding to or alleviating the effects of an emergency. Other BC legislation aimed at addressing specific emergency situations, such as the Public Health Act, also contains a similar general emergency power to collect, use and disclose information.

Relevant sections in the legislation:

- Sections, 9 to 15 of the *Emergency Program Act*

Proposal:

1. Consider the addition of criteria or a test to guide local authorities or the provincial government in the declaration of a state of emergency and the making of orders during a declared emergency.
    - For example, criteria could include that a head of a local authority or the Minister responsible for the Act must believe that the declaration of a state of emergency is required because the use of one or more emergency powers under the Act is necessary and essential to protect the health, safety or welfare of persons or to limit damage to property.

2. Consider the addition of emergency powers not currently provided under section 10 of the *Emergency Program Act*. Some additional emergency powers that should be considered are as follows:
   - Authority to collect, use or disclose information during a state of emergency that could not otherwise be collected, used or disclosed under any enactment.
     - Consideration must be given to including limits on any additional power respecting the collection, use and disclosure of information during an emergency. For example, in Ontario the information must only be collected, used or disclosed for the purpose of preventing, responding to or alleviating the effects of an emergency and for no other purpose.
   - Authority to fast track the accreditation of medical or other essential personnel from other Canadian jurisdictions who may arrive to provide assistance during a state of emergency.
   - A further potential emergency power to be considered is the authority for a local authority or the province to vary a licence, permit or other authorization the local authority or province, as applicable, has issued under an enactment.

Additional information for consideration:

- Ontario's *Emergency Management and Civil Protection Act*: **http://www.ontario.ca/laws/statute/90e09**
- BC's *Public Health Act*: **http://www.bclaws.ca/civix/document/id/complete/statreg/08028_01**

Discussion 10: Evacuation orders

Background:

The current Act provides authority for local authorities or the government to declare a state of emergency. A 'state of emergency', once declared, authorizes the local or authority or the Minister to undertake acts and procedures to prevent, respond to or alleviate the effects of an emergency or a disaster, which includes ordering the evacuation of persons from an area that may be affected by the emergency or disaster.

Challenge in the current legislative framework:

While the Act provides authority for local governments or the Minister to make an evacuation order and "cause the evacuation" of people from an affected area, it says little of anything about how such an order is to be understood and carried out to ensure people are out of harm's way. There is currently no authority under the Act or in other legislation to compel competent adults to leave their private property after an evacuation order is made—emergency responders warn people of the imminent risks of remaining in an area subject to evacuation, but ultimately rely on people to voluntary evacuate.

While leaving one's property in a very short period of time leading up to or following an emergency or disaster is extremely difficult to do, it is important to understand that an individual's decision not to heed an evacuation order can have serious implications not only for themselves, but also other people in the affected area. There have been numerous instances in Canadian jurisdictions and elsewhere where persons who refuse to evacuate require subsequent rescue, creating additional and unnecessary risk to themselves and emergency response personnel,

who are extremely burdened in times of crisis providing round-the-clock assistance to ensure the safety of the public.

The issue of enforcing evacuation orders has emerged as a recent topic of discussion in numerous Canadian jurisdictions. Manitoba became the first jurisdiction in Canada to address the issue in legislation, with amendments to its *Emergency Measures Act* in 2013. The changes provide authority to the police to apprehend any person who refuses to comply with an evacuation order issued under a declared state of emergency for the purpose of taking the person to a place of safety, as well as an ability to recover the costs of relocating the person.

As evacuation orders are rare and, when they do occur, are followed by the vast majority of people in an affected area, changes such as those introduced in Manitoba are intended to provide further support to voluntary evacuations by encouraging people to recognize the serious and grave nature of an evacuation order and to voluntarily comply with directions to leave their property without delay.

Relevant sections in the legislation:

- Sections 9, 10, 12 and 13 of the *Emergency Program Act*

Proposal:

1. Consider adding authority for police to apprehend any person who refuses to comply with an evacuation order issued under a declared state of emergency for the purpose of taking the person to a place of safety similar to sections 18.1 to 18.3 of the Manitoba *Emergency Measures Act*.
    - As part of this proposal, also consider the following supporting provisions:
        - Providing police with a right of entry and use of reasonable force to enforce an evacuation order;
        - Limiting the period of apprehension to be no longer than reasonably required to take a person to a place of safety; and
        - Authority for the province (in a state of provincial emergency) or a local authority (in a state of local emergency) to order a person who was apprehended to pay the costs incurred by police in taking the action to enforce the evacuation order.

Additional information for consideration:

- Manitoba's *Emergency Measures Act*: ***https://web2.gov.mb.ca/laws/statutes/ccsm/e080e.php***

Discussion 11:
Employment protection

Background:

The *Emergency Program Act* provides authority in a state of emergency for a local authority or the provincial government to require a person to provide emergency assistance that the person is qualified to provide or may be required in order to prevent, respond to or alleviate the effects of an emergency or disaster.

The Act also provides (under section 25) that where a person is ordered to provide assistance under a state of emergency, that person's employment may not be terminated because of their being required to provide assistance.

Challenge in the current legislative framework:

A person who is ordered to provide assistance under a state of emergency is providing a civic service similar to jury duty; however, the Act currently does not provide a similar level of employment protection.

The scope of protection under s. 25 of the Act also appears to be specifically limited to a person who has been the subject of an order requiring the person to provide assistance in a declared state of emergency and, as such, does not appear to apply to a person who acts voluntarily (i.e. not under an order) or who acts in an emergency for which no state of emergency or local emergency has been declared.

Relevant sections in the legislation:

- Section 10(1)(e) and section 25 of the *Emergency Program Act*

Proposal:

1. Consider whether employment protection should be limited only to the duration of a state of emergency or whether the protection should extend to cover, for example, travel to and from the emergency or a time period after an emergency if the person is still required to provide assistance.
   - A further consideration here could include situations where a person is recovering from illness or injury as a result of providing assistance during an emergency.
   - Consideration should also be given to whether volunteers or other persons who assist in responding to and recovering from an emergency or disaster are entitled to employment protection in circumstances where they have not been ordered to provide assistance.
2. Consider expanding the protection against loss of employment in section 25 of the Act to include the same protections as those provided for a person on jury duty under section 56 of the *Employment Standards Act*.
   - This would add protection for employment benefits and benefits based on seniority, as well as provide that a person who is providing assistance is deemed to be on leave and must not be terminated as a result of being required to provide assistance or because the person is absent or unable to perform employment duties while on deemed leave.

Additional information for consideration:

- BC's *Employment Standards Act*: ***http://www.bclaws.ca/civix/document/id/complete/statreg/96113_01***

Conclusion

In order to solidify and maintain cooperative and effective approaches to emergency management in British Columbia, partners across the emergency management spectrum in British Columbia and the citizens of this province must engage in thoughtful and meaningful discussions so that we are ready when challenged by known and emergent threats to public safety. This consultation and engagement is but one of many steps we are taking together to ensure we are prepared and resilient.

Submissions may be made on the contents herein on or before Feb. 19, 2016. At the closing of the consultation period, all submissions will be reviewed and analyzed for themes and suggestions that can be compiled and presented by Minister Yamamoto to the Cabinet Committee on Secure Tomorrow on or before March 31, 2016, in accordance with the Minister's mandate letter.

Thank you to all who took time to consider this document's contents and submit feedback.

BRITISH COLUMBIA

R-3

Peace River Regional District
REPORT

To: Emergency Executive Committee Date: February 3, 2016

From: Trish Morgan, General Manager of Community & Electoral Area Services

Subject: Dam safety next steps

Staff is seeking the direction from the Emergency Executive Committee on how to proceed with the issue of dam safety.

BACKGROUND/RATIONALE:
In 2004 the Ministry responsible for public safety mandated regional districts to provide emergency management as a service by changing wording 'may' to 'shall' in the Emergency Program Act in the statement requiring regional districts to deliver the service.

In 2005 the Peace River Regional District (PRRD) adopted Bylaw No. 1599, 2005 for the administration and operation of the emergency and disaster service. Since that time the PRRD has become active in planning for emergencies and maintaining an emergency management organization to plan for and react to natural disasters like heavy rain events, floods, wild fires, pandemics, earth quakes and the like. Over the past 10 years discussions have ensued with BC Hydro emergency planners in regard to which agency should be responsible for such things as:

- educating the public on the hazards that exist;
- ensuring the emergency and evacuations plans are in place (i.e. pre-planning the coordination of evacuations);
- conducting emergency notification to residents during an emergency;
- coordinating all aspects of an evacuation; and
- providing emergency social services.

The PRRD has stated that although local government has a role to play in these aspects, BC Hydro should also have a role to play as they created the hazard and are the technical experts. BC Hydro has stated that their responsibility is simply to conduct emergency response at the site of the emergency only, while local government is responsible for coordinating everything else beyond the site in the event of a dam breach.

PRRD staff and directors have been resistant to this argument, suggesting back that there is a responsibility on behalf of the operators and owners who make a conscious decision to build these man-made hazards and that they must be prepared to have plans in place to deal with the human consequence side of the disaster through the planning, response and recovery phases. This includes ensuring that BC Hydro:

- has emergency plans in place for their facilities;
- educates potentially impacted residents on the hazard, risk and impact they have created (as they are the technical experts);
- work in cooperation with the local authority to deliver emergency notifications; and
- work in cooperation with the local authority and other agencies to coordinate

emergency evacuations and reception centre services.

In this sense, being “responsible” is more than simply writing a cheque after the fact to pay for costs associated with the response and recovery. Further local government lacks the capacity and technical expertise to properly educate residents on these man-made hazards, develop evacuation plans for each facility, coordinate evacuations where there may be risk to first responders and solely coordinate emergency social services as a result of an “industrial” accident.

In 2013 the PRRD submitted a resolution to UBCM requesting that the Province enact changes to legislation that would require permit holders to prepare all-encompassing emergency management plans that include requirements for dam permit holders to conduct public education, develop comprehensive public notification procedures and assist in the coordination of emergency response and recovery efforts to ensure the safety of the public.

The response from the Province was as follows:

PROVINCIAL RESPONSE

Ministry of Forests, Lands & Natural Resource Operations

The provincial government remains committed to improving dam safety and is actively working with dam owners to ensure compliance with the Dam Safety Regulation. When dam audits and inspections identify deficiencies that compromise public safety, dam owners have the option of mitigating the risk or decommissioning the dam.

Under the Dam Safety Regulation, all owners of significant, high, very high and extreme consequence dams are required to develop emergency preparedness plans defining the hazards posed by the dam, as well as required notifications. Dam owners routinely share their emergency plans with local authorities; however, the vast majority of dams are relatively small structures owned by individuals who lack the resources and expertise to prepare emergency plans for the surrounding region.

Under the Emergency Program Act, local governments have the authority to provide emergency training and conduct emergency exercises with local residents. They also lead the initial response to emergencies and disasters in their communities. As required by law, they have prepared emergency plans and maintain an emergency management organization. This is to ensure the safety of citizens when a situation escalates beyond the first-responder level.

Attached is a copy of the 2 page template that the Ministry of Forests, Lands and Natural Resources is recommending.

Options:

1) Draft a request for legislation (RFL), to request the Province to increase the emergency planning and response requirements for dam operators – particularly those who are classified as high or extreme consequence facilities. This would involve the introduction of a new regulation pursuant to S.28(2)(g) of the *Emergency Program Act*. Such a regulation could impose greater responsibilities than those under the British Columbia Dam Safety Regulation.
2) Bring forward the issue at the CAO/CEO Forum in 2017 to see if there is interest in working with other local governments on this issue.
3) Meet with the Minister of Forests, Lands and Natural Resource Operations to discuss the issue of dam safety and make a request to amend legislation.

STRATEGIC PLAN RELEVANCE:
"The PRRD will provide cost effective access to protective and emergency services, including 911 call answer services by 2018 to its residents."

FINANCIAL CONSIDERATION(S): $5,000 is currently budgeted in the 2016 Emergency Services budget for the "man-made hazards project."

COMMUNICATIONS CONSIDERATION(S): None

OTHER CONSIDERATION(S):

Please see the following:

- Emergency Preparedness Plan template for dams
- "BC Hydro in hot water over dam repairs", Globe & Mail, December 9, 2015
- 2013 Resolution that was brought forward to UBCM on dam safety and the response from the Province of BC
- Recommended roles and responsibilities of dam owners and local governments
- BC Hydro's Earthquake Evacuation Procedures for the Campbell River Dam
- Testalindin Dam Failure Report

EMERGENCY PREPAREDNESS PLAN

*Dam Name:*_____ *Date:* _____
*Dam File #:*_____ *Water Licence #:* _____
*Owner's Name:*_____ *Phone #:*_____
*Alternate Contact:*_____ *Phone #:*_____
*Stream Name:*_____ *Reservoir Name:*_____
*Dam Location: Latitude:*_____ *Longitude:*_____ *Map Sheet No.:*____

ACCESS TO DAM: *(describe road access to dam from nearest centre, attach map to this Plan, include alternate routes, include phone # for local helicopter company)*

_____
_____
_____
_____

*Local Helicopter Company:*_____ *Phone #:*_____

EMERGENCY ASSESSMENT: *(list of local personnel/others qualified to make a emergency dam safety assessment (i.e., trained staff, local Professional Engineering Consultant etc.))*

Name	*Title*	*Work & Home Phone #:*

EMERGENCY ACTIONS: *(list phone #'s (work & home) of local contractors/equipment operators, local material suppliers and District Highways Office (access to equipment) etc.)*

Contractor's Name:	*Work & Home Phone #:*

Supplier's Name:	*Work & Home Phone #:*

DOWNSTREAM NOTIFICATION: *(list all downstream people/business which may be affected by potential flood water) i.e. Utilities (oil, gas, etc.), Railways, Hydro, Municipalities, Regional Districts. Please provide an appropriately scaled map with dam and downstream sites that might be impacted.*

Name	*Location*	*Phone #*

OFFICIAL CONTACTS:

EMERGENCY MANAGEMENT BC (EMBC) – Phone #: 1-800-663-3456
24-hour Emergency Co-ordination Centre - Emergency Contact

Local Authority (Municipality, etc.): _____ *Phone #:* _____
Local Police/RCMP Office: _____ *Phone #:* _____
Local Radio Station(s): _____ *Phone #:* _____
Local Highways Office: _____ *Phone #:* _____
Local Highway Contractor: _____ *Phone #:* _____

Regional Dam Safety Officer: _____ *Phone #:* _____
Home #: _____
Water Management Branch (alternate): _____ *Phone #:* _____
Home #: _____
Regional EMBC Officer: _____ *Phone #:* _____
Home #: _____

EPP Revision Date: _____ *Revision #:* ___

THE GLOBE AND MAIL

AdChoices

BC Hydro in hot water over dam repairs

Justine Hunter
VICTORIA — The Globe and Mail
Published Wednesday, Dec. 09, 2015 12:02PM EST
Last updated Wednesday, Dec. 09, 2015 12:09PM EST

More than three years after BC Hydro was warned by engineering experts that the W.A.C. Bennett Dam has a "serious deficiency" that should be fixed without delay, the Crown corporation has applied to begin work that will not be complete before 2019.

The expert panel, in a 2012 report obtained by The Globe and Mail and then released Tuesday by the utility, warned that the arrangement of large rocks at the foundation of the 47-year-old dam, known as riprap, is damaged. That has allowed waves to erode the material beneath the protective layer of rocks, undercutting the upstream slope of the massive dam.

"Continued wave action, floods and relatively minor earthquake loads may trigger deeper sliding that could endanger the integrity of the crest," the report warns, "and even cause over-topping and eventual breaching of the dam."

The panel expected BC Hydro would complete the repairs by 2015. "The panel considers this to be a serious deficiency that should be remedied as soon as possible. The panel is pleased to learn that a 'riprap upgrade project' is scheduled to start in 2012 and is planned to be completed within three years. It should not be delayed. If an earthquake were to happen before the upstream slope and the top of the dam are repaired, serious damage may occur."

Those details were among the small excerpts that BC Hydro provided at the request of its regulator, the B.C. Utilities Commission, to justify the cost of the riprap- upgrade project. A decision by the commission on the proposal is expected next spring, and the repairs will be completed in 2019 or 2020.

Until Tuesday, the 240-page report was not publicly available. A senior Hydro executive released the report in response to questions from The Globe, and said a copy should have been provided to the regulator.

"Frankly, I think that was a mistake. I think we should have given them the whole report," Chris O'Riley, deputy chief executive officer of BC Hydro, said in an interview Tuesday. "It conveyed an impression that we were not being transparent."

However, Mr. O'Riley maintained that the timeline is reasonable, and noted that consultation has taken place and a reliable source for new rock has been secured at a local quarry. He said the dam is constantly being monitored to ensure it is sound, and the riprap upgrade is just one of the maintenance projects that will be carried out at a cost of about $250-million.

The 2012 report says the W.A.C. Bennett dam was "well designed for the time it was constructed," but the upper part of the dam may be vulnerable to damage during an earthquake. Since 2012, concerns have been raised by the BC Oil and Gas Commission about small earthquakes in the same northeastern region of B.C. triggered by fracking for natural gas.

Adrian Dix, the New Democratic Party critic for BC Hydro, said the delay in responding to the expert panel's concerns shows a disregard for public safety.

"It's reckless," he said in an interview. "BC Hydro was presented with a call for urgent action in 2012. And they are not going to be finished until 2020."

Mr. Dix also criticized Hydro for keeping the report secret, saying it should have been disclosed when safety questions were raised during the review of the Site C dam project, which is now being built downstream from the Bennett dam.

At that time, Hydro told the review panel that "failure of one of the upstream dams is very unlikely." Mr. Dix said the joint review panel was left to make its findings on the construction of Site C based on incomplete evidence.

Mr. O'Riley said it "never occurred to us" to table the report at the review hearings. "The report is very, very technical. There are probably 20 people in the province who are really qualified to interpret it."

Bill Bennett, the minister responsible for BC Hydro, said he has not read the report but is confident the Crown corporation is acting appropriately. "I'm comfortable the public is not at risk," he said in an interview. "As much as the NDP would like to find a bogeyman that they can get into the newspapers, there is nothing untoward here. [BC Hydro] knows what needs to be done."

Follow Justine Hunter on Twitter: @justine_hunter *[https://twitter.com/@justine_hunter]*

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PEACE RIVER REGIONAL DISTRICT
RECEIVED
DAWSON CREEK
FEB 18 2014
Referred To KGKB Agenda corresp.
File No.

February 6, 2014

Chair Karen Goodings
Peace River Regional District
Box 810
Dawson Creek BC V1G 4H8

Dear Chair Goodings:

Re: 2013 Resolutions

Please find attached the provincial response to the 2013 resolution(s) put forward by your Board and endorsed by the UBCM membership at Convention.

I trust this information will be of assistance to you. Please feel free to contact Reiko Tagami, UBCM Information & Resolutions Coordinator with any questions.

Tel: 604.270.8226 ext. 115 Email: rtagami@ubcm.ca

Sincerely,

Director Rhona Martin
President

Enclosure

2013 B64 EMERGENCY MANAGEMENT PLANS FOR DAMS IN BC **Peace River RD**

WHEREAS British Columbia has many man-made dams on its rivers and streams throughout the province and this infrastructure creates man-made hazards that the general public needs to be informed of as well as of the potential risks and impacts they create;

AND WHEREAS while the current Dam Safety Regulation (BC Reg 163/2011) requires dam permit holders to prepare and maintain emergency plans, there are no provisions to require dam permit holders to inform and educate the general public on the hazards, risks and impacts associated with the dams before or during an emergency event:

THEREFORE BE IT RESOLVED that UBCM request the Province of British Columbia to enact changes to legislation/regulation that would require dam permit holders to prepare all-encompassing emergency management plans that include requirements for dam permit holders to conduct public education, develop comprehensive public notification procedures and assist in the coordination of emergency response and recovery efforts to ensure the safety of the public.

CONVENTION DECISION: ENDORSED

PROVINCIAL RESPONSE

Ministry of Forests, Lands & Natural Resource Operations

The provincial government remains committed to improving dam safety and is actively working with dam owners to ensure compliance with the Dam Safety Regulation. When dam audits and inspections identify deficiencies that compromise public safety, dam owners have the option of mitigating the risk or decommissioning the dam.

Under the Dam Safety Regulation, all owners of significant, high, very high and extreme consequence dams are required to develop emergency preparedness plans defining the hazards posed by the dam, as well as required notifications. Dam owners routinely share their emergency plans with local authorities; however, the vast majority of dams are relatively small structures owned by individuals who lack the resources and expertise to prepare emergency plans for the surrounding region.

Under the Emergency Program Act, local governments have the authority to provide emergency training and conduct emergency exercises with local residents. They also lead the initial response to emergencies and disasters in their communities. As required by law, they have prepared emergency plans and maintain an emergency management organization. This is to ensure the safety of citizens when a situation escalates beyond the first-responder level.

2013 B134 MANAGEMENT OF NATURAL RESOURCES **Peace River RD**

WHEREAS Northeast BC has a significant natural gas resource expected to yield far in excess of 100 years' needs, with the resource providing an opportunity to fuel and fund the province in a debt-free and sustainable manner that will provide for enhanced physical infrastructure, health, education and social progress for several generations;

AND WHEREAS Norway, having a population and resources similar to the province of BC, has managed their resources to the extent that it is the second wealthiest country in the world:

THEREFORE BE IT RESOLVED that UBCM request that the Province of BC continue an examination of the factors that Norway employs in managing its resources for the betterment of its citizens with the goal of adopting a similar approach in BC.

CONVENTION DECISION: **NOT CONSIDERED - AUTOMATIC REFERRAL TO EXECUTIVE**

EXECUTIVE DECISION: **ENDORSED**

PROVINCIAL RESPONSE

Ministry of Natural Gas Development & Minister Responsible for Housing

The Ministries of Finance and Natural Gas Development have reviewed the tax and royalty regimes of key jurisdictions with capacity to support LNG production. The review concluded that BC can support an LNG tax thereby maximizing benefits to British Columbians while remaining globally competitive.

The BC Natural Gas Strategy and LNG Strategy detail commitments to competitiveness and market diversification as a means to maximize resource benefits back to the Crown. Key elements to competitiveness for natural gas that the Province is working toward including, maintaining and improving our competitive business environment, a modern regulatory framework, improvements to infrastructure, a competitive taxation and royalty regime, including targeted royalty programs.

Norway has demonstrated leadership in establishing and sustaining a successful non-renewable resource wealth fund for their future generations. The Province has been actively examining Norway's management of its non-renewable resources including a review of their Sovereign Wealth Fund. The Province will continue to learn from Norway and other jurisdictions, and apply best practices to managing BC's non-renewable resources.

The BC government will continue to track and, where applicable, identify and consider best practices in oil and gas management employed in other jurisdictions.

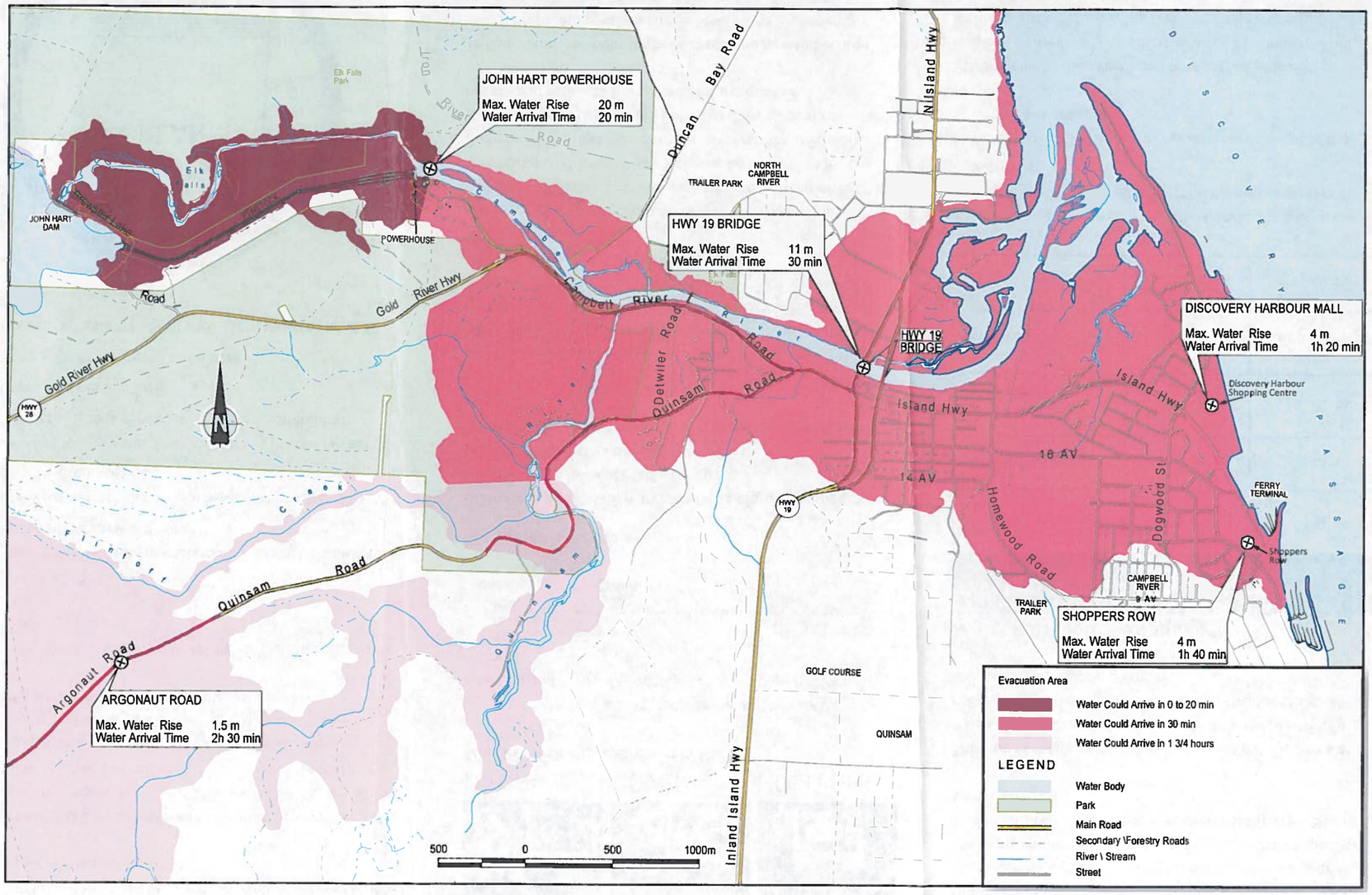
Dam Permit Holder	Local Authority
EMERGENCY PLANNING STAGE	
Before an Event	**Before an Event**
• Contact residents in the inundation zones in person to: 1) collect and maintain a current database of resident information * to be updated every 3 years; 2) provided continued education to residents on the hazard, risks and potential impacts of a dam breach, and; 3) provide continued education to residents on emergency response planning in relation to dam failures • Work with the local governments to develop an emergency response plan that addresses the safety of residents and the travelling public including identifying emergency reception centres • Share full Emergency Response Plans with local governments • Provide and maintain community warning systems where appropriate • Identify on map where residents live and local government boundaries	• Conduct integrated planning with the permit holder • Share local government emergency response plans to support integrated planning • Provide training to emergency operations centre staff • Take part in permit holder's emergency exercises • Provide GIS information as required
EMERGENCY RESPONSE STAGE	
During an Event	**During an Event**
• Provide a representative to work in all affected local government EOC's as a technical expert • Work in cooperation with local governments to issue notifications of an evacuation alert or evacuation order (this may come in the way of providing local government and the RCMP with maps and resident contact information) • Coordinate the provision of emergency social services to evacuated residents	• Establish an EOC to support emergency response efforts • If required, declare a local state of emergency and issue an evacuation alert, order and rescind and utilize other wide sweeping powers available under the Emergency Program Act • Work with the RCMP to ensure the notification of residents and the public requiring evacuation • Work with permit holder, as the technical experts, to issue public information releases • Provide support to the permit holder to coordinate the provision of emergency social services to evacuated residents at reception centers
EMERGENCY RECOVERY STAGE	
After an Event	**After an Event**
• Work with local authorities to determine priorities for repair and restoration of electrical service • Coordinate power restoration service • Assist in the coordination of community disaster recovery	• Coordinate community disaster recovery measures (i.e., disaster financial assistance applications, insurance providers, relocation services)

*** Resident information includes the following:**

- Street and mailing address, email address
- Names and ages of all residents in the household
- Phone numbers of all residents in the household – home, work, cell, school
- Places of work and/or school for each household member
- Health and/or mobility concerns
- Evacuation requirements (i.e., transportation issues, pets, livestock, etc.)

DRAFT

CAMPBELL RIVER EARTHQUAKE EVACUATION MAP



Note: The flood areas show the worst case scenario of the John Hart or Strathcona dams failing. Also indicated, in either situation, is the fastest time of potential water arrival.

EARTHQUAKE EVACUATION INFORMATION FOR THE CAMPBELL RIVER DAM SYSTEM

Working together to promote emergency preparedness in the City of Campbell River

City of Campbell River
Strathcona Regional District
BC hydro FOR GENERATIONS

BE PREPARED TO RESPOND TO A MAJOR EARTHQUAKE

Did you know that more than 1,200 earthquakes are recorded each year in the province of B.C.?

The coast of B.C. is considered to be a high-risk earthquake zone. In this region, tectonic plates are moving apart, sliding past one another and colliding. It is the movement of these plates that causes small earthquakes (daily), potentially damaging earthquakes (decades apart), and some of the world's largest earthquakes (centuries apart).

Earthquakes strike without warning, so it is important to be prepared.

PREPARE YOUR FAMILY

- Know the safe spots in each room - against inside walls, under sturdy tables, desks etc.
- Know the danger spots - windows, mirrors, hanging objects, fireplaces etc.
- Practise family drills. Physically place yourself in safe locations. This is especially important for children.
- Learn first aid and CPR.
- Keep a list of emergency numbers.
- Prepare an emergency kit with supplies for at least 72 hours.

KNOW WHAT TO DO IN THE EVENT OF AN EARTHQUAKE

DROP! COVER! HOLD ON!

After the shaking stops, count to 60.

Once it is safe to do so, immediately leave the evacuation area and go to higher ground – do not wait for an official warning.

The evacuation map on the opposite side indicates the safe areas in white and green.

During a major earthquake:

DO leave the evacuation area (move to higher ground).
DO stay tuned to local media for updates.
DO follow the instructions of authorities.
DO take your emergency kit that is accessible and properly stocked.

Following a major earthquake, some flooding will likely occur as BC Hydro lowers the reservoir as soon as possible to protect the dam. Many areas near or below the dam may flood in about one hour. In the event of a dam failure, water may arrive in about 30 minutes (see chart).

The City of Campbell River, Strathcona Regional District, and BC Hydro work together on emergency planning for earthquakes. BC Hydro has a capital upgrade plan for the Campbell River hydroelectric system over about 20 - 30 years to reduce the current potential downstream risks to people and property from a major earthquake.

To find out more about these hazards and how to become better prepared, please visit the Strathcona Emergency Program website at **www.strathconard.ca**. For more information on BC Hydro's Campbell River system, please contact **steve.watson@bchydro.com.**

EVACUATION AREAS FOR A MAJOR EARTHQUAKE

Upstream of the Campbell River there are three BC Hydro hydroelectric dams. Following an earthquake, damage to the dams could result in major water flows within the City of Campbell River and require evacuation of the area. See map on opposite side.

The type of major earthquake that would put the dams at risk is one that causes considerable damage to ordinary buildings – including fallen walls, broken solid stone walls, and twisting or falling chimneys.

PROJECTED FLOOD LEVEL AND TIMING

LOCATION	MAX WATER LEVEL RISE	WATER ARRIVAL TIME
John Hart Generating Station	20 m	20 min
Hwy 19 Bridge	11 m	30 min
Discovery Harbour Shopping Mall	4 m	1 hr, 20 min
Shoppers Row	4 m	1 hr, 40 min
Argonaut Road	1.5 m	2 hr, 30 min

- Maximum Water Rise: The highest level of water in the area after the worst case earthquake and dam failure scenario.
- Water Arrival Time: The initial water arrival under the worst case scenario.

Please refer to the evacuation map and be prepared to respond immediately following a major earthquake. This includes understanding the risks of remaining within flood areas following a major earthquake.

KEEP AN EMERGENCY KIT IN YOUR HOME AND CAR

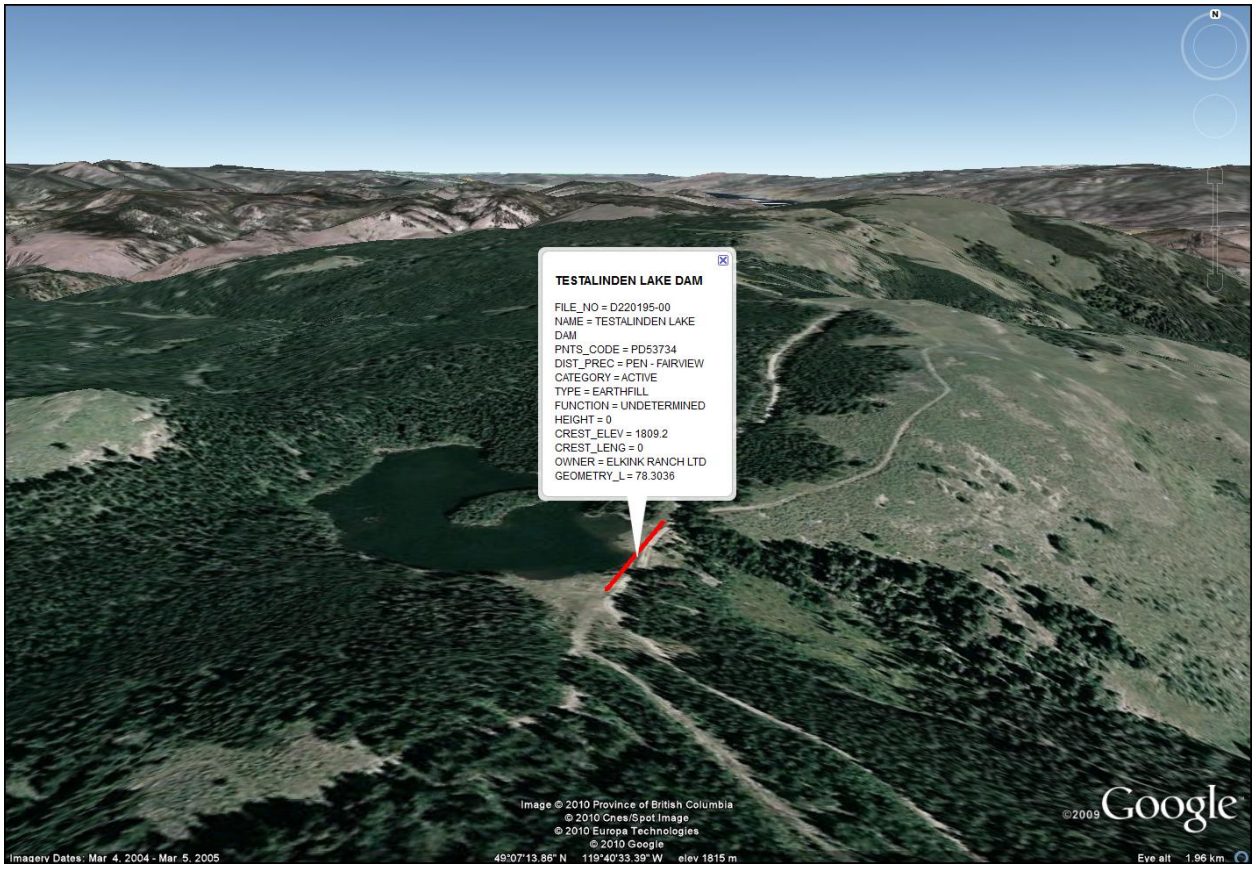
A portable emergency kit will be necessary following any emergency and should be a key part of your preparation. A standard emergency kit provides supplies for the first 72 hours. Check your kit twice a year to replace expired supplies, including food, batteries, and medicines. Whether you purchase a kit from a retailer or make it yourself, here is a partial list of what it should include:

- Water: at least two litres of water per person, per day
- Food: energy bars, and dried foods that won't spoil
- A manual can opener
- First aid kit
- Medications, including prescription and painkillers
- Flashlight
- Batteries
- Radio
- A multi-function tool
- Keys for your house and vehicles
- Cash: include smaller bills
- A printed copy of your emergency plan
- Photocopies of personal documents

Emergency kits should be packed in a sturdy backpack or duffle bag and stored in an easy-to-reach location.
For more information on preparing your family for an emergency, visit **www.embc.gov.bc.ca** or **www.getprepared.ca**

Response to Recommendations Contained in the Report:

"Review of the Testalinden Dam Failure" (July 2010)



Ministry of Environment

October 2010

FORWARD

This response, the rapid dam assessment and the other steps being taken to improve dam safety in British Columbia could only be accomplished through the dedicated work of the Dam Safety Officers, program staff and our partners, including Emergency Management BC, the Ministry of Forests and Range, the Ministry of Energy, Mines and Petroleum Resources and local governments. Going forward, the Ministry of Environment will have a greater on-the-ground presence to ensure dam safety. These staff will assist us in our continued work to ensure public safety and deliver on the Recommendations of the Deputy Solicitor General.

Doug Konkin
Deputy Minister
Ministry of Environment
October 14, 2010

Cover Image: Testalinden Dam, before the dam failure, as available through Google Earth with geo-referenced dam information. This information is available on Google Earth for all dams in British Columbia: BC Dams.
Note: To run the BC Dam Google Earth program, you must save the file to your computer. You may open the file from the dialogue box which will appear once the download is complete. The latest version of Google Earth is required.

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BACKGROUND

On June 13, 2010, a privately-owned earthen dam on a man-made reservoir on Testalinden Creek failed, causing a debris and mud torrent that severely impacted a number of homes and an agricultural area eight kilometres south of Oliver, British Columbia.

As a result of this incident, Solicitor General Michael de Jong launched a review to both identify the circumstances leading up to the dam failure and to produce recommendations to help prevent these types of dam failures from re-occurring. David Morhart, Deputy Solicitor General completed a *Review of the Testalinden Dam Failure* and included 12 recommendations for improving dam safety in BC.

Immediately following the Testalinden dam breach, staff from the Ministry of Environment (the Ministry) conducted a review of the Provincial Dam Safety Program and initiated a Rapid Dam Assessment (RDA) for the majority of dams in the province. This assessment was undertaken to determine if there were any other dams at risk of imminent failure and create an updated inventory of dams in the province. In conjunction with this review the Ministry undertook other work to deliver on the remaining Recommendations made by the Deputy Solicitor General.

This report outlines the results of our dam assessments and the status of the work on the other recommendations. The response includes reports from Emergency Management BC on progress with Recommendations # 4 and #6, for which they are responsible as well as input from other Ministries where appropriate. This report is a snap-shot in time. It outlines the progress we have made and ongoing action to deliver on the recommendations and improve dam safety in British Columbia.

SUMMARY RESPONSE TO THE 12 RECOMMENDATIONS

The following is a brief summary of each Recommendation documenting progress and the additional work required before they can be considered 'complete'. The Ministry of Environment has taken the lead on all recommendations with the exception of Recommendations #4 and #6. Those are led by Emergency Management BC (EMBC) and they have provided the responses for those items. A more detailed status of each recommendation can be found in Appendix 1.

Recommendation #1: *The Ministry of Environment should review its record keeping practices to ensure that proper and complete files are kept and archived on all dam structures, including details of water licenses, transfers of appurtenancy, and correspondence with owners.* Note: Linked to Recommendation #9 regarding the Dam Registry.

In May 2010, the Ministry released a new E-Licensing system within which resides the Dam Registry. This system streamlines and simplifies water management record keeping and training has been provided for all water management staff, including the Dam Safety Officers. The new system allows cross referencing and improves the linkage between the new Dam Registry and other existing electronic and historic paper files making it easier to locate and store all of the relevant files for a single dam.

Recommendation #2: *The Ministry of Environment should review the historical warnings about the conditions of the dam and any actions taken to hold the owner(s) responsible for inspection and maintenance as per the Dam Safety regulation.*

A review of the historical warnings and actions taken relating to Testalinden Dam confirmed that the summary provided in the Deputy Solicitor General's report (p 7 – 10) is accurate and complete. Related to the Testalinden Dam failure, the Ministry's Conservation Officer CEI Unit have initiated an investigation and an Order under the *Water Act* has been issued. The dam needs to be stabilized prior to winter to ensure that the potential for impounding water is removed. Lessons learned from the Testalinden Dam failure related to record keeping and follow-up when deficiencies are identified in a dam are documented in Appendix 1, Recommendation #2 and are being incorporated into the Dam Safety Program as described in the response to other recommendations including Recommendations #1, #8, #9, #10 and #12.

Recommendation #3: *The Ministry of Environment should consider implementing signage at all dam locations to make it clear to passersby that the structure is a dam and to provide direction and emergency contact information, including contact information for the owner, to report any issues observed.* Note: This Recommendation is closely linked to Recommendation #7 regarding an update of the BC Dam Safety Regulation.

An amendment to the BC Dam Safety Regulation has been drafted to require dam signage for very high, high and low consequence dams on Crown Land. The Regulation amendments will be submitted to Cabinet in the fall of 2010. The proposed signage would provide a passerby with information on what conditions to be aware of and emergency contact information. A communication plan has been prepared to advise dam owners of the Regulation amendments as soon as they are approved. Signage of dams on public lands improves the ability of passersby to be aware of issues and report them to the appropriate agency.

Recommendation #4: *Emergency Management BC should work with local officials, local and provincial policing and first response agencies and ministry provincial and regional offices to provide a quick reference list of key contact numbers, focused on "who to call when," and develop an alert matrix to quickly escalate priority issues.* Note: Linked to Recommendation #5.

EMBC has confirmed that the existing processes and contact numbers for reporting emergency situations are appropriate (911 for all urgent life safety issues; non-emergency numbers for local police and fire services for public reporting of other issues; and 1-800-663-3456 for partner agencies and local governments to contact the Province's Emergency Coordination Centre). These contact numbers are the starting point for any emergency situations in the Province. Through seasonal readiness and Temporary Emergency Assignment Management System meetings, Emergency Management BC (EMBC) is committed to confirming and reinforcing existing reporting procedures, relationships and emergency contacts through collaboration with local authorities, first responders and Ministries, including the Dam Safety Program, to ensure that all public safety partners understand the role of EMBC Emergency Coordination Centre and ensure that current EMBC standard operating procedures for environmental emergencies are up to date including emergency contact information. This knowledge will enhance public safety emergency reporting and ensure timely, efficient referral and escalation of emergencies.

Recommendation #5: *The Ministries of Forests and Range and Environment should review their call-out procedures to ensure that compliance and enforcement personnel are familiar with the issues escalation process noted in Recommendation 4, as they are often among the first individuals aware of local incidents.*

The Water Management Branch, Conservation Officer Service and the Ministry of Forests and Range Compliance & Enforcement Branch are working to improve staff awareness of Emergency Management BC's role and call out process. Call out procedures have been reviewed and key contact numbers have been confirmed.

Recommendation #6: *Building on recommendation 4, Emergency Management BC should continue to coordinate awareness and encourage training and orientation for local emergency response agencies, local government officials, and provincial government agency personnel to prepare for emergency situations. Local government are required to have emergency plans in place, per the Emergency Program Act, and Emergency Management BC can assist with the development and testing of these plans.*

EMBC has identified the following deliverables to help ensure local governments understand the risk in their jurisdiction due to the presence of dams and other hazards and encourage dialogue between local governments and dam owners: Formal and informal emergency management training to local government to ensure effective emergency preparedness and response; development of a new emergency management training model designed to be delivered by EMBC regional office staff as part of local government outreach activities; and, through EMBC Integrated Public Safety, continue with and enhance efforts to facilitate improved communications between local governments and external critical infrastructure stakeholders.

Recommendation #7: *The Ministry of Environment should review and update the Dam Safety Regulation to incorporate best practices on dam safety found in other jurisdictions. This would include but is not limited to an update to the downstream consequence classification tool, inclusion of a requirement for the owner to develop an emergency preparedness plan for the structure, and consideration of further regulatory oversight to enhance enforcement and compliance.*

An amendment to the Regulation has been drafted. Proposed changes will improve dam safety by reducing the potential for confusion on dam classification, through adaptation of the Canadian Dam Association system, and by increasing the accountability and awareness of dam owners to the significance of their dams, and, through signage at dams on Crown Land (Recommendation #3).

Recommendation #8: *The Ministry of Environment should complete its Rapid Dam Assessment Project and update its consequence rating system accordingly to determine priority areas in need of attention. The Ministry should develop an action plan to address those areas needing immediate attention and schedule appropriate follow up based on overall findings.*

Of the 1900 dams currently in the Dam Registry, 1132 were included in the Rapid Dam Assessment. Issues with four dams that required immediate action by the dam owner have all been addressed. An additional 379 dams were identified as requiring less urgent follow-up and these are being prioritized for response. The Assessment program provided the opportunity to update the Dam Registry improving government's ability to accurately report on and administer the dam safety program.

Recommendation #9: *The Ministry of Environment should continue its work in building a robust Dam Registry, with linkages through to geo-reference tools which can be utilized by other partners.*

Emergency planning and access to information on dams in British Columbia is a key role in Dam Safety. The recently released E-Licensing system and the Data Registry held within it provide the Dam Safety Officers with a new tool for inputting, accessing and maintaining dam information. This system also geo-references dam information through iMap and Google Earth so that dam location information is now publically available on the internet (BC Dams). Informing partners on the location of dams is a valuable tool for emergency response planning.

Recommendation #10: *The Ministries of Environment and Transportation and Infrastructure need to continue to ensure effective communication and information sharing of community development and transportation initiatives as they relate to downstream consequences for dam safety. This information should be periodically reviewed on a priority basis to account for any historical changes. In addition, other ministries such as Forests and Range and Energy Mines and Petroleum Resources should be linked in to any consequence review initiatives to ensure that all appropriate information is considered on a periodic basis.*

Revised Flood Hazard Area Land Use Management Guidelines (Section 3.2.6) have been developed and provided to the Water Policy and Legislation Committee. Once approved, these guidelines will be provided to all local governments and the Ministries of Forests and Energy Mines and Petroleum Resources. When implemented, the Guidelines will help ensure clear communication and information sharing between approving officials within local and provincial governments, Dam Safety Officers and dam owners.

Recommendation #11: *The Ministry of Environment should ensure the consistent oversight and regulation of all water related structures, including licensing, standards and risk assessments, by working with the ministries that have the legislative authority. The Ministry should build a business case to rationalize the types of resources and supports that would be needed to accomplish this recommendation.*

The Ministry of Environment reviewed downstream safety provisions in place for mining dams, dikes, and water conveyance structures and compared these to the Dam Safety Program. Recommendations to improve consistency in how water-related

structures are regulated are being prepared. Once finalized, these recommendations will be discussed with the Ministry of Energy Mines and Petroleum Resources to determine if the changes are warranted.

Recommendation #12: *The Ministry of Environment should continue to expand its education and awareness initiatives with dam owners and should work with Emergency Management BC to ensure that dam owners are working directly with local government officials in tying together their emergency preparedness and response plans. In addition, the Ministry of Environment should publish an annual Dam Safety Program report on its public website for the information of the public.*

Educating dam owners about the maintenance, inspection and safe operation of their dams is the first line of defence in preventing dam failures, and a cornerstone of the Dam Safety Program. Linking dam owners with provincial and local government emergency response officials brings dam owners into the BC Emergency Response Management System. Additional opportunities have been identified for staff to speak to dam owners and local government officials. Other Recommendations previously discussed also increase opportunities for education and awareness (e.g. Recommendations #3, 4, 5, 6).

SUMMARY OF THE DAM SAFETY PROGRAM REVIEW

BC is one of four provinces in Canada with a formalized dam safety program. Program staff provide oversight to nearly 2000 dams in the Province including some of the largest structures in Canada. As a result of the Testalinden dam failure, staff from the Ministry of Environment conducted an internal review of the Dam Safety Program. This review builds on a 1995 external review of the program by Semmens and Adams. As a result of the review the Ministry will give a higher priority for dam safety activities among other competing water management activities, this includes providing an additional 4 Dam Safety positions to the program, to increase audits, improve data management and provide for follow-up of outstanding dam safety issues. This addition along with refocusing priorities will improve BC's Dam Safety Program. Program staff have also begun to consider how to address other water retaining structures as provided in our response to Recommendation #11 above and in Appendix 1. In addition, a systematic evaluation of all Ministry owned dams has been initiated to ensure that adequate funding and oversight are in place to manage these structures, provide physical upgrades or removal if warranted.

CONCLUSIONS

As was concluded in the July 2010 Deputy Solicitor General Report on the Testalinden Dam failure, more could have been done to avert the disaster caused by the debris torrent and mudslide and a number of program changes are being made. As Semmens and Adams stated in their 1996 report, "Dams can and do fail" and while the Dam Safety Program can not eliminate dam failures, it can and does reduce risks associated with dams in British Columbia.

Fundamental to this approach is a reemphasis and priority on dam safety. As recommended by the Deputy Solicitor General, a number of improvements to the Provincial Dam Safety Program have and will be made. These include the rapid dam assessment, the completion of an updated Dam Safety Regulation, an updated provincial database (the Dam Registry) along with greater access to this information by local governments. New policy and procedures are being developed to improve record keeping, information sharing and emergency call-out. Additional training by Ministry staff has been planned and will occur over the upcoming year. Training will target provincial and local government staff and external dam owners to update them on these program changes and bring focus to the responsibilities of dam owners.

Over 1,100 dams were reviewed in the past few months as part of the provincial Rapid Dam Assessment. This assessment has greatly improved the Dam Registry and follow-up is underway for the one-third of the dams identified as requiring some form of action.

In summary, all of the recommendations of the Deputy Solicitor General have been accepted and changes made or underway.

APPENDIX 1: RESPONSE TO EACH RECOMMENDATION

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Recommendation #1: Dam Safety Record Keeping Practices
The Ministry of Environment should review its record keeping practices to ensure that proper and complete files are kept and archived on all dam structures, including details of water licenses, transfers of appurtenancy, and correspondence with owners.

DELIVERABLES: Review of Dam Safety Record Keeping Practices and Implementation of Changes to improve Dam Safety in British Columbia. This Recommendation is closely linked to Recommendation #9 regarding the Dam Registry.

STATUS

Background: In 1979 a system for filing information specific to individual dams was developed. The concept was based on individual dam file numbers called "D-File" numbers. The numbering convention provided a unique "identifier" for each dam/reservoir making it possible to geo-reference the dams on a map, and giving Dam Safety Officers information about the nature, location, and number of dams on a reservoir. The original purpose of creating a file for each dam was to collate all the relevant information on a dam into one location. Prior to that, dam information was often spread amongst more than one water licence file due to there being more than one licence purpose and/or more than one licensee.

The 1986 Policy & Procedure Manual for Dam Safety was clear on the procedure for information storage for Major Dams with a separate file for each dam but the procedure for "Minor" Dams was not well documented. Separate "Inspection Books" were often kept with important information not placed on files. This has resulted in incomplete and duplicate information.

Present: The record keeping practices of Water Management Branch are rapidly moving from paper files to electronic format. Coincident with the Testalinden Dam failure, the Ministry of Environment was implementing E-Licensing within which is the Dam Registry. Under development for several years, this system creates a dynamic link between electronic Dam Safety records and Water Licensing records resulting in a simpler, more efficient system of record keeping and an improved Dam Registry. The concurrence of E-Licensing implementation and the Rapid Dam Assessment (Recommendation #8) has resulted in all dam safety staff being fully trained in the use of E-Licensing and the Dam Registry being brought substantially up-to-date.

E-Licensing is a multifaceted database used to manage work processes. It allows staff to record and share water related information. When viewing dam information (including the Dam file number) a user may link through the Point of Diversion (PD) number to the Water Licence information (including Water Licence file numbers). There are often multiple water licences and water licence holders associated with one dam. Each water licence has its own paper file and the dam also has its own paper file. Paper files are valuable for historical research purposes however the most recent information is obtainable through E-Licensing. All water licensing activities including applications, new licences, amendments, cancellations, abandonments and name transfers must now be undertaken through E-Licensing.

Accordingly, the E-Licensing information is the most current available and should be reviewed by Dam Safety Officers when making decisions along with the historic paper and electronic files.

Four licence purposes have been identified as being of particular interest to Dam Safety Officers; storage, storage for power, storage for conservation and Permits on Crown Land for dams. Whenever licensing activities involving these purposes occur, a Dam Safety Officer receives a notification on his "To-Do List" in E-Licensing. The Dam Safety Officer may then acknowledge and mark the notification "completed" or he or she may take whatever follow-up action deemed appropriate.

How the Ministry Dam Safety Record Keeping Practices Improve Dam Safety in BC

Accurate and complete dam safety records are required to allow ready access to information about any dam in British Columbia at any time. At the time of the Deputy Solicitor General's review, considerable improvements to Water Management record keeping practices were already in progress with the E-Licensing database just introduced and staff starting to use it. The use of the "D-File" numbers for dams has been retained. This combined with cross-referencing available within E-Licensing improves the linkage between the new Dam Registry and other existing electronic and historic paper files making it easier to locate all of the relevant files for a single dam.

FOLLOW-UP REQUIRED

- Ensure Dam Safety Officers continue to utilize E-Licensing to record appropriate dam information through annual audits on the use of E-Licensing reporting in the Annual Dam Safety Report.
- Modify E-Licensing so users have a direct link (via 'Dams' tab) to the dam registry from the licence view page.
- Provide on-going training to Dam Safety Officers to ensure that they are fully utilizing the capabilities of E-Licensing and continue to access paper and electronic files for historic information.
- Update the dam component of the E-Licensing training manual by the end of 2010.

BUDGET & RESOURCE REQUIREMENTS

The Ministry will ensure that sufficient resources are available within annual budgets for training of Dam Safety Officers on E-Licensing and for annual audits to ensure that appropriate information is being captured by Dam Safety Officers.

Recommendation #2: Review of Testalinden File & Action to Hold Owner(s) Responsible
The Ministry of Environment should review the historical warnings about the conditions of the dam and any actions taken to hold the owner(s) responsible for inspection and maintenance as per the Dam Safety regulation.

DELIVERABLES: Chronology documenting historical warnings on Testalinden Dam & steps being taken to hold owner(s) responsible as per Dam Safety Regulation.

STATUS

Review of Historical Warnings

Ministry of Environment staff undertook a review of all information available on file in the Penticton and Victoria ministry offices related to the Testalinden dam shortly after the dam failure. A chronological summary of dam inspections and warnings to the licensee(s), as well as information related to the transfer(s) of the licence were compiled in a spreadsheet.

Ministry staff were able to affirm that the section of the Deputy Solicitor General's report dated July 2010 entitled "A Brief History of the Testalinden Dam Failure" (pages 7 to 10) provides an accurate summary of the information reviewed in the Penticton and Victoria files. Furthermore, the Ministry of Environment supports the Deputy Solicitor General's conclusion that "... *there was sufficient evidence to see a consistent pattern of concerns and warnings about the state of the structure dating back to the 1960's. There is also no indication that actions had been taken to remedy the situation that has persisted for decades.*"

Steps Being Taken

1) The Conservation Officer CEIU Unit have initiated an investigation regarding the failure of the Testalinden Dam. The investigation is ongoing, however, once finalized this report will be forwarded to the Attorney General for review and consideration of further action. The investigation will review contravention of any statutes and regulations, including, but not limited to the *BC Dam Safety Regulation*.
2) A *Water Act* Order dated August 3, 2010 was issued by MOE to Mr. Ace Edward Elkink of Elkink Ranch Ltd. The following is a paraphrased summary of the most significant required actions of the order:
    a. *Immediately cease and desist, any work on or alteration, to all or any part of the breached Testalinden Lake dam until written authorization is obtained for the Regional Water Manager.*
    b. *By October 31, 2010, stabilize the existing dam, under supervision and in accordance with plans and specifications prepared by a suitably qualified professional engineer, all to the satisfaction of the Regional Water Manager.*

c. *By November 15, 2010, submit a report from the suitably qualified professional engineer to the Regional Water Manager confirming that the breach in the Testalinden Lake Dam has been stabilized as required in accordance with the Order.*

FOLLOW-UP

- A letter dated September 3, 2010 was received from the law firm representing Mr. Ace Edward Elkink of Elkink Ranch Ltd. This letter indicated that their client intends to comply with the above-referenced Order.
- MOE staff will monitor progress to ensure compliance with the *Water Act* Order dated August 3, 2010.

BUDGET & RESOURCE REQUIREMENTS

No additional budget or resources are required.

RISKS or OUTSTANDING ISSUES

- Limited risks remain from this site.
- The dam needs to be stabilized prior to winter to ensure that the potential for impounding water is removed.

ADDITIONAL RECOMMENDATIONS

The following additional recommendations result from 'lessons learned' from the Testalinden Dam failure relating to record keeping and follow-up required when deficiencies are identified with a dam. These recommendations are being implemented within the Dam Safety Program and through the response to other Recommendations from the Deputy Solicitor General.

- Additional dedicated resources allocated to regional operations Dam Safety program;
- Better tracking of deficiencies and follow-up, providing increased assurance that deficiencies are being adequately resolved;
- Escalate compliance and enforcement action if a dam owner does not comply with resolving deficiencies;
- Deficiencies should be prioritized and tracked based on risk;
- Enhanced data system to manage deficiencies and follow-up; and
- Increase assessment of downstream areas which could be affected with more focus on areas that are vulnerable to slope instabilities and failures i.e. debris torrent prone areas.

Recommendation #3: Dam Signage
The Ministry of Environment should consider implementing signage at all dam locations to make it clear to passersby that the structure is a dam and to provide direction and emergency contact information, including contact information for the owner, to report any issues observed.

DELIVERABLES: Amendment to the BC Dam Safety Regulation to include dam signage for very high, high and low consequence dams on Crown Land and communication of the new requirement to dam owners.

STATUS

The Ministry of Environment has included a requirement for dam signage in a pending amendment to the BC Dam Safety Regulation (Recommendation #7). The proposed signage regulation will apply to all very high, high and low consequence dams located on Crown Land (approximately 288 dams) and as proposed requires two signs at each dam, each approximately 0.75 x 0.60 metres situated such that it is visible from up to a 12-15 metre distance. One sign would be positioned at each end of the participating dam, near the locations where the dam crest abuts the foundation.

Each sign will include the information shown below on a sample design for the sign, provided by the Ministry of Transportation and Infrastructure's Provincial Sign Program.

How dam signage will improve dam safety in BC

Two days before the Testalinden Dam failed a hiker noticed that Testalinden Lake was overflowing onto the road. However, although the hiker contacted local authorities, this potential early warning did not reach the right officials. If the hiker had encountered one of these proposed signs, both the Provincial Emergency Plan and the dam owner could have been contacted immediately.

Mandating through regulation that dam owners of dams in BC that are situated on Crown Land and that are currently classified as very high, high, and low are required to install and maintain two dam safety signs per dam will improve dam safety in BC by providing emergency communication information to passerby in the event that they witness a potential safety hazard.

FOLLOW-UP REQUIRED

The timeline for the implementation of the Dam Signage Program is dependent on passage of the proposed Regulation amendment and the ability of dam owners to create and install their signs. The latter is dependent on seasonal weather conditions.

As documented in Recommendation #7, once the Regulation is approved, a letter will be sent to all dam owners to introduce the amendments to the BC Dam Safety Regulation including the requirements for the BC Dam Safety Signage Program. Owners of dams that are classified as very low will also be advised of the regulation amendment because although they will not be affected by the Signage Program at present, the classification of their dam may change with time.

BUDGET & RESOURCE REQUIREMENTS

The Ministry of Transportation and Infrastructure's Provincial Sign Program has estimated a cost of $36.50 per sign, and $336.50 per sign with installation. Research has also indicated that annual maintenance is 30% of the initial cost as such signs are common targets for graffiti and gun shots. The Dam Signage Program will require dam owners to meet specifications provided by the Ministry of Transportation and Infrastructure that help ensure enhanced protection and longevity (12 -15 years) of signs.

At present, the Province owns 51 dams throughout BC, of which 32 are classified as very high, high or low. The cost to the Ministry of Environment for installing two signs per dam site for the 32 dams that are classified as very high, high or low is estimated to be a minimum of $21,536 and $6,461 for annual maintenance.

RISKS or OUTSTANDING ISSUES

- A signage program increases the administrative and financial burden of a dam;
- Although two signs would be situated at each end of the dams, these signs may not always be encountered by passerby in large areas such as dam sites;
- By not including the dams that are classified as very low or that are situated on private land, on which a passerby would be trespassing, there remains a risk that should an issue arise with one of these dams, appropriate communication and response may not happen. This risk will be

addressed to some extent through communication efforts resulting from addressing other Recommendations in the Solicitor General's Report (e.g. Recommendations 4, 5, 6 and 12).

ADDITIONAL RECOMMENDATIONS

- None

Recommendation #4: Who to Call When Reference List & Alert Matrix
Emergency Management BC should work with local officials, local and provincial policing and first response agencies and ministry provincial and regional offices to provide a quick reference list of key contact numbers, focused on "who to call when," and develop an alert matrix to quickly escalate priority issues.

DELIVERABLES:

- Provision of a quick reference list to public safety partners which would clarify who to notify in the event of an emergency.
- Development of an alert matrix which would clarify how priority issues are to be escalated to the appropriate authorities.

STATUS

EMBC has confirmed that the existing processes and contact numbers for reporting emergency situations are appropriate. The following points of contact are the starting point for any emergency situations in the Province:

- **911** - For public facing emergency reporting, 911 is a highly effective point of contact, and it is key that the 911 reporting process is not undermined. The public should continue to be encouraged to call 911 for a “life/safety” emergency where someone’s health, safety, or property is in jeopardy or a crime is in progress and to otherwise call the non emergency contact number for the local police or fire department. (Alternate local emergency contact numbers must be used for police and fire services in some remote locations that do not have 911 service).
- **EMBC Emergency Coordination Centre** - For Local Authorities, Ministries, and other Utilities and Agencies the existing reporting system through the Emergency Coordination Centre is effective. EMBC’s Emergency Coordination Centre will continue to be the 24/7 one window reporting conduit for issues/emergencies requiring provincial government response and escalation. This includes dam/dike breeches, landslides, debris flows and flooding.

EMBC will continue to collaborate with Local Authorities, First Responders, and Ministries (including the Dam Safety program), to ensure that all public safety partners understand the role of EMBC Emergency Coordination Centre and ensure that current EMBC standard operating procedures (Emergency Coordination Centre hotsheets) for environmental emergencies are up to date including emergency contact information.

How the actions taken will Improve Dam Safety in BC

Confirming and reinforcing existing reporting procedures, relationships and emergency contacts will enhance public safety emergency reporting and ensure timely, efficient referral and escalation of emergencies.

FOLLOW-UP REQUIRED

- Reinforce reporting processes through seasonal readiness meetings with public safety partners.
- Temporary Emergency Assignment Management System (T.E.A.M.S.) members training and communication for hazard specific education.
- Communicate and reinforce the importance of updating emergency contacts.

BUDGET & RESOURCE REQUIREMENTS

- EMBC managers will continue to work closely with, and communicate regularly with, local officials and will take advantage of opportunities to strengthen awareness of emergency contact numbers and processes. In addition, EMBC will review options and resource requirements to enable additional/enhanced outreach activities. Such additional/enhanced activities could include additional regional seasonal readiness meetings; T.E.A.M.S. members training sessions; Ministry, Agency and Local Authority presentations; and, participation in exercises.

RISKS or OUTSTANDING ISSUES

- In the event of an emergency, 24/7 EMBC staff may refer to designated contacts within a Ministry/Agency or Local Authority which does not currently maintain 24/7 staffing/points of contact. A delayed response by that Ministry/Agency or Local Authority can sometimes result. EMBC will be following up with partner agencies to discuss solutions to this issue such as on call staffing.

ADDITIONAL RECOMMENDATIONS

- None

Recommendation #5: Call-Out Procedure Awareness

The Ministries of Forests and Range and Environment should review their call-out procedures to ensure that compliance and enforcement personnel are familiar with the issues escalation process noted in Recommendation 4, as they are often among the first individuals aware of local incidents.

DELIVERABLES: Improved awareness by compliance and enforcement personnel of dam related issues and the issues escalation process noted in Recommendation 4.

STATUS

A letter has been sent to Dan Graham, Director, Compliance & Enforcement Branch, Ministry of Forests and Range and Tom Clark, Executive Director, Compliance Division, Ministry of Environment to inform them of the response from Emergency Management BC regarding a "quick reference list of key contact numbers" for reports of potential threats to health, safety or property. The letters also confirm a previous offer of education and awareness instruction for management and staff with these two agencies.

An offer has been made to both the Conservation Officer Service and the Ministry of Forests and Range Compliance & Enforcement Branch for Dam Safety staff to give dam safety presentations to their staff. The presentations will be delivered at regularly scheduled staff meeting for both groups. In addition, some Ministry of Forests and Range Compliance & Enforcement field staff received dam safety training from the Regional Dam Safety Officers in August and September of 2010 while training them to do Rapid Dam Assessments as part of the province wide assessment of all dams. This training will help them to determine the safety of any dams they come across during the course of their regular duties.

How the actions taken will Improve Dam Safety in BC

Educating dam owners about maintaining, inspecting and safely operating their dams is the first line of defence in preventing dam failures. Education and awareness is also important for first responders so that they understand the damage that can occur as a result of a dam failure. Linking dam owners with provincial and local government emergency response officials brings both dam owners and responders into the BC Emergency Response Management System (BCERMS).

FOLLOW-UP REQUIRED

A schedule will be prepared for presentations to be given to management and staff in the two organizations. Regular education and awareness for these agencies will be incorporated into the Dam Safety Work Plan. Contact information for the Conservation Officer Service and the Ministry of Forests and Range Compliance & Enforcement Branch will be incorporated into the Dam Emergency Response Plan (DERP). The DERP is a document prepared by the Dam Safety Program which is a requirement for "responsible Ministries" under the Emergency Program Act.

BUDGET & RESOURCE REQUIREMENTS

The educational material for this project is already available. As noted in the "Budget and Resource Requirements" section of recommendation # 12, the additional resources required are additional travel budget and trainers. Consideration should be given to establishing an annual fund to hire contractors to coordinate and deliver educational programs for the Water Management Branch.

RISKS or OUTSTANDING ISSUES

- None

ADDITIONAL RECOMMENDATIONS

- None

Recommendation #6: Continue to coordinate awareness and encourage training and orientation for local emergency response at all levels
Building on recommendation 4, Emergency Management BC should continue to coordinate awareness and encourage training and orientation for local emergency response agencies, local government officials, and provincial government agency personnel to prepare for emergency situations. Local government are required to have emergency plans in place, per the Emergency Program Act, and Emergency Management BC can assist with the development and testing of these plans.

DELIVERABLES:

- Continued coordination of awareness and encouragement of emergency management training for public safety partners.
- Assistance with development and testing of local authority emergency plans. (Specific deliverables/steps are identified below.)

STATUS:

Steps being taken

EMBC works in close cooperation with local emergency response agencies, local government officials, and other provincial government agency personnel, in addition to other public safety partners, to plan, prepare for, respond to, and recover from emergencies. Key to this close working relationship are efforts to build emergency management awareness, encourage training, and assist with the development and testing of local authority plans.

With respect to Recommendation #6 above, EMBC has identified the following focuses for continued efforts:

- Formal and informal emergency management training for local governments to ensure effective emergency preparedness and response. Training will include the use of planning tools such as the Hazard Risk Vulnerability Analysis (HRVA) toolkit as well as appropriate use of the EMBC Emergency Coordination Centre's 24/7 toll free line for public safety issues.
- Development of a new emergency management training model designed to be delivered by EMBC regional office staff as part of local government outreach activities.
- Through EMBC Integrated Public Safety, continue with and enhance efforts to facilitate improved communications between local governments and external critical infrastructure stakeholders.

How the actions taken will Improve Dam Safety in BC:

Training in the use of the HRVA toolkit will ensure local governments understand the risk in their jurisdiction due to the presence of dams and other hazards. This, in turn, should facilitate dialogue between the local emergency program and the dam owner and allow the local government to ensure that appropriate emergency response plans are in place.

FOLLOW-UP REQUIRED

- Ongoing outreach by EMBC regional staff to local governments and volunteers.
- Completion of development work on new emergency management training modules to be delivered by EMBC regional managers to local government officials and volunteers.
- Delivery of training using the above modules, and related discussions with local government officials and volunteers regarding risk assessments, local emergency plans, and training needs.
- EMBC to require that regional office staff outreach is documented and any training gaps that are noted are addressed with follow up action plans.
- Longer term goals include development of web-based training modules.

BUDGET & RESOURCE REQUIREMENTS

- Fiscal constraints have affected the availability of training for local authority emergency managers and Emergency Social Services (ESS) volunteers.
- EMBC has been working with local governments and volunteers to bolster emergency management capacities through informal training opportunities, outreach, and the development of formal but streamlined training that can be delivered directly by EMBC regional managers. EMBC is currently assessing potential funding sources for formal training delivery costs of approximately $80,000/yr.
- In the longer term, development and delivery of comprehensive web-based training modules are key priorities for EMBC. EMBC will be developing cost estimates for development and delivery of these modules and will be reviewing options to address resource requirements.
- As noted above, EMBC managers will continue to work closely with and communicate regularly with local officials. In addition, as noted in the response to Recommendation #4, EMBC will review options and resource requirements to enable additional/enhanced outreach activities.

RISKS or OUTSTANDING ISSUES

- The new training delivery model depends upon use of EMBC managers and staff that are often involved in high priority emergency response operations. EMBC will assess how such operational impacts on training delivery can be minimized.

ADDITIONAL RECOMMENDATIONS

- None

Recommendation #7: Review and Update Dam Safety Regulation

The Ministry of Environment should review and update the Dam Safety Regulation to incorporate best practices on dam safety found in other jurisdictions. This would include but is not limited to an update to the downstream consequence classification tool, inclusion of a requirement for the owner to develop an emergency preparedness plan for the structure, and consideration of further regulatory oversight to enhance enforcement and compliance.

DELIVERABLE: Updated Dam Safety Regulation.

STATUS

The Dam Safety Regulation 44/2000 has been revised by Water Management Branch with input from the Dam Safety Officers and assistance from legal counsel. The Regulation is expected to go forward in the fall of 2010.

Five principle revisions are proposed:

1. Replace the existing Schedule 1, "Downstream Consequence Classification Guide" with the Dam Classification table in the 2007 Canadian Dam Association (CDA) Guidelines. This dam classification table will allow the classification of all dams in the BC Dam Register to be classified in accordance with the current national standard and avoid any confusion that was created when the CDA revised the classification system in 2007. The current BC Dam Registry in E-Licensing was designed to easily convert over to the new classification system.
2. Owners of dams currently classified as "Low" consequence (like the Testalinden Dam) will now be required to complete and submit to a Dam Safety Officer (DSO), an Emergency Preparedness Plan (EPP). Currently under the Dam Safety Regulation 44/2000, only the owners of High and Very High consequence classification dams are required to prepare and submit an EPP.
3. Clarify the requirements expected of the dam owner in regard to confirming the consequence classification of their dams and their actions taken in the event of the discovery of a potential safety hazard at a dam.
4. Dam Signage: As per our response to Recommendation #3, a new subsection will be added to Section 3, Operation and Maintenance of a dam, to require the owners of the dams defined below to prepare and install 2 signs at each of their dams:
    a. Dams classified as Very High, High and Low (not Very Low)
    b. Dams located on Crown land
5. Clarify the roles of the Dam Safety Officer, Regional Water Manager and Comptroller of Water Rights.

How the revised Regulation will Improve Dam Safety in BC

The above proposed changes to the Regulation will enhance Dam Safety in BC by:

- Eliminating any potential for confusion on classification resulting from discrepancies between the BC and Canadian Dam Association systems;
- Increasing the accountability and raising the awareness of dam owners of the significance of their dam in their specific geographic location; reinforcing the need for the dam owner to be aware of the state and condition of their dam and of their responsibilities as a dam owner.
- Provision of signs by dam owners of very high, high and low consequence dams on Crown Land will provide a passerby with information of what to look for and who to contact in the event that they witness a potential safety hazard.
- Clarity on roles and responsibilities to ensure appropriate responses in the case of emergency and non-emergency situations associated with dam safety in BC.

FOLLOW-UP REQUIRED

Once the Regulation has been approved the following steps are required:

- A press release will be prepared to announce the revised Dam Safety Regulation.
- A revision to the document, "Application of the Dam Safety Regulation", currently on the Dam Safety web site, will be revised to include an explanation of the revised regulation.
- A letter to all dam owners will be sent to introduce the new Dam Safety Regulation.

BUDGET & RESOURCE REQUIREMENTS

No additional budget requirements. Time will be required for Dam Safety Officers to review and accept up to 500 additional Emergency Preparedness Plans from the dam owners with Low Consequence Classification dams.

RISKS or OUTSTANDING ISSUES

- Owners of dams classified as Low Consequence will have additional costs to prepare Emergency Preparedness Plans.

ADDITIONAL RECOMMENDATIONS

- None

Recommendation #8: Rapid Dam Assessment

The Ministry of Environment should complete its Rapid Dam Assessment Project and update its consequence rating system accordingly to determine priority areas in need of attention. The Ministry should develop an action plan to address those areas needing immediate attention and schedule appropriate follow up based on overall findings.

DELIVERABLES: Rapid Dam Assessment (RDA) with updated consequence ratings and plans in place for follow-up on those dams requiring additional investigation, repairs or maintenance.

STATUS

As of September 30, 2010 there are 1900 dams in the Provincial Dam Registry. As summarized in Table 1, of those 1900 dams, 1132 dams were assessed during the Rapid Dam Assessment and 768 dams were deemed not to require assessment because they are known to present a very low risk for one of the following reasons:

- The dam owners have a known, compliant Dam Safety Program that includes regular audits and maintenance (e.g. BC Hydro, Ducks Unlimited, GVRD etc.) – 307 dams;
- The dam was assessed through the Provincial Dam Safety Audit Program within the last 5 years – 339 dams; or
- Based on the Dam Safety Officers observation, judgment and personal knowledge, the dams do not present a credible risk of failure at this time – 122 dams.

The Dam Registry is being updated, including consequence classifications, based on the information gathered during the RDA project. A final report of the number of dams viewed and the status at the time of the Rapid Dam Assessment will be complete on or before November 30, 2010. Follow-up actions from this Rapid Dam Assessment will continue on a prioritized basis for the next 2 years. Progress will be communicated on a regular basis and provided in the Dam Safety Program Annual Report by May 31 of each year.

One of the findings of the RDA project is that there are a significant number of very low consequence dams that are not yet constructed (approximately 127), or breached (approximately 63) which are part of the group of dams requiring follow-up action. These dams comprise approximately 190 of the 379 dams identified as requiring follow-up action in the RDA. Very low consequence dams are not included in the Dam Safety Audit program and there have been minimal “on ground” assessments for many years. A project to cancel the water licences associated with these dams is underway.

In addition, there were many dams discovered that are no longer being used to release stored water as required under their water licence, i.e., the outlet works are not operable or missing completely. The stored water can no longer be released to support the diversion of water from the stream which could result in stream flows being reduced below minimum flows. These dams also present a potential public

safety hazard because they are not being properly inspected and maintained by the dam owners. The Testalinden Dam was an example of this type of dam.

The total number of dams in the Provincial Dam Registry is not a static number. There are new dams being built and added to the Registry from time to time. In addition dams are added to or removed from the registry when:

- Field verification warrants;
- Licence cancellation occurs. For example the dam was never constructed or was breached or otherwise removed; and
- Classification changes. Unregulated dams become regulated if the consequence classification goes up to Low from Very Low.

Table 1. Summary of the number of dams in the Provincial Dam Registry, those included in the Rapid Dam Assessment and those where the status was determined through other mechanisms as documented in the footnotes.

Summary of Rapid Dam Assessment (RDA) Program, June – September 2010 As of September 30, 2010			
Category	**Number of dams**	**Status of Dams from the RDA**	
		Status #1 Immediate Attention	**Status #2** Follow-up Action
Assessed under the RDA Program June through September 2010	**1132**	4[1]	379[2]
Not Included in the RDA Status Confirmed by:	**768**		
• Dam Owner[3]	307		
• Dam Safety Officer Audit [4]	339		
• DSO Observation [5]	122		
Total Dams Assessed to date	**1900**		
BC Provincial Dam Registry Total	**1900**		

[1] Dam Owners were contacted right away – remedial action is complete or underway.

[2] The number of #2 dams will continue to change as analysis of data and assessment forms is completed.

[3] Dam owners with a known compliant Dam Safety Program, e.g. BC Hydro, Ducks Unlimited, GVRD, etc.

[4] Dam was assessed within the past 5 years under the Dam Safety Audit Program.

[5] Based on the Dam Safety Officers observation, judgment and personal knowledge, these dams do not present a credible risk of failure at this time.

How the actions taken will Improve Dam Safety in BC

Through the Rapid Dam Assessment four dams were identified that required immediate action by the dam owner and an additional 379 that require less urgent follow-up. In addition, the Assessment program provided the opportunity to ensure that the Dam Registry is current thus ensuring government's ability to accurately report on the overall safety of dams in BC and to direct resources to the highest priority issues.

FOLLOW-UP REQUIRED

Status # 1 Dams: The dam owners of these 4 dams were contacted immediately and the deficiencies have been addressed or are being addressed. One Order under the *Water Act* was issued and the dam owner complied as required.

Status # 2 Dams: A process was established in July following the completion of the first phase of the RDA project for dealing with dams that required less urgent follow-up and some follow-up has been initiated but was interrupted later in July by the requirement to complete an RDA of all dams in BC. The second phase of the RDA was completed in the second week of September and the number of dams requiring follow-up more than doubled as a result. Most of the additional dams requiring follow-up are Very Low Consequence dams. Follow-up actions are prioritized by the Dam Safety Officers based on the outcome of the assessments and will be accomplished as time and resources allow. It is likely that follow-up work could take two years or more and includes the following for each dam that requires follow-up:

- Dam Safety Officer verifies the consequence classification and determines priority of action based on consequence classification.
- Contact the dam owner in writing, identifying the action(s) needed.
- Follow-up with the dam owner until work is completed or initiate the next level of enforcement under the regional compliance escalation process (i.e. site visits, final letters, fines, Orders, etc.).
- Bring Dam Registry up to date.

As described in the response to Recommendation #9, the Dam Registry can now be easily updated by all Dam Safety Officers in the new E-Licensing system. Dam Safety Policy and Procedures will be updated to require that all dam records including consequence classification and risk levels must be updated and continually revised in the registry by Dam Safety Officers. Once updated, this policy will be communicated to Regional Water Managers who are responsible for the delivery of the Dam Safety Program in their region. Enhancements planned for Phase 2 of E-Licensing are required to optimize the Dam Registry (see Recommendation #9).

A report on the follow-up work in each region and Victoria will be included in the Dam Safety Program Annual Reports for the years 2010-11 and 2011-12. These Annual Reports will be posted on the Ministry of Environment web site by May 31 of each year. The information will be compiled by Dam Safety Victoria from reports by the Regional Dam Safety Officers in a format to be determined.

BUDGET & RESOURCE REQUIREMENTS

Resource requirements for follow-up on the 379 dams with Status 2 are unknown at this time but will be identified over the next month for inclusion in the Ministry annual business planning process this fall.

The dams described on page 2 as not constructed, breached or not operable must be addressed. The first 2 categories can likely be dealt with by the addition of resources for two auxiliary staff for a period of six months.. It needs to be acknowledged that the follow-up work to the cancellation process will likely exceed this 6 month time period because some of the licensees will elect to construct or re-construct their dams rather than abandon the licence. The third category of not operable dams will be addressed as part of the follow-up action for the #2 status dams as noted.

RISKS or OUTSTANDING ISSUES

- Continued follow-up for the next 2 years
- Not all owners of not constructed or breached dams will willingly abandon the water licences for their dams. If they want to retain their water rights they will have to follow a process of plans review under the “Plans Review Guidelines”.

ADDITIONAL RECOMMENDATIONS

- None

Recommendation #9: Robust Dam Safety Registry with access by partners

The Ministry of Environment should continue its work in building a robust Dam Registry, with linkages through to geo-reference tools which can be utilized by other partners.

DELIVERABLES: Verification of continued work towards a robust Dam Registry with linkages to geo-reference tools and confirmation that partners have access.

STATUS

The record keeping practices of Water Management Branch are rapidly moving from paper files to electronic format through the use of E-Licensing, released in May-June of 2010. E-Licensing is a multifaceted database used to manage work processes in water management for British Columbia. The Dam Registry resides within E-Licensing and allows staff to record and share water allocation related information including dam information. E-Licensing information is the most current available and can be reviewed by Dam Safety Officers when making decisions and updated when new information is been received.

E-licensing is geo-referenced to iMap and Google Earth to visually display dam locations with links to dam attributes. At this time, not all dam information codes (i.e. operation codes, which would distinguish if mapped dams are active, not constructed, abandoned or breached) are currently geo-referenced to these maps. This iMap and Google Earth link to the Dam Registry data is currently available to the public and all agencies through the dam safety Web page found at: http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/index.html.

Partners including provincial government ministries and agencies as well as local government will be made aware of this vital public safety planning tool in a number of ways including direct contact and through other agency websites (i.e. Emergency Management BC).

How the actions taken will Improve Dam Safety in BC

Emergency planning and access to information on dams in British Columbia is a key role in Dam Safety. The recently released E-Licensing system and the Data Registry held within it provide the Dam Safety Officers with a new tool for inputting, maintaining and accessing dam information. This system also geo-references dam information through iMap and Google Earth making dam location information publically available on the internet. Informing partners on the location of dams is a valuable tool for emergency response planning.

FOLLOW-UP REQUIRED

- Ensure all relevant information in the Dam Registry through E-Licensing is able to be attached into iMap or Google Earth by having the dam spatial view remodelled.

- Educate partners on where to find the geo-referencing information through education and awareness programs, conferences and direct contact and linking our web-sites with other Emergency Planning sites such as Emergency Management BC.
- As documented in the response to Recommendation #1, ongoing effort is required by the Dam Safety Officers to ensure E-Licensing is updated as dam audits or other information changes
- The first release of E-Licensing, including the Dam Registry occurred in May-June 2010. Additional features are planned for E-Licensing but are currently unscheduled due to budget constraints and to allow sufficient time to fully test the current version of the system. The E-Licensing development team will be advised of the required changes and the urgency so that the changes can be prioritized. Phase 2 of E-Licensing is required for the Dam Registry to develop:
    - Improved reporting out, including an Annual Report Summary on all dams;
    - Updates to accommodate the Dam Safety Regulation changes described in Recommendation #7;
    - Additional changes that were recommended in development of phase 1 of E-Licensing that weren't developed because of budget restraints; and
    - Improved input into the Dam Registry from Excel spread sheets.

BUDGET & RESOURCE REQUIREMENTS

Phase 2 of E-Licensing includes enhancements to the Dam Registry and is currently being costed.

RISKS or OUTSTANDING ISSUES

- None

ADDITIONAL RECOMMENDATIONS

- None

Recommendation #10: Information Sharing on upstream dams with Agencies & Local Government involved in development

The Ministries of Environment and Transportation and Infrastructure need to continue to ensure effective communication and information sharing of community development and transportation initiatives as they relate to downstream consequences for dam safety. This information should be periodically reviewed on a priority basis to account for any historical changes. In addition, other ministries such as Forests and Range and Energy Mines and Petroleum Resources should be linked in to any consequence review initiatives to ensure that all appropriate information is considered on a periodic basis.

DELIVERABLES: Revised Flood Hazard Area Land Use Management Guidelines (Section 3.2.6) and a letter sent to all local governments and the Ministries of Forests and Energy Mines and Petroleum Resources advising them of the revised Guidelines and their responsibilities.

STATUS

One of the key findings of the Testalinden Dam Failure Review report was that small developments were approved and constructed downstream of the Testalinden Dam without sharing the information with the Dam Safety Program and revisiting the dam's hazard consequence classification rating. At the time of the developments, the downstream consequence classification of the Testalinden Dam was "Low"[1]. Given the developments downstream, a "Low" rating for the Testalinden Creek Dam was likely inappropriate.

In consideration of the information sharing gaps recognized by Recommendation #10, the Ministry of Environment's Flood Safety Section has prepared an amendment to Section 3.2.6 of the Flood Hazard Area Land Use Management Guidelines[2] as follows:

3.2.6 Downstream of Dams

Dam upgrading and/or development restrictions will be necessary if a development proposal increases the dam's Downstream Consequence Classification per Schedule 1 of the BC Dam Safety Regulation.

The extent of dam upgrading and/or development restrictions shall be determined on a site-specific basis by a qualified professional engineer in consultation with:

- Local government planning and approving officials,
- Ministry of Transportation and Infrastructure development approving officials, if the development occurs in a Regional District,
- Integrated Land Management Bureau approving officials, if the development is on Crown Land,

[1] See Attachment for Schedule 1 of the BC Dam Safety Regulation's Downstream Consequence Classification Guide.
[2] See Attachment for a summary of the Flood Hazard Land Use Management Guidelines and the existing Section 3.2.6.

- Dam Safety Officer, and
- Dam owner.

For the locations of all dams regulated by the Ministry of Environment and information about Dam Safety Officers, please visit the BC Dam Safety Program website (www.env.gov.bc.ca/wsd/public_safety/dam_safety).

For developments downstream of dams not listed on the Dam Safety Program's website (e.g. mining dams - impoundments and diversions, sewage lagoons, etc.), it is the responsibility of local government approving officials to get into contact with the dam owner, responsible provincial agency, and if necessary, a qualified professional engineer to determine the extent of dam upgrading and/or development restrictions.

Clauses 3.2.1 to 3.2.4, regarding building setbacks and flood construction levels for watercourses, shall apply downstream of dams rated with a very low consequence classification as determined by the Ministry of Environment's Dam Safety Program.

How the actions taken will Improve Dam Safety in BC

With respect to downstream developments (e.g., subdivisions, re-zoning applications) near dams, this amended guideline will improve dam safety by helping ensure that there is clear communication and information sharing between local government approving officials, provincial government approving officials, Dam Safety Officers, and dam owners.

FOLLOW-UP REQUIRED

The new Guideline is with the Water Policy and Legislation Committee for approval. When the amended guidelines have been approved, the aforementioned letters advising local governments and relevant Ministries of the revised Guidelines will be sent out. As of this time, no training or presentations have been planned, the letters explaining the revisions should suffice.

To ensure awareness and use of the Guidelines, regular communication with other Ministries and with local governments will be required along with an annual audit on use of Guidelines, and inclusion on use of Guidelines at workshops, conferences and other training and educational opportunities.

BUDGET & RESOURCE REQUIREMENTS

The amended guideline will create additional work for local and provincial governments (i.e., Ministry of Transportation and Infrastructure and Information Land Management Bureau). Enacting the amendment may results in an influx of information requests and additional work for Dam Safety Program staff with both dam owners and approving officials regarding developments downstream of dams.

RISKS or OUTSTANDING ISSUES

- None

ADDITIONAL RECOMMENDATIONS

- Include all MEMPR regulated dams on iMap to assist local governments in identifying any mining dams with potential to impact their communities.

RECOMMENDATION 10

AMENDMENT TO FLOOD HAZARD AREA LAND USE MANAGEMENT GUIDELINES

Attachments

a) BC Dam Safety Regulation – Schedule 1
b) Flood Hazard Area Land Use Management Guidelines Summary
c) Existing Section 3.2.6 of the Guidelines

Schedule 1 – BC Dam Safety Regulation
(Sections 2 (1) (d) and 3 (2))
Downstream Consequence Classification Guide

Rating	Loss of Life	Economic and Social Loss	Environmental and Cultural Losses
VERY HIGH	Large potential for multiple loss of life involving residents and working, travelling and/or recreating public. Development within inundation area (the area that could be flooded if the dam fails) typically includes communities, extensive commercial and work areas, main highways, railways, and locations of concentrated recreational activity. Estimated fatalities could exceed 100.	Very high economic losses affecting infrastructure, public and commercial facilities in and beyond inundation area. Typically includes destruction of or extensive damage to large residential areas, concentrated commercial land uses, highways, railways, power lines, pipelines and other utilities. Estimated direct and indirect (interruption of service) costs could exceed $100 million.	Loss or significant deterioration of nationally or provincially important fisheries habitat (including water quality), wildlife habitat, rare and/or endangered species, unique landscapes or sites of cultural significance. Feasibility and/or practicality of restoration and/or compensation is low.
HIGH	Some potential for multiple loss of life involving residents, and working, travelling and/or recreating public. Development within inundation area typically includes highways and railways, commercial and work areas, locations of concentrated recreational activity and scattered residences. Estimated fatalities less than 100.	Substantial economic losses affecting infrastructure, public and commercial facilities in and beyond inundation area. Typically includes destruction of or extensive damage to concentrated commercial land uses, highways, railways, power lines, pipelines and other utilities. Scattered residences may be destroyed or severely damaged. Estimated direct and indirect (interruption of service) costs could exceed $1 million.	Loss or significant deterioration of nationally or provincially important fisheries habitat (including water quality), wildlife habitat, rare and/or endangered species, unique landscapes or sites of cultural significance. Feasibility and practicality of restoration and/or compensation is high.
LOW	Low potential for multiple loss of life. Inundation area is typically undeveloped except for minor roads, temporarily inhabited or non- residential farms and rural activities. There must be a reliable element of natural warning if larger development exists.	Low economic losses to limited infrastructure, public and commercial activities. Estimated direct and indirect (interruption of service) costs could exceed $100 000.	Loss or significant deterioration of regionally important fisheries habitat (including water quality), wildlife habitat, rare and endangered species, unique landscapes or sites of cultural significance. Feasibility and practicality of restoration and/or compensation is high. Includes situations where recovery would occur with time without restoration.
VERY LOW	Minimal potential for any loss of life. The inundation area is typically undeveloped.	Minimal economic losses typically limited to owner's property not to exceed $100 000. Virtually no potential exists for future development of other land uses within the foreseeable future.	No significant loss or deterioration of fisheries habitat, wildlife habitat, rare or endangered species, unique landscapes or sites of cultural significance.

FLOOD HAZARD AREA

LAND USE MANAGEMENT

GUIDELINES

May 2004

Ministry of Water, Land and Air Protection

Province of British Columbia

Introduction to Document and Guidelines

This document provides guidelines intended to help local governments, land-use managers and approving officers develop and implement land-use management plans and make subdivision approval decisions for flood hazard areas.

The goals of the provincial "Flood Hazard Area Land Use Management Guidelines" are to reduce or prevent injury, human trauma and loss of life, and to minimize property damage during flooding events. Experience has shown that regulating land development to keep people out of harm's way is the most practical and cost effective way of achieving these goals.

The guidelines are based on the policies and procedures established and refined over the life of the provincial flood hazard management program.

These guidelines have been prepared pursuant to section 2 of the *Environment Management Act* and must be considered by local governments in making bylaws under section 910 of the *Local Government Act*.

The guidelines are divided into five sections:

1.0 Administration – Flood Hazard Land Use Management
2.0 Flood Plain Mapping
3.0 Application – By Hazard Type
4.0 Application – Land Use Specific
5.0 Application – Implementation Measures

The Administration section details ways in which decision-makers can manage flood hazards on a broad or area-wide basis, employing strategies such as flood hazard management plans, bylaws and standards, and during the subdivision process.

The Flood Plain Mapping section details the importance and application of flood plain mapping information.

The Application sections provide the provincial requirements for different types of flooding hazards and different land uses commonly found in BC. These are **minimum** requirements that may be increased by the decision-maker depending on local circumstances.

In the absence of more site-specific studies or information, these guidelines are the recommended provincial minimum requirements for land use management in flood hazard areas.

For certain areas of the province, more site-specific information may be available for the decision-maker's consideration. Sources of site-specific information that may supplement the guidelines include:

- Historical records and descriptions, particularly of previous flooding events at a specific location;
- Flood hazard delineation or management studies;
- Flood plain mapping;
- Engineering and other studies;
- Local government planning documents, such as Official Community Plans and bylaws; and
- Covenants, at the site or in the vicinity.

A survey showing flood hazard management information for individual local governments can be found on the ministry Flood Hazard Management website at: http://wlapwww.gov.bc.ca/wat/flood/index.html. The documents may be viewed at the local government office. Other studies or documents may be available from local governments or from the ministry.

In addition, new site-specific studies containing professional evaluation, advice and recommendations including mapping, may be required where the risk to life and property is high, where advice is required to meet provincial flood hazard management guidelines or where modified or new protective works are proposed.

Existing Section 3.2.6 of Flood Hazard Land Use Management Guidelines:

3.2.6 Downstream of Dams

Setback –

Dam upgrading or development restrictions may be necessary if a development proposal increases the Land and Water BC (LWBC) hazard consequence classification for low, high and very high consequence dams (other than dams owned and operated by a major utility). The requirements should be determined on a site-specific basis by a professional engineer in consultation with the dam owner and LWBC.

Clauses 3.2.1 to 3.2.4 should apply downstream of dams rated with a very low consequence classification as determined by LWBC.

Recommendation #11: Project plan and business case development for project to ensure consistent oversight & regulation of water related structures in BC (dams, dikes, penstocks, tailing dams, ditches and canals)

The Ministry of Environment should ensure the consistent oversight and regulation of all water related structures, including licensing, standards and risk assessments, by working with the ministries that have the legislative authority. The Ministry should build a business case to rationalize the types of resources and supports that would be needed to accomplish this recommendation.

DELIVERABLES: Project Plan & Business Case for Oversight and Regulation of Water Related Structures in BC.

STATUS

To address this recommendation, Ministry of Environment (MoE) did a high level review of the downstream safety provisions in place for mining dams, dikes, and water conveyance structures related to Independent Power Producers (IPPs) and compared them to the Dam Safety Program. The Dam Safety Regulation is fairly detailed in the way that it addresses the protection and safety of downstream structures and communities and a further review is underway to determine whether public safety would be materially improved if elements of this regulation were applied to mining dams, dikes, and water conveyance structures. This review will look at the potential costs of any changes. The results of the initial high level review follow.

Mining Dams

According to the Memorandum of Understanding[3] between MoE and Ministry of Energy, Mines and Petroleum Resources (MEMPR):

> MEMPR is responsible for ensuring that no part of the mine, including a TSF, FI, SED POND and SLUDGE POND (note requiring a Water Licence or Waste Permit) represents a danger either to the health and safety of a person in or about the mine or to the safety of the public, and is also responsible for the protection and reclamation of the surface the land and watercourses on the mine site.

In terms of design, operation, maintenance, review, and safety of their dams, MEMPR adheres to the **Health, Safety and Reclamation Code for Mines in British Columbia (2008)** (Mine Code).

http://www.empr.gov.bc.ca/Mining/HealthandSafety/Pages/HSRC.aspx.

Dam safety regulations under the *Water Act* and MEMPR dam safety regulations under the Mine Code are different in several respects therefore it may not be possible to develop completely "consistent oversight and regulation for water related structures, including licensing, standards and risk

[3] See Attachment for full version of the Memorandum of Understanding for Regulation of Impoundments and Diversions on a Mine Site.

assessments". For example, the heights of some tailings dams are continually increased to accommodate additional tailings from mining operations, which can create different dam operation and maintenance procedures from mine to mine. Since conditions can vary from mine to mine, each mining dam is issued an operating permit specifying procedures to follow in addition to those mentioned in the Mine Code.

Nevertheless, possible areas for change include:

1. Specifying how often surveillance on tailing dams should be conducted.

2. Linking the frequency of tailing dam inspection reporting by a professional engineer to risk classification.

3. Extending the requirement for an Emergency Preparedness Plan (EPP) for low consequence major impoundments and an OMS manual for all dams.

4. Confirming whether instrumentation inspections, test operation of outlet facilities, spillway gates and other mechanical components, and the dam safety review should be designed in accordance with the criteria provided in the Canadian Dam Association, Dam Safety Guidelines.

Dikes

The major legislation related to dikes in BC is the Dike Maintenance Act. This legislation is very thorough. The following list discusses potential areas for further work to ensure consistent oversight and regulation of flood protection dikes in BC:

Dike Oversight and Regulation – Administration of the Dike Maintenance Act (DMA)

- Proper Inspection, Operation and Maintenance of Existing Dikes by diking authorities:
    - Educate diking authorities (i.e. dike safety seminars) and create outreach tools to build awareness of safety issues and maintenance standards
    - Establish a dike inspection training certification program. Require that inspection reports be completed and signed off by certified personnel, or a suitably qualified Professional Engineer.
    - Increase compliance through auditing and enforcement
- Update and improve the existing dike databases and geographic information systems (i.e. locations and descriptions of dikes)
- Prepare a Dike Classification system similar to the Dam Safety Program's.
- Support the DMA approval process and implementation of standards through development and adoption of a dike safety regulation.
- Develop policy, and delineate ownership and responsibilities for the approximately 100 orphan flood protection works in BC.

- Given the scheduled 2012 sunset of the *Drainage, Ditch, and Dike Act*, complete the necessary assessments to facilitate the transfer of five diking districts to their respective local governments.

Standards and Management of Flood Protection Works

- Finalize and adopt sea dike standards (e.g. Richmond, Delta and Surrey) that address sea level rise and climate change
- Determine seismic design standards and criteria for major dike upgrades and new dikes
- For the Fraser River dikes, update the dike crest design profile from Hope to Richmond using the Fraser River hydraulic model. The profile update should address both channel changes in the upstream gravel reach and sea level rise in the downstream sand reach.
- For high consequence dikes, complete quantitative risk assessments to determine the appropriate design standard (e.g. 1:500 or 1:1000) for that specific dike.
- River surveying, hydraulic modeling and sediment studies to ensure that diking systems throughout the province continue to meet provincial standards and account for ongoing channel change)
- Manage flood protection works where the ministry has responsibilities (i.e. Okanagan River system, Mission Creek dikes etc.)
- Documentation of major flood events to assist in developing dike design criteria (e.g. November 2009 Cowichan River flood in Duncan).
- Update environmental guidelines for vegetation management on dikes

Water Conveyance Structures

Safeguards for water conveyance structures are the domain of the Professional Engineer involved in the design of these water conveyance structures.

There are approximately 40 IPPs in BC. Most IPPs are remotely located and would have minimal effect on downstream communities were there to be a water breach. Aligning water conveyance structures to the Dam safety standards would require significant work to classify the downstream consequence and conduct audits/reviews on any high to very high consequence structures that might exist. Ultimately, a safety regulation for water-conveyance structures would need to be established if government determined the risk warrants further regulation.

How the actions taken will Improve Dam Safety in BC

The above actions could improve safety of water related structures and create a more uniform way in which water-related structures are regulated.

FOLLOW-UP REQUIRED

Considerable resources would be required to implement these actions and additional discussions are necessary with the Ministry of Energy Mines and Petroleum Resources, within the Ministry of Environment and with industry to determine if the changes are warranted

ESTIMATED BUDGET & RESOURCE REQUIREMENTS

To be determined

RISKS or OUTSTANDING ISSUES

- The risk of preventable downstream flood damages is greater if the identified actions are not addressed

ADDITIONAL RECOMMENDATIONS

- BC Dam Safety program should consider internally reviewing engineering designs and conducting construction inspections for any new dam to be constructed and regulated under the BC Dam Safety Regulation.
- BC Dam Safety Regulation should require OMS Manuals for all dams.

RECOMMENDATION 11

AMENDMENT TO FLOOD HAZARD AREA LAND USE MANAGEMENT GUIDELINES

Attachments

a) Memorandum of Understanding – Regulation of Impoundments and Diversions on a Mine Site

Memorandum of Understanding - Regulation of Impoundments and Diversions on a Mine Site

Memorandum of Understanding between the Ministry of Energy, Mines and Petroleum Resources (MEMPR) and the Ministry of Environment (MoE), outlining the responsibilities for the Regulation of Impoundments and Diversions on a mine site including Tailing Storage Facilities (TSF), Flooded Impoundments (FI), Water Storage Facility (WSF), Sedimentation Control Ponds (SED POND), Sludge Storage Ponds (SLUDGE POND) and Diversion Channels (DC).

Purpose

The purpose of this memorandum is to define the role of MEMPR (Mining and Minerals Division, Heath and Safety Branch), and MoE (Water Stewardship Division and Environmental Protection Division), in the siting, design, construction, operation, maintenance, abandonment, reclamation, and regulation of impoundments and diversions on a mine site, in order to protect the public, the environment and the users of water in the affected watershed.

Definition

TSF (Tailings Storage Facilities): A reservoir controlled by one or more embankments to store mine tailings and mine process water (supernatant). Tailings are fine rock materials in suspension, which are discharged from an ore concentrator or coal preparation plant. A TSF includes any started dams, seepage collection dams and ponds located beyond the downstream toe of the main embankment(s).

FI (Flooded Impoundments): A reservoir controlled by one or more embankments required to submerge tailings, PAG waste rock, rock cuts or underground workings that have potential to generate acid if exposed to the atmosphere or a reservoir controlled by one or more embankments required to regulate the flow of ARD-contaminated water, including associated sludge storage from water treatment. A TSF may become an FI upon closure of the mine. An FI includes and seepage collection dams and ponds beyond the downstream toe of the main embankment(s).

WSF (Water Storage Facility): A water storage reservoir, situated on a stream or off stream and storing water diverted from a stream, controlled by one or more embankments. A WSF does not include a TSF, FI, SED POND or SLUDGE POND, therefore a water licence is required for surface water storage.

SED POND (Sedimentation Control Ponds): A reservoir controlled by one or more embankments required to store surface water runoff and designed to facilitate the deposition of suspended solids and mitigate the release of sediment to the environments downstream.

SLUDGE POND (Sludge Storage Ponds): These ponds are developed to contain sludge, from water treatment plants, from entering into the receiving environment.

DC (Diversion Channels): Diversion structures (dam or channel) are developed to divert and control the annual inflow of the various watercourses around the mine site. These channels are developed to handle 1 in 200 year flows of the natural watercourse.

General Responsibilities

It is recognized that:

1. MEMPR is responsible for ensuring that no part of the mine, including a TSF, FI, SED POND and SLUDGE POND (note requiring a Water Licence or Waste Permit) represents a danger either to the health and safety of a person in or about the mine or to the safety of the public, and is also responsible for the protection and reclamation of the surface the land and watercourses on the mine site.

2. MoE
   - Water Stewardship Division (WSD) is responsible for the issuing of water licenses or approvals regulating the diversion, use and storage of surface water in or from a natural watercourse including any impoundments or diversion on a mine site. If a water licence is required and these works include a dam as defined under the Dam Safety Regulation, the regulation of the dam by WSD will be commensurate with the downstream consequence classification rating under the Dam Safety Regulation.
   - Environmental Protection Division (EPD) is responsible for the protection of human health and the environment from any adverse effects of mine wastes or impoundments, the use of hazardous materials, and the management of contaminated sites.

Specific Responsibilities

1. MEMPR, under the *Mines Act* and Health and Safety Regulation Code for Mines in BC (Code), is responsible for approving the siting, design, construction, modification, operation, maintenance, abandonment and reclamation of a TSF, FI, SED POND and SLUDGE POND, with some exceptions for any impoundment that requires a water licence (see Joint Responsibilities below). MEMPR uses the Canadian Dam Association (CDA) guidelines referenced under the code. Prior to operation, MEMPR will ensure that sufficient security has been posted to undertake the necessary works to close the impoundments should the permittee default on its responsibilities. After mine closure MEMPR will ensure that the TSF, FI, SED POND and SLUDGE POND is either reclaimed or drained, and if necessary a permanent spillway installed. In the case of a TSF and FI, a valid Mines Act Permit and reclamation bond will be maintained to ensure long-term care, maintenance and/or treatment. In the case of a default MEMPR will assume responsibility or find a third party to assume responsibility in exchange for the reclamation bond.

2. MoE
   - WSD is responsible for licensing or approving any WSF or DC that requires a water licence or approval under the *Water Act* and Dam Safety Regulation. This will include the approval of siting, design, construction, modification, operation, maintenance and decommissioning with the exception of TSF, FI, SED POND and SLUDGE POND (see Joint Responsibilities).
   - EPD is responsible for regulating the quantity and quality of any discharge to the environment from activities relating to mining. EPD is not responsible for regulating the structural safety and integrity of impoundments at a mine site. Where the quantity or the quality of the discharge may be affected by proposed works or operational procedures, EPD may impose requirements for the siting design, construction, modification, operation, maintenance, abandonment, and reclamation of a TSF, FI, DC, SED POND, or SLUDGE POND. All applications for waste management permits and amendments dealing with mine tailings discharges and on the development of any industry codes of practice applicable to mine tailings will be referred to MEMPR for comments and advice.

Notwithstanding the above, WSD and EPD will seek to obtain agreement from MEMPR before permitting, licensing or requiring additional discharges into a TSE, FI, SED POND and SLUDGE POND anticipated in the design of the impoundment. In the event that agreement cannot be reached at the local level, this matter shall be referred to the appropriate Directors for a decision.

Joint Responsibilities

A TSF, FI, SED POND and SLUDGE POND that requires a water licence will be dealt with by MEMPR and WSD on a case-by-case basis. Under such agreements, MEMPR will be the approving agency for the dam design, construction, operation, maintenance and reclamation issuing a water licence, WSD will be responsible for the licensing of water and storage. Prior to issuing a water licence, WSD will confer with MEMPR to confirm that the process for approving the TSF, FI, SED POND and SLUDGE POND as noted above, will be undertaken under the Mines Permit.

If a water licence is required for a TSE, FI, SED POND and SLUDGE POND it shall be referenced to the closure plan in the Mines Act Permit. WSD will refer to MEMPR for comments and advice on all applications for water diversions relating to a TSF, FI, SED POND and SLUDGE POND.

All signatories of this MOU will endeavor to ensure that copies of all permits or licence's (and any revisions) are made available to the other signatories with an interest in the permit or licence.

Consultation and Coordination

During the project review for an Environmental Assessment Certificate and *Mines Act* Permit , MEMPR and MoE shall jointly review any TSF, FI, WSF, DC, SED POND and SLUDGE POND as per the terms of this agreement. Reviewer by MEMPR and MoE will be coordinated by their Ministry representatives on the Project Committees.

Where an emergency situation at the TSF, FI, SED POND and SLUDGE POND requires action that precludes prior consultation, notification of the actions taken by one party shall be given to the others as soon as possible. Copies of written orders, directives, approvals, licences, permits and amendments thereto, which include a TSF, FI, SED POND and SLUDGE POND shall be transmitted to the other parties at the time of issue.

In the event of the need for clarification of the Memorandum of Understanding or of unforeseen situations, the appropriate Directors shall consult with a view to resolving the matter.

This Memorandum of Understanding replaces the previous Letter of Understanding between MoE and MEMPR signed on September 6 and 9, 1988.

Nothing contained in this Memorandum of Understanding abrogates responsibilities or duties assigned by the *Mines Act*, the *Waste Management Act* or the *Water Act*.

Deputy Minister
Ministry of Energy, Mines and Petroleum Resources
April 22, 2009

Deputy Minister
Ministry of Environment
May 14, 2009

Recommendation #12: Education & Awareness Initiatives
The Ministry of Environment should continue to expand its education and awareness initiatives with dam owners and should work with Emergency Management BC to ensure that dam owners are working directly with local government officials in tying together their emergency preparedness and response plans. In addition, the Ministry of Environment should publish an annual Dam Safety Program report on its public website for the information of the public.

DELIVERABLE: Plan and budget approved for increased education & awareness initiatives; Annual Report to Dam Safety Website.

STATUS

"Education and Awareness" is a key component of the Dam Safety Program and is one of the 4 pillars of the dam owner compliance monitoring program outlined in the 2002 Compliance Strategy. Education and awareness are currently delivered in 4 ways:

- A one day credited workshop through the BC Water and Waste Association (BCWWA);
- Educational material available on the Ministry of Environment web site;
- Presentations and information on Dam Safety to local government officials ; and
- Face to face education of dam owners during the regularly scheduled audits conducted by Dam Safety Officers.

This report outlines a plan to enhance the first three:

1. An initiative to expand the workshops will take 2 directions. Additional one day workshops will now be delivered through other associations such as the Water Supply Association (WSABC) and the BC Cattlemen's Association (BCCA) as well as the BCWWA. A one day workshop with the WSABC is scheduled for October 20, 2010 in Kelowna. Preliminary discussions with BCCA have occurred to arrange for educational presentations to be delivered by Regional Dam Safety Officers to ranchers at their local meetings.

2. A binder titled "Inspection and Maintenance of Dams" was printed and distributed to all dam owners in 1998. This binder will be updated, re-printed and distributed to all dam owners again. The cost per binder will be $6.83 plus delivery and postage. Approximately 1400 binders will be sent to each dam owner and an additional 900 will be required for educational purposes for a total of approximately $20,000.

3. Continue to work with Emergency Management BC and local government officials to engage dam owners in their community with the aim of coordinating local government emergency plans and the dam owner's emergency preparedness plans. The Provincial Emergency Program (PEP) web site currently has a Hazard Risk Vulnerability Analysis (HRVA) tool to assist local governments in this regard. A request has been made to PEP to add the Dam Safety Program web link to the front page of the PEP web site. Will Jolley, Dam Safety Section Head will give a

presentation to the annual Emergency Preparedness Conference in Vancouver on November 23. This large annual conference is the largest annual meeting of BC emergency response officials including Federal, Provincial and Local Governments. Please see Recommendation #6.

Regarding an annual Dam Safety Program report on the website, a summary of the current annual report will be posted on the web site by May 31 each year.

How the actions taken will Improve Dam Safety in BC:

Under the *Water Act*, dam owners are responsible for the safety of their dams and liable for any damage caused by the failure of their works. Educating dam owners about maintaining, inspecting and safely operating their dams is the first line of defence in preventing dam failures. Linking dam owners with provincial and local government emergency response officials brings dam owners into the BC Emergency Response Management System (BCERMS).

FOLLOW-UP REQUIRED

- Deliver Dam Inspection & Maintenance Workshops through the WSABC and other associations. Confirm that these associations are able to issue Continuing Education credits to attendees as a mechanism of encouraging participation in the workshops. Determine which associations can cost share to reduce the cost to the Water Management Branch.
- Arrange for short educational presentations to be delivered by Regional Dam Safety Officers to ranchers at their local meetings.
- Revise the 1998 “Inspection and Maintenance of Dams” binder. Mail out the binder with the new Dam Safety Regulation package (see response to Recommendation #7 if possible.
- These activities require staff and budget and will be prioritized within the Dam Safety Program and Ministry annual business planning process.

BUDGET & RESOURCE REQUIREMENTS

- Additional workshops and educational presentations will be added when new staff increase the capacity of the program. Consideration should be given to establishing an annual fund to hire contractors to coordinate and deliver educational programs for the Water Management Branch. This could include educational programs on both dike and flood safety. Costs are not known at this time but are scalable to as much as $30,000 per year.
- New Inspection & Maintenance Binders distributed to all dam owners will cost approximately $20,000 and will require about one FTE for one month.

RISKS or OUTSTANDING ISSUES

- Expanding education and awareness initiatives with dam owners will require an increase in budget and staff in the Dam Safety Program.

ADDITIONAL RECOMMENDATIONS

- None

APPENDIX 2: 2010 DAM SAFETY PROGRAM REVIEW

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2010 Dam Safety Program Review

DELIVERABLE: Ministry of Environment Review of the Provincial Dam Safety Program

STATUS

In a July 14, 2010 News Release the Province committed to a review of the Provincial Dam Safety Program. The last comprehensive review of the Dam Safety Program was completed in 1996 by an external management consultant (Semmens and Adams) in response to a significant dam failure (Cannon Creek) in 1995. The 2010 Dam Safety Program Review was conducted by Ministry Of Environment staff to assess the effectiveness of changes made as a result of the 1996 report and to identify any additional improvements that could be undertaken.

How the actions taken will Improve Dam Safety in BC

The recommendations of the 2010 Dam Safety Program Review focus on four aspects: placing a higher priority and increasing Ministry resources associated with dam safety activities; some minor updates to the Dam Safety Program; and a review of the provincial approach to regulation of a variety of water retaining structures. Refocusing priorities and adding additional resources to the program will result in a greater level of regulation and oversight through increased audits of the dam owners and a greater level of follow-up of noncompliance issues. In addition, a systematic evaluation of all Ministry owned dams will lead to a greater level of inspection, physical upgrades or removal if warranted.

Some program updates will include an updated Dam Safety Regulation and improved inventory and database of dams. This will result in greater attention to dams as a result of increased inspections and reviews by dam owners along with greater tracking and reporting of these requirements by ministry staff.

FOLLOW-UP REQUIRED

Several of the follow-up items from the 2010 Dam Safety Program Review are captured by the Ministry response to the recommendations of the Deputy Solicitor General, including an updated Dam Safety Regulation, an improved registry of dams and improved regulation of other water-related structures. These are detailed in other sections of this report.

Additional staff and operational budget will be assigned to the Provincial Dam Safety Program to increase audits, improve data management and provide for follow-up of outstanding issue dam safety issues.

A list of 52 dams owned and operated by the Ministry of Environment has been forwarded to each individual agency with the Ministry responsible for their operation. A business case review of each structure will be undertaken to ensure that adequate operational budgets are in place. Where warranted, a capital budget for removal or upgrading of these structures will be developed and added to

the annual Ministry budget process for consideration. In addition, staff from the Dam Safety Program will conduct audits of each dam owned and operated by the Ministry of Environment over the next year.

BUDGET & RESOURCE REQUIREMENTS

An additional 4 full time equivalent (FTE) staff positions will be added to the dam safety program along with additional operational funding ($60K).

Additional operational or capital budget requirements may be identified as a result of the audit or business case review of Ministry owned dams. These financial requirements will be brought forward as part of the annual Ministry budget process.

RISKS or OUTSTANDING ISSUES

- Maintaining the Dam Safety Program as a priority in the future with other competing Ministry priorities will continue to be a challenge.
- Some of the capital requirements for Ministry owned dams could be substantial, particularly if removal of the structure is proposed.
- Increased inspection and compliance may result in increased costs for local dam owners which may be difficult to absorb, particularly by small local government or agricultural users.

ADDITIONAL RECOMMENDATIONS

- None

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Memorandum

Ministry of Environment

Water Management Branch

Date: September 22, 2010

To: Doug Konkin
Deputy Minister
Ministry of Environment

Re: Review of the Provincial Dam Safety Program

As requested, staff from the Ministry of Environment have conducted an internal review of the Dam Safety Program. I am writing to convey this report as well as provide you with my observations and recommendations for improving the program.

Background

BC is one of four provinces with a formalized dam safety program which provides oversight to nearly 2000 dams in the Province including some of the largest structures Canada. In a province with very diverse geologic, hydrologic and seismic conditions along with a variety of dam owners and operators, regulation of these structures can poses significant challenges.

In the late 1990's, in response to a significant dam failure a program review by Semmens and Adams and restructuring of the Dam Safety Program was undertaken. A copy of the Semmens and Adams report along with some of the details of the new program is contained in the attached material. The reader is encouraged to review the findings of this report, particularly the executive summary which provides a good overview of the issues. This current review will not attempt to reproduce this information, but will build on the previous recommendations and identify areas where the program can be further improved.

By the early 2000's the recommendations of this review were fully implemented and this is essentially the program that we are delivering today. The new dam safety program is "results-based" with considerable reliance on professionals and dam owners to maintain the safety of these structures. Fundamental to this new program was the shift in Ministry staff role from inspection functions to audit and education functions. The primary responsibility for the safety and operation of these structures rests with the dam owners.

Under this new approach it is anticipated that there will be a certain number of negative results, which in the field of dam safety are represented by dam failures or incidents. On average we have been experiencing several incidents and at least one dam failure in British Columbia annually. While it is possible to further reduce the number of these incidents and failures

through some of the recommendations outlined below, it is not possible to completely eliminate them. In fact if we wish to reduce these incidents and failures to near zero, we may need to move towards a more prescriptive model, and even then they will not entirely be eliminated. The Semmens and Adams report states that “Dams can and do fail”, as a compelling and factual reality.

In general I believe that we have a good, effective, modern dam safety program, however it could be improved through a modest increase in resources along with a refocusing of efforts as described below.

Observations and Recommendations

1. Priority

Many of the provincial Dam Safety Officers do not work full time on dam safety issues and other competing priorities such as water licensing, IPPs and flood safety issues take time away from dam safety activities. Ensuring dam safety activities are a priority for these individuals is essential for an effective dam safety program.

The Province and specifically the Ministry of Environment currently owns and operate a number of dams. Some of these structures are not fully compliant with the Dam Safety Regulations with respect to inspection, operation and review. Compliance with the Regulations must be a priority for all provincial staff.

Many of these provincial dams have been constructed or acquired over the years for flood control, water supply or habitat enhancement purposes; however inspection and maintenance resources to manage these structures are not always in available. Some dams have been transferred or defaulted to the Province and continue to be maintained on an ad hoc basis. The suite of dams owned by the Province should be reviewed; a business case for their operation or removal should be developed, along with a plan for removal of those structures that are no longer required.

2. Resources

The Dam Safety Program was transformed to a results-based model in part due to the excessive resources required to maintain the existing approach. After the transformation the Ministry assigned approximately 8.5 full-time equivalents (FTEs) to this program, however this number has fallen to 5.5 in recent years. This has resulted in staff being slightly behind on scheduled audits and left little time for follow-up of outstanding issues identified during these audits. Additional staff resources would allow for more frequent audits, follow-up on problem dams and an application of the Dam Safety Program as originally designed.

3. Program Design

While the Provincial Dam Safety Program is a good model there are a number of minor improvements that could be made. These include a change to the Dam Safety Regulation which would bring the classification system in line with the 2007 Canadian Dam Association

Guidelines, along with the minor updates of the provincial dam database. In addition, an internal review of consequence classifications for all dams in BC may be warranted, however this is a highly technical, labour intensive process. Although the program currently has an 87% return of annual compliance reports a review of the regulatory framework in regard to improving that number and general efficiency and effectiveness should be undertaken.

4. Other Related Risks

While the recent failure of the dam near Oliver has brought attention to the dam safety program there are several other water related risks that could attract future attention from a similar failure.

Mine tailing dams are not regulated by the provincial Dam Safety Program, even though they are similar in nature. An MOU exists between the Ministry of Environment (MOE) and the Ministry of Energy Mines and Petroleum Resources (MEMPR) which assigns MEMPR as the lead with respect to these structures. The public is not likely to make the distinction between one of these structures and a regulated dam, so a consistent approach to risk ranking and mitigation could be advantageous. MOE staff will explore these issues with MEMPR staff.

The majority of the **dikes** in the province, both those with an identified owner and orphan structures (provincial) do not meet current provincial standards. In many cases regular inspection and maintenance of these structures is not being undertaken by the owners. It is therefore very possible that failures of these structures could occur during flood events, below design levels. The current provincial Flood Protection Program is addressing some of the infrastructure upgrades associated with these structures; however a considerable backlog in inspection, maintenance and capital investment exists.

Associated with the 44,000 water licenses in the province are **authorized works**, most of which are not covered by the Dam Safety Regulations. A very small portion of these works do include structures which could pose a risk to public safety. These include high pressure water conveyance structures such as pipelines and penstocks along with other works associated with the hydroelectric industry. IPPs, most of which are run of river include many works not associated with a dam. As such they are not subject to the normal audit programs. Due to the limited number of these types of works and a high standard of design the overall risk is generally low, however it may be prudent to identify any higher consequence structures for additional oversight similar to the Dam Safety Program.

Conclusions

The model and tools employed by the Provincial Dam Safety Program are appropriate; however the effectiveness could be significantly improved with some relatively minor resource and program enhancements as outlined above. There are some related hazards associated with other water control structures which could also be reduced by a similar review.

Glen Davidson, P.Eng.
Comptroller of Water Rights
Ministry of Environment

Report on the BC Dam Safety Program 1967 to 2010

Introduction:

This report will describe the development of the BC Dam Safety Program from 1967 until the present day. The report was commissioned as a result of the events that occurred near Oliver BC on June 13, 2010 when the failure of a small dam apparently triggered a destructive debris torrent in the Testalinden Creek adjacent to the Okanagan River.

History of Dam Failures in British Columbia:

Despite the large number of dams in BC, there have been only two known fatalities as a result of dam failures. The first occurred in 1912 in the Vancouver Island port community of Union Bay. The Langley Lake Dam, which was poorly designed, collapsed during a winter rainstorm causing extensive damage to part of the town and the coal loading facility. Due to some advanced warning, the densely populated lower creek area was quickly evacuated, but one person died in the flood. During the 1948 spring flooding, a placer miner went missing following the failure of the Devick Lake Dam 30 kilometres north east of Kamloops. The body was never recovered and he was presumed drowned by the dam failure inundation. The main CN rail line was washed out on the North Thompson River, and considerable damage was done in the Heffley Creek area.

In the last 30 years, on average, there has been one recorded dam failure per year. Most of these failed dams have been small dams which caused minor damage which was sometimes reported in local media. The Cannon Creek Dam breach, in May 1995, was the most damaging failure in that time period (until the events near Oliver, June 13, 2010) and the impact on the Dam Safety Program was far reaching. This report will describe the development of the BC Dam Safety Program before the Cannon Creek Dam failure and after, and will explain how this near disaster was the catalyst for change. The report will outline the findings of the formal review of the provincial Dam Safety Program, conducted in 1996, and then focus on how the program evolved after that.

Dam Safety Program History

Prior to the establishment of the current provincial dam safety program in 1967, the safety of dams was regulated by Regional Engineers on an ad hoc basis. A number of dams failed during the flood season of 1948 causing wide spread damage and one fatality. An index of dams for the Interior of BC was created following the 1948 floods and dam inspections by Regional Engineers and technical staff were carried out. The dam building boom of the 1960's created the need for a formal Dam Safety Program to review and authorize the construction of major projects such as the WAC Bennett and the Mica Dams and to inspect all major dams. The Provincial Dam Safety Program was established in Victoria in 1967 by the Comptroller of Water Rights to ensure that Major Dams in the province were designed, constructed, operated and maintained to acceptable standards for public safety. Major Dams were initially defined as meeting the size criteria for ICOLD[4] dams, but soon the dam height definition was dropped from 15m (50 feet) to 9m (30 feet). Smaller dams continued to be inspected by Water Rights staff in some regions under the Regional Engineers. The regional offices began to turn to the Dam Safety Program in Victoria for assistance with plans review and approval. Additional staff were added in Victoria in 1971 and 1975 to undertake dam inspections as well as specialized work such as underwater inspections and dam

[4] International Commission on Large Dams

instrumentation. Victoria Dam Inspectors began a pilot project on Vancouver Island in 1976 to complete an inventory of all dams in that region under 9 meters. Work on this inventory was soon expanded to the rest of the province and Dam Inspection Officers were established in all regions over the following years.

Dam Inspection Program – Policy and Procedures Manual 1986

In 1986 the Provincial Dam Safety Program was formalized under the Comptroller of Water Rights in a Policy & Procedures Manual. The following policy statement was developed at that time and the basic concept is still in effect today:

> ***The owner of a dam is responsible for the safety of the dam and related structures. This responsibility extends to and includes ensuring the structural integrity, safe operation and adequate maintenance of these works.***
> ***The Comptroller of Water Rights shall co-ordinate a provincial Dam Safety-Inspection Program to ensure that dam owners meet these responsibilities.***
> ***The Comptroller and Regional Water Managers shall be respectively responsible for the administration of the Victoria and Regional components of the program, which shall be mutually supportive.***

The 1986 policy & procedures manual is a comprehensive document addressing regulatory inspection schedules and consequence classifications as well as records filing and staff safety. The following are a list of some of the more important procedures in the manual. Most of these procedures were modified, as described, following the formal program review that was commissioned after the Cannon Creek Dam failure in May, 1995.

1. Processing the Water Licence: A water licence is issued following an investigation of the availability of water (for the use specified in the licence application) and consideration of prior rights by others on the stream. The person holding the water Licence will become the dam owner. The procedures explained in detail how to engage the dam owner at this application stage and how the Victoria & regional dam safety staff would review the proposed design. It did not, however, address the more important issue of the final approval of the dam design which is typically given as a "Leave to Commence Construction" (LCC) letter under a clause in the water licence. In 1998, *Plan Submission Guidelines* were produced and distributed to applicants to ensure that the prospective dam owner understood the submission, review and approval process. These guidelines have been updated and now include rehabilitation of existing dams.
2. Dam Failure Consequence Classification: BC was one of the first provinces in Canada to specify a consequence classification for dams. The "Disaster Potential Classification" chart had 3 classifications, A (High), B (Moderate) and C (Low) based on the BUREC model. This system had been in place for some years prior to 1986 and classification levels were attributed to the dams by a wide range of staff using limited information. In retrospect, the Cannon Creek Dam should not have been rated as C (Low), but, the impact of a dam failure is difficult to determine without doing a computer "dam break" analysis. Other potential consequences of a dam failure, such as triggering a debris torrent in the creek bed below, would not be accounted for in the dam break analysis. Determining consequence classification accurately requires the proper hydrotechnical tools and considerable experience.

3. Dam Inspection Schedule: The procedures described in detail how the annual inspection schedules would be prepared for the Victoria and regional dam safety staff. Inspection schedules were to be determined using the table below. Inspection frequency for dams under construction and under special circumstances was to be done "as necessary". Considering the number of dams and the limited number of staff, it soon became apparent that doing effective dam inspections on this schedule was not feasible.

Commissioning	A B C	Twice yearly Annually 2 years
Operational	A B C	1 Year 2 Years 4 Years

4. Dam Inspections: The inspection process was described as having three phases; pre-field work, on-site Inspection and the inspection report. A generic Dam Inspection Report checklist was provided for use on site and as a template for the final report for smaller dams. The checklist ends with the following quote from Section 18 of the provincial Water Act.

> Note to Licensee: Section 18(1) of the *Water Act* states, "Every licensee and person who has obtained approval under Section 7 shall exercise reasonable care to avoid damage to any land, works, trees, or other property, and shall make full compensation to the owners for any damage or loss resulting from the construction, maintenance, use or operation of the licensee's works.

This quote from Section 18 was included in the inspection report that the Dam Safety Officer sent to the owners of the Cannon Creek Dam in 1992. This quote did not adequately explain to the dam owner that they were responsible for undertaking regular dam inspections; in fact they believed that the government was doing their inspections for them. This was reinforced by the fact that the dam was located on crown land.

5. Dam Inspection Reports: Guidance in this section included how to indicate the urgency of any remedial action required and the type of escalating enforcement required. The following was the recommendation regarding the responsibility of the dam owner:

> …ensure that the text (of the inspection report) reflects the fact that the responsibility for the dam and its operation rests solely with the owner and that the subject dam inspection is a regulatory function of the Water Management Branch implying no shared responsibility.

A sample inspection report cover letter was provided in the manual which refers to the inspection report as a "regulatory dam safety inspection", but nowhere does it mention that annual inspections and regular surveillance are the responsibility of the dam owner. The requirement that dam owners inspect their dams was not made clear to dam owners until the Dam Safety Regulation was proclaimed in February 2000.

6. Operation & Maintenance Manuals: Guidelines for the preparation of Operation & Maintenance Manuals, which included Emergency Plans, were distributed to the owners of all Major dams in 1984. This was the first in a series of dam owner guidelines that were planned at that time. The failure of the Cannon Creek Dam was the catalyst that led to improve communication with dam owners.

It is important to note that the Policy & Procedures manual was an internal document and dam owner requirements were not distributed in a systematic or effective manner to the dam owners. The staff and management in the Dam Safety Program at the time recognized the importance of the difference between their regulator inspections and the inspection and surveillance that was expected of the dam owner. The importance of dam owner inspections was expressed frequently to dam owners on site as well as during communication with water supply associations and other stakeholders. However, as the example of the Cannon Creek Dam will demonstrate, this was not good enough.

Cannon Creek Dam Failure – May 27, 1995

In May 1995, a 6 metre high earth-filled irrigation dam failed causing approximately half a million dollars damage. The sudden release of storage killed 48 head of cattle, destroyed 1.5 km of a public road, damaged 100 acres of hay field and introduced 700,000 cubic metres of material into the Quesnel River. The 3 residents of the ranch put their lives in danger by trying to rescue their cattle and by trying to escape through the flood flow. A dramatic story of their escape was headline news in the Quesnel-Cariboo Observer newspaper. The story was used to produce an educational video by the Victoria Dam Safety staff. The video is still in active use today as an education tool for the "Inspection and Maintenance of Dams" workshop conducted twice annually in conjunction with the BCWWA.

Report on the Cannon Creek Dam Failure, June 7, 1995

It should be noted that the regional boundaries for administration of the *Water Act* had recently changed; the dam had last been inspected by the Dam Safety Officer, Northern Region (DSO-NR) in 1992. At that time, Regional DSOs were still aiming to inspect dams based on the schedule in the Policies & Procedures Manual. The Cannon Creek Dam was classified as a low consequence dam and as such was scheduled for inspection every 4 years. An inspection report, with recommendations for improved maintenance, was written in 1992 and sent to the dam owner. The format of the report followed that described in the Policy and Procedures Manual (see page 3.) The Dam Safety Officer for the Cariboo Region investigated the site following the failure and interviewed the dam owners and others. The failure mechanism is described in his report in detail. In summary, the outlet sluice developed a hole near the lower, center of the dam and the dam failed by internal erosion and embankment collapse. The following are some bullets from his excellent report:

- "The hazard classification of this structure is Low/"C". In review of this dam failure it may appear that the classification would have been more appropriate as as Moderate/"B". This would have resulted in more extensive follow-up, on compliance or enforcement matters and a continuation of regulatory inspections. However, this could be said of any of the "upper" C category dams."
- "The licensees were aware that there was internal erosion of the embankment taking place. While the licensee did make attempts to solve the problem they were having with the dam on their own, they did not attempt to contact an expert or someone with extensive experience with dams. The licensees were sent reports and letters from the (DSO-NR) yet neither he or myself, or an engineering or construction firm were contacted."
- "Had the licensees taken action immediately to draw down the reservoir and an attempt made to control the piping, failure of the dam may have been averted."
- "A water license (CWL 44213, 130 acre feet storage) was issued in 1975 which does not contain a clause requiring submission of plans prior to construction." This is a serious omission and one which likely lead to the dam owner building the dam himself without any engineering input.

Provincial Emergency Program Report on Disaster Financial Assistance Application (DFA) for Owners

The Provincial Emergency Program (PEP) undertook an investigation of the flood inundation damage to determine if the ranch owner's application for DFA was valid. DFA is not paid to victims if it is determined that they were at fault. PEP determined that 50% of the DFA would be paid to the ranchers because PEP accepted the owner's assertion that the provincial government had not followed up adequately on their "inspection". This is despite the fact that under the *Water Act*, licensees are responsible for their works and liable for any damage caused.

"An Evaluation of the Dam Safety Program" Report 1996

Senior officials from the Ministry of Environment decided that a review of the provincial dam safety program was in order. The management consultant company, Semmens and Adams (S&A) was hired to undertake a comprehensive review and to recommend a renewed program model. S&A conducted the review by interviewing front line staff in regions and headquarters, senior management, 45 dam owners, engineering consultants, four neighbouring jurisdictions and conducted an extensive file review.

The S&A report recommended that Victoria continue to regulate Major dams and the regional offices regulate the Regional dams. In addition, Victoria would be responsible for specific additional roles, i.e., leadership, direction and authority; evaluate and report on the overall program and provide services to regions. This has evolved into the function referred to as "Program Management" under the current Dam Safety Program. (see page X).

The S&A report recommended that the renewed program should move in three directions. Under these 3 headings the report contains over fifty sub-recommendations. Given the limitations of this report, the recommendations are summarized under the three directions as follows:

1. Re-Focus on the Dam Owner: This is summarized by the statement, "The main focus of the program would be on the dam owners, enhancing their appreciation of their obligations and liabilities and ensuring tha they have a "Dam Safety Program" to help them effectively maintain and operate their dams". S&A recommended that the focus on potential dam owners should with clear information on the liability and responsibility of dam ownership before they decide to build a dam. S&A recommended new regulations and guidelines to define the requirements for dam owners to inspect their dams and to operate and maintain them to current acceptable standards. Also under re-focus on the dam owner, S&A recommended "audits of owner compliance", owner education on dam safety and legal responsibilities and regular reporting by owners.

2. Inject More Rigour, Consistency and Accountability: A series of steps was recommended as follows: clear accountability for the program, visible support and direction from management, resolve non-compliance issues related to ministry owned dams, use available enforcement tools and compliance tools, use scarce resources more effectively, remove abandoned dams and learn from dam failures.

3. Provide Needed Tools to Staff: For staff S&A recommended: the continuation of annual dam safety seminars for DSOs, an integrated database and filing system including a risk based

classification system, regulation and guidelines to assist the DSOs and a clear Memorandum of Understanding with Mines Branch regarding tailings dams.

The S&A report notes that the Canadian Dam Safety Association (now CDA - Canadian Dam Association) "represents a source of credible standards for dam safety. These standards should be considered when designing the Program." The CDA published their first Dam Safety Guidelines in 1995 and these guidelines soon became the accepted "best practice" for dam owners in BC and Canada. The CDA Guidelines are currently a critical tool for both the dam owner and the regulator.

The S&A report lists a number of "factual realities" which are still relevant today (with the exception of bullet number 3). The list is under subsection 1.5 "Several Compelling and Factual Realities Drive Our Observations and Recommendations" on page 4 of the S&A report.

Note: Two additional events during the summer of 1996 had an impact on the dam safety program due to the media attention focused on dam incidents. The WAC Bennett Dam sinkhole incident in June resulted in the Comptroller of Water Rights issuing an ORDER under the *Water Act* for the owner to begin to immediately begin reservoir drawdown procedures. The dam continues to operate under a *Water Act* ORDER and currently has one of the most sophisticated surveillance programs of any dam in the world. The second event was the severe flooding of the Saguenay's tributary rivers from July 18 to 21, 1996. The floods devastated the region in one of Canada's costliest natural disasters, and brought dam safety to the national attention. A significant number of dams were damaged or destroyed as a result of the flood although no deaths were attributed to directly to any dam failures.

Dam Safety Renewal 1996

Prior to the completion of the S&A report the renewal of the dam safety program was underway. Priorities were to enact the Dam Safety Regulation, replace the "inspection" procedure with a risk-based approach, identify all ministry owned dams and safeguard any abandoned dams. Ministry owned dams and abandoned dams were addressed with a combination of removal, securing acceptable ownership or reducing the risk to an acceptable level. Many of the recommendations proposed by S&A were already recognized by the people working in the Dam Safety Program. In fact, S&A spent many days interviewing staff and analysing their innovative ideas for creating an improved program. This created enthusiastic support from staff for change and was instrumental in the successful implementation of the Dam Safety Renewal Project from 1996 to 2001.

Dam Safety Regulation

A draft Dam Safety Regulation was originally started in 1990 to describe and define the responsibilities and liability of Dam Owners under the provincial *Water Act*. A key priority of dam safety renewal was to enact the Dam Safety Regulation. Following extensive research, consultation with regions and our solicitors and full public consultation, the regulation was proclaimed in February 2000.

It is important to note that as a result of consultation with the solicitors and the public prior to the enactment of the Dam Safety Regulation, some of the recommendations in the S&A report were not viable. Two examples are: transferring the regulation of dams on mine sites to the Mines Branch, and, the removal of all abandoned dams, many of which had valid water rights held by licensees.

The Dam Safety Regulation is considered to be a "non-prescriptive" regulation because it does not specify how dams are to be designed or built, but depends on other guidelines and best practice for those details. A number of guidelines, checklists and templates have been prepared by the Dam Safety Program since 1998 to assist dam owners, see "Current Dam Safety Program" below.

The requirements under the Regulation are based on the complexity of the dam and the potential downstream consequences (see Schedule 1 of the Regulation). Dam owners must satisfy all ongoing requirements and may also need to meet special and/or additional requirements:

1. Ongoing Requirements

    - safe day to day operation and maintenance of the dam,
    - regular inspections of the dam (i.e., site surveillance, formal inspections, recording instrumentation data, and testing mechanical components),
    - reviewing and updating the operation, maintenance and surveillance plan,
    - reviewing and updating the emergency preparedness plan (high and very high consequence dams only),
    - performing dam safety reviews (high and very high consequence dams only), and
    - reporting all significant findings resulting from inspections and/or dam safety reviews to the Dam Safety Officer.

2. Special Requirements

    - obtain Water Stewardship Division authorization when alternations, improvements or replacements to all or any part of their dam are considered,
    - notify the Dam Safety Officer and get authorization prior to the removal, decommissioning or abandoning their dam, or
    - operate their dam in a manner, and initiate remedial actions, that will safeguard the public and dam when hazardous conditions at the dam are found.

3. Additional Requirements - if required by Water Stewardship Division:

    - install any instrumentation necessary to adequately monitor the performance of a dam,
    - obtain an expert's opinion on the design, construction and analysis of the dam,
    - obtain the opinion of an appropriate specialist such as hydraulic, hydrological, geological, geotechnical, mechanical or structural engineer or related professional on various questions,
    - submit additional information, including recorded data, on the dam, reservoir, downstream area, or watershed upstream of the dam.

Risk Based Classification and Monitoring System 1998

In 1998 a Risk Based Classification and Monitoring procedure replaced 2 sections of the 1986 procedures, "Disaster Potential Classification" and the "Dam Inspection Schedule". The consequence classification was revised to reflect the Canadian Dam Association classification table in the CDA Guidelines, first published in 1995. This classification table from the 1998 procedure became Schedule 1 of the Dam Safety Regulation.

The monitoring section provides procedures and tools to assist the DSO to qualify the risk posed by each dam and each year to develop an annual work plan to monitor all high risk dams. The risk levels, numbering 1 to 5, are determined using a combination of the Failure Consequence Rating and the Failure Probability Rating. This risk based monitoring system is a valuable tool for determining overall dam safety, but did not provide a good annual measure of performance and accountability by the DSOs. The audit program was implemented in 2003, following the completion of the Compliance Strategy in 2002, to address this concern.

Compliance Strategy 2002

The Compliance Strategy document outlines the key strategies that became the compliance portion of the Dam Safety Program. The four components are described as: education of dam owners, tracking dams and owners with a database, surveying owners for compliance and a formal auditing program. Please see the description of the current Dam Safety Program below.

Audit Program 2003

Dam audits are to be undertaken every 5 years for High and Very High Consequence dams and every 10 years for Low Consequence dams. Very Low (VL) Consequence Classification dams are not included in the audit program at this time

Under the audit program the DSO creates an annual audit schedule as part of his/her personal work plan. The DSO completes a "Dam Audit Check Sheet" and will provide a copy to the owner on site. The DSO may also complete a dam inspection form **with the owner** while on site as part of the education process. Audit information will be entered into the dam database and the dam file upon return to the office. Consequence classification, probability of failure and risk level will be reassessed and entered into the dam database. If a hazardous condition is uncovered during an audit, the Dam Safety Officer will attend to the situation immediately.

The audit schedule was originally devised by assuming that a DSO would commit 30% of his/her available time as a DSO to the actual audit. The remained of his/her time would be spent doing follow-up compliance, plans review and approval, data entry and responding to incidents and emergencies. In 2003 there were 6 Regional DSOs, but the amount of time devoted to dam safety amounted to 2.5 FTEs. The 3 Victoria DSOs account for 3 FTEs for a total of 5.5 FTEs in the Dam Safety Program in 2003. Despite changes in organizational structure, regional boundaries, and retirements, the number of FTEs in the Dam Safety Program is currently similar.

Canadian Dam Association Guidelines 2007

The CDA published guidelines in 1995 and a revised version in 1999. In 2003 the CDA began soliciting input and suggestions from all members through committees and workshops. The guidelines were re-written and divided into two sections, Principles and Technical Bulletins. One important revision was to the Dam Classification Table. The 4 category consequence classification system, defined in the 1995 and 1999 versions, was replaced with 5 consequence classifications in the 2007 guidelines. As noted previously, the consequence classification system in the Dam Safety Regulation has 4 consequence classifications, similar to the previous CDA guidelines. The Dam Safety Section has prepared an Interim Consequence Classification Policy that provides guidance to dam owners and engineers on how the 2 classification systems are related and can be used coincidently.

Current BC Dam Safety Program - 2010

A number of key deliverables have significantly improved the program since the Dam Safety Renewal Project was initiated. A number of guidelines for dam owners are available on the web site including the 1998 *Inspection & Maintenance of Dams* and the *Dam Safety Review Guidelines* completed this year. The *Plan Submission Guidelines* address the first recommendation of the S&A report by providing prospective dam owners with the information they require to understand the responsibilities and liability of dam ownership as well as the very stringent requirements for dam design and construction. The process for plans review and approval by the Water Stewardship Division are outlined in this document. The outline of the current Dam Safety Program is shown below:

1. Dam Owner Compliance	
• Dam Auditing	H & VH consequence dams every 5 years – 288 dams
	Low consequence dams every 10 years – 497 dams
• Education & Awareness	Dam Owner Workshops with BCWWA
	Dam Safety Guidelines
	Website Information
• Compliance Mail-Out	Annual compliance mail-out to all H & VH dam owners
• Dam Registry	Dam Registry for internal use – dam data & tracking
	iMap & Google Earth – public dam data geo-referenced
2. Plans Review & Approval	Plan Submission Guidelines for owners and DSOs
	• Dam Removal Projects
	• Dam Rehabilitation Projects
	• New Dam Projects
3. Program Management - Headquarters	Annual Report on Program Performance & Achievements
	Produce Guidelines, Templates & Checksheets - website
	Annual Dam Safety Seminar – with Flood Safety biannually
	DSO Training – 4 day training and ongoing support
4. Emergency Planning & Response	Dam Emergency Response Plan – EPA requirement

Summary of Numbers of Regulated Dams in BC by Consequence Classifications as of May 2010

Very High	**31**		
High	**257**		
Low	**497**		
Very Low	**1200**	**Total**	**1,985**

Challenges Facing the BC Dam Safety Program

1. One of the challenges facing any dam safety program is to create a regulatory process that encompasses both large dams and small dams in a consistent manner. When distributing scarce resources it is logical to concentrate resources on the regulation of higher consequence dam owners and high risk dams. It is much easier to get results when regulating the large dam owners with financial and technical resources. The difficulty is to achieve acceptable results from owners who don't have adequate resources.

2. Policies and Procedures – Water Stewardship Division Policies and Procedures have not been updated for some time. The new E-Licensing system offers a good opportunity to create modern "work flow management" procedures in stage 2 of the E-Licensing program.
3. Water Licensees who hold storage licences, and have not made beneficial use of the water by constructing their dam(s), should have their water licences cancelled if they do not have immediate plans to construct a dam. Those wanting to construct a dam should receive clear communication that they must abide by the "Plan Submission Guidelines" and receive the Leave to Commence Construction letter prior to construction. Verification of unconstructed dams could be made by a LIDAR mapping or other form of aerial reconnaissance. A MOF employee has offered his services to undertake an aerial photography review of dam sites using high resolution photos which might be able to confirm dam existence and location. This proposal has not yet been analyzed to determine the applicability to this project.
4. Dam Safety Officers with competing priorities: Most DSOs do Water Allocation work including adjudication of IPPs. Dam Safety is always an important task but rarely is it urgent such as the recent events near Oliver. In many regions, the combination of working on Dam Safety and IPPs is a good one that fits the job requirements well. But, many DSOs are also doing backlog reduction or water licence amendments as well.
5. Dam Registry (previously referred to as the Dam Database): Until May of 2010, the dam registry was tied to the old Water Licensing Information System (WLIS). This old system accounted for the extreme difficulty in inputting data. Tracking trends and performance was not possible with WLIS. There are many gaps in the data which need to be addressed.
6. In 2007, the CDA replaced the 4 category consequence classification system with 5 consequence classifications. The Dam Safety Section has prepared an Interim Consequence Classification Policy that provides guidance to dam owners and engineers on how the 2 classification systems are related and can be used coincidently. The Dam Safety Regulation should be revised to align with the CDA classifications to avoid any confusion and provide clarity.
7. At present, only the owners of High and Very High Consequence dams receive an annual compliance mail-out. This annual project represents a significant effort each year on the part of the Victoria Dam Safety Section. The feasibility of including the Low Consequence Classification dams in the annual compliance mail-out should be assessed. This would be a significant increase in effort, including more than double the number of letters, verification of dam owner contacts and follow-up on non-compliance.
8. In April 2000, all known dam owners received a package of information introducing the Dam Safety Regulation. Copies of the binder, *Inspection and Maintenance of Dams Guidelines,* were included. The owners of Low and Very Low consequence classification dams have not officially received a follow-up reminder of their responsibilities under the Dam Safety Regulation. This would be a good time for another mass mail-out, similar to the one in 2000.
9. Downstream Development affecting Consequence Classifications: WSD no longer receives "referrals" of subdivision approvals and re-zoning application. This is a significant issue for the Flood Hazard Management Program as well. One way to address this would be to systematically review the consequence classifications of all Low & Very Low Consequence Classification dams in areas of known increases in downstream development. This would include the Okanagan corridor, Vancouver Island east side, Lower Fraser Valley and portions of the East Kootenay at a minimum. The first step would be to identify candidate dams, then to undertake computer modeling, i.e., "dam break" studies to define the potential inundation zones. Some DSOs are experienced modellers who specialize in small dam breaches, but there are not enough of them to do a large job such as this. Hydrology consultants would be needed.

On the plus side:

10. We are now able to use Google Earth to locate dams and geo-reference the data. Local approval officers will be able to see if there are dams upstream of new development proposals. They could require that the development applicant work with the dam owner to determine if the consequence classification would increase, and if so, the developer would pay for the dam upgrade, just as they pay for upgrades to sewer, water, roads and other infrastructure that would be impacted by their development.
11. Local Governments will now be able to see at a glance if there is a dam on a creek upstream from their communities which will allow them to add the dams to their Local Emergency Response Plans as required under the Emergency Program Act.

Conclusion:

The Cannon Creek Dam failure was a catalyst for the evolution of the BC Dam Safety Program. Many of the recommendations proposed by the management consultant company, Semmens & Adams were already recognized by the people working in the Dam Safety Program. One of the most important shifts was for the regulator to move fully away from any impression that the province was doing dam inspections for the dam owner. This is in fact a results based model that relies on the owner to meet the requirement of the Dam Safety Regulation. Most High & Very High Consequence dam owners are taking full responsibility for their own Dam Safety Program, including regular inspection and surveillance. More work is required to bring the owners of Low Consequence dams up to the same level of compliance.

An important principle of the program is to only request information from the dam owner that the regulator is able to absorb. For instance, many regulators require owners to submit full annual inspection reports, but are unable to absorb and analyse all the information. The idea of asking only for confirmation of completion, then auditing periodically for confirmation, is a practice which has merit as long as the program is staffed and resourced adequately.

Will Jolley, Section Head, Dam Safety
Water Stewardship Division
June 27, 2010

Peace River Regional District

Emergency Incident Register

#	Date of Incident	Task #	PRRD Action	Incident	Type	Operations	File#
122	19-Oct-15	163503	EOC Lvl 1	Land Slide across the Beatton River	water	DR	15-2
121	16-Sep-15		Monitoring Only	Produced Water Spill	Oil & Gas	DR	15-1
120	21-May-15	160855	ESS Level 1	House fire 4973 225 Rd Issued hotel and clothing voucher	Structure Fire	JR	
119	31-Dec-14	154659	EOC Level 1	power outage in Buick & Prespatou area	cold weather	JR/FH	
118	11-Dec-14		Monitoring Only	sour gas release at the end of Old Hope Road	Oil & Gas	TM/JR	
117	10-Sep-14		Monitoring Only	Potential water contamination into Lynx Creek	water	SA/TM	
116	07-Sep-14		Monitoring Only	industrial spill near Dokkie School and in District of Chetwynd. MOE and trucking company remediated issue			
115	13-Aug-14	151495	Evacuation Alert	Tommy Lakes Fire 60 NE of Pink Mountain	wildfire	TM/FH/JR	
114	13-Jul-14	151495	Evacuation Order & Evacuation Alert	Mt. McAllister Fire 56 km west of Chetwynd, threatended Moberly Lake and Hudson's Hope.	wildfire	ALL	
113	08-Jul-14	151495	Monitoring Only	Tenakihi-Mesilinka Fire 50 km W of Williston Lake	wildfire	TM/FH/JR/SA	
112	06-Jul-14	151495	Evacuation Order	Red Deer Creek fire 61 km SE of Tumbler Ridge, order to evacuate camps and facilities in the area	wildfire	TM/JR/FH/SA	
111	02-Jun-14	151495	Evacuation Alert	Forres Mountain Fire 50 km NW of Williston Lake near Tsay Keh Dene	wildfire	ALL	
110	13-May-14		notification	Wrangler Road cut off by beaver dam break. 2 houses cut off, all residents notified. MOT will have access open in 1-2 days	Flooding	TM	
109	12-May-14		notification	Two 400 barrel tanks caught fire at plant site, no residents displaced or affected	Oil & Gas	TM	
108	07-Apr-14	150182	ESS Level 1	House fire in Rolla, clothing voucher provided	Structure Fire	JR	
107	07-Apr-14	150189	EOC Level 1	flooding in North Peace due to Spring run-off. Sandbags and sand provided at Charlie Lake Fire Hall for residents to pick-up	Flooding	FB/SA	
106	18-Feb-14		notification	PNG Gas leak on Parkland Road, ~500 residents impacted without natural gas, no imminent danger and no evacuation required. PNG on-site monitoring situation.	Oil & Gas	TM	
105	05-Feb-14	145092	ESS Level 1	House fire at 13311 215 Rd, clothing voucher provided	Structure Fire	TM/JR	
104	03-Jan-14		notification	house fire in Christopher Lee Estates, ESS offered but declined by residents	Structure Fire	JR/FB	
103	12-Dec-13		notification	Tanker carrying 9,000 L of kerosene spilled 48 Km west of Chetwynd. MOE lead and are working with company to remediate. Concern for 1 property owner's water well. MOE will monitor.	TDG	TM	
102	08-Dec-13		notification	Truck roll over at Wonowon carrying over 60,000L of gasoline. 300m area evacuated by RCMP which included 200 worker camp, gas station and a few residences - sent to school. PRRD NOT notified of evacuation. MOE lead on remediation.	TDG	TM	
101	09-Nov-13	143 757	ESS Level 1	1 home lost to fire outside of DC Fire Protection Area in Farmington. Provided support for clothing for family.	Structure Fire	TM/JR	
100	28-Oct-13		notification	EnCana wellsite kicked back. Site is flaring as a result. No public safety issues, contained to the site.	Oil & Gas	TM	
99	30-Sep-13		notification	Landslide occurred on Pine River west of Chetwynd near Grizzly Valley view point. No public impacted. MFLNRO to do assessment.	Landslide	TM/FB	
98	10-Sep-13		notification	Fire at Tervita site in Buick.	Oil & Gas	FB/JR	
97	22-Aug-13		notification	Landslide into Pouce River near AB border. No impact to public	Landslide	TM	
96	16-Jul-13		notification	Progress Energy well kicked back. No impact to public.	Oil & Gas	TM	

Peace River Regional District

Emergency Incident Register

95	20-Jun-13		notification	Oil spill near Boundary Lake. WCSS and Imperial Oil had incident contained within 24 hours. No public impacted.	Oil & Gas	TM
94	28-Jun-13		notification	Advised of a potential security and public safety threat on wellsite south of Wonowon. No evacuation required. RCMP now has incident under investigation.	Oil & Gas, Terrorism	TM, FB
93	26-Jun-13	141 388	EOC Level 1	Environment Canada and River Forecast centre advised that the South Peace could receive approximatley 100+ mm of rain in 48 hours. Advised to prepare for potential flood conditions. Sand and sandbags sent to five locations in the South Peace. In the end the north Peace near Pink Mountain received 98+ mm and the South Peace received between 50 and 70 mm in areas.	Weather Event, Heavy Rain	TM, FH, KM, JR
92	18-May-13		notification	1 home and outbuildings lost outside of DC Fire Protection Area near Farmington. Forestry attended as the structure fire also caused a grass fire. No ESS required.	Structure Fire	TM
91	15-May-13		notification	1/2 section fire in Charlie Lake. CLFD contained fire to site. No losses.	Grass Fire	TM
90	12-May-13		notification	1 ha fire at 4805 Bissett Drive, lost 2 utility trailers, 1 car hauler, 1 unserviceable vehicle, 1 storage shed with damage to garage	Structure Fire & Grass Fire	TM
89	06-May-13		notification	fire in Pouce Coupe rural fire protection area near an EnCana facility. EnCana evacuated site. Forestry also attended with PCFD, but was not needed as PCFD got situation under control. No losses.	Grass Fire	TM
88	05-May-13		notification	Fire north of Dawson Creek between 8th & 17th Streets. Grass fire threatened up to 6 properties. DCFD, PCFD and Forestry on site. Only structures lost were outbuildings.	Structure Fire & Grass Fire	TM
87	23-Apr-13		notification	Fire north of Dawson Creek on Loepp property. One building lost. No ESS required	Structure Fire	TM
86	16-May-13		no action	CN Rail derailment, train heading south towards Prince George was derailed at approximately 4:30 p.m. at the south Hasler Bridge approach about 35 kilometers west of Chetwynd.Twelve cars carrying palletized sulphur were derailed. Sulphur did spill into the right of way beside the track, but NO sulphur spilled into the Pine River.	Rail	TM
85	08-Mar-13	none available	see notes	Sinkhole developed on property east of Chetwynd as a result of a private drilling company who was drilling for domestic water and hit an artesian well. See file for more information	Sinkhole	TM, FB, SA
84	05-Mar-13		no action	Odour complaint from residents 29 km of Doig FN	Oil & Gas	FB
83	11-Dec-12		no action	House fire north of Wonowon, Fort St John Hospital requested ESS for owners but was after the 72 hours. Referred to Red Cross for further assistance.	Structure Fire	FH
82	28-Nov-12	133743	Level 1 ESS	House fire in Buick, family provided with clothing and incidentals	Structure Fire	TM/FH
81	17-Sep-12		notification	Tomslake Sudeteen Park fire, no ESS required, media reported 2 homes evacuated	Grass Fire	
80	14-Sep-12		notification	Tomslake Blockline fire, no ESS required	Grass Fire	
79	14-Sep-12		notification	Chetwynd West Fraser Mill fire - cone fire managed by Chetynd FD	Structure Fire	
78	14-Sep-12	132704	level 1 ESS	Notified by EMBC that there was a fire at the Alaska Hotel in Dawson Creek. Provided shelter for 4 people and clothing for 5 people.	Structure Fire	FH, FB,TM

Peace River Regional District

Emergency Incident Register

77	01-Aug-12		notification	notifiefd by Chetwynd Fire Chief that CN Rail suphur car caught on fire at Azouetta Lake, CN wanted to bring car while on fire to Chetwynd. Fire Chief convinced CN to leave in place and contract industrial crew to extinguish.	Rail	
76	09-Jul-12		No Action	Camberra sweet gas release 26 km north of Hudson's Hope. Level 2 incident but no residents for 12 km. Gas burned off and under control before notification even made to PRRD. No action required by PRRD.	Oil & Gas	
75	29-Jun-12		Monitoring Only	minor leak in Spectra line 20 km north of FSJ. No action required	Oil & Gas	
74	29-Jun-12		Monitoring Only	Rupture in 16" Spectra line and fire near Nig Creek compressor. No residents in area	Oil & Gas	TM, FB
73	08-Jun-12	131095	Level 1 ESS	house fire at 1687 Feist Ave, Rose Prairie. Provided clothing and incidentals for 5 family members.	Structure Fire	FH
72	05-Jun-12	131049	EOC Level 1	minor flooding in west Peace, provided sand and sandbags at 3 locations	Flooding	FB, TM, FH, CW
71	11-May-12		Monitoring Only	wildfire at South Taylor hill approximately 147 acres, Taylor FD and MOF actioned	Grass Fire	
70	10-Mar-12		Monitoring Only	Suncor rig fire, no evacuations required, OGC responding with Suncor	Oil & Gas	TM, FB
69	09-Mar-12		No Action	Odour complaint from residents on 283 Rd N of Fort St John & self evacuated, OGC determined that when power went off, compressor station flared off gas in the line as per normal procedure	Oil & Gas	TM
68	24-Feb-12		Monitoring Only	Well site across from WAC Bennett Dam kicked back during drilling, minor explosion, no action required and no residents in area	Oil & Gas	FB,FH
67	30-Nov-11		No action	Cecil Lake fixed wing plane crash - search and rescue deployed	Plane Crash	
66	06-Nov-11		Monitoring Only	Bonavista well site, well casing leak near Hwy 97 & Doig First Nation, no residents affected - well shut in	Oil & Gas	FB, TM
66	29-Oct-11		Monitoring Only	Shell wellsite near Gundy Creek Road required to be shut in and killed	Oil & Gas	TM
65	15-Aug-11		No Action	house fire in Charlie Lake, ESS not required	Structure Fire	TM
64	12-Aug-11		No Action	noise complaint by resident referred to OGC	Oil & Gas	FB
63	08-Jul-11	121305	EOC Level 2	Second rain event continues flooding in Peace, mainly in west and south of Dawson Creek	Weather Event, Heavy Rain, Flooding	All
62	26-Jun-11		Monitoring Only	CNRL Pipeline leak near Cypress Creek, Level 2 incident, pipeline bled off	Oil & Gas	TM, FB
61	24-Jun-11	121305	EOC Level 2	Peace Region flooding mainly in the west Peace	Weather Event, Heavy Rain, Flooding	all
60	27-May-11		Monitoring Only	Murray FSR gas release due to mine exploration, OGC reported and monitored	Oil & Gas	TM
59	23-May-11		Monitoring Only	Boundary wildfire contained to <10 ha	Wildfire	TM, FB
58	16-May-11	120 864	EOC Level 1	Moberly Lake flooding, provided sand and sand bags for residents	Weather Event, Heavy Rain, Flooding	TM, FB, FH, SA, CW, BS
57	31-Mar-11		Monitoring Only	Progress gas release between Mile 95 Rd & Wonowon: well shut in, no evacuation required	Oil & Gas	TM
56	20-Jan-11		No Action	Horner house fire (mile 64), left message for home owner to provide ESS, did not hear back	Structure Fire	TM

Peace River Regional District

Emergency Incident Register

55	18-Jan-11		Monitoring Only	Trident Exploration - Arras well gas leak, Level 2 incident, sweet gas, no evacuation required	Oil & Gas	TM, FB
54	16-Jan-11		Monitoring Only	Pine pass avalanche, highway closed over 24 hours	Avalanche	FB, TM
53	28-Dec-10		Monitoring Only	One Island Lake gas leak at Apache wellsite		TM, SA
52	12-Nov-10		No Action	Brown house fire, ESS provide by Chetwynd ESS Team		FH, FB
51	28-Oct-10		No Action	Spectra pipeline odour		TM, FB
50	13-Aug-10		Monitoring Only	CN derailment near Lemoray in the Pine Pass, 1 car contained toxic substance.	Rail	TM, FB
49	22-Jul-10		Monitoring Only	wildfire north of Williston Lake		TM
48	29-Jun-10	111 444	level 1 ESS	house fire in Cecil Lake, provided 48 hrs of services		TM
47	20-Jun-10	267 Incident 100	Evacuation Alert	Fire in Beatton, potential to affect Petrobakken gas plant - issued evacuation Alert		TM, FB
46	16-Jun-10	267 Incident 100	Evacuation Alert	fire in Pink Mountain close to subdivision - issued evacuation Alert		TM, FB
45	22-May-10		No Action	BC Hydro Mass power outage due to snow, 7,000 customers without power		TM
44	14-Apr-10		No Action	Encana threat letter to Dawson Creek Daily News		TM
43	March 8, 2010		Monitoring Only	Truck rollover north of Wonowon, handled by MOE and FSJ FD		TM
42	Sun Dec. 12, 2009	104 012	Level 1 ESS	Tomslake house fire		RM
41	Fri, Dec 3, 2009	103 900	Level 1 ESS	Briar Ridge house fire		RM
40	Sun, Nov 22, 2009		No Action	Gas Leak, 15-20 people self-evacuated and back in home -possible court action occuring		RS
39	Fri Oct 29, 2009		No Action	Notified by MOE of small pipeline break and release of product into Alces Creek		RM
38	Wed. Oct 13, 2009	103 085	Level 1 ESS	Farmington house fire, ESS called out by Dawson Creek Hospital		RM
37	Fri, July 10, 2009		No Action	Notified by MOFR of stranded campers on Johnson Creek FSR, campers refused help and left on own		RS, TM
36	Thurs, July 9, 2009		No Action	Notified by Shell of berm break leak of water off lease into Brassey Creek		RS
35	Sat, July 4, 2009		Press Release	Notified by EnCana & RCMP about 6th explosion, Board issued press release		RS, FB
34	Wed, July 1, 2009		No Action	Notified by EnCana & RCMP about 5th explosion		RS, FB
33	Fri, Jun 12, 2009		No Action	Plane crash near Chetwynd, liase with Chetwynd FD for more information		RS, TC
32	Fri, Jun 12, 2009		No Action	Bomb blast (reststop) South of Pouce Coupe vandalism suspected not by Encana bomber		RS
31	Fri, Jun 5, 2009		Staff Assistance	Smith River Fire - RS & TM travelled to Fort Nelson to assist in the response at PEP's request		RS, TM
30	Wed, Jun 3, 2009		Temporary Shut Down	Blackfoot Water Well E Coli counted too high, well temporarily shut down until new sample and cleared by Northern Health		RS, GK, TM
29	Mon, May 25, 2009		No Action	Wonowon Pine Hills Restaurant fire, ESS not required		RS
28	Tues, May 5, 2009		No Action	Charlie Lake Store Fire, ESS not required		RS
27	Mon, May 4, 2009		No Action	Cecil Lake Grass Fire, MOF notified EEC but no action required		RS
26	Mon, Apr 27, 2009		No Action	H1N1 Advisory by Northern Health (information only)		RS, TM
25	Fri, Feb 20, 2009		No Action	Spectra Pigging Explosion		RS
24	Sun, Jan 3, 2009		No Action	Notified by Encana about 4th explosion		RS
23	Thu, Dec 18, 2008		No Action	Iteration Gas Site Vandalism, not notified about incident until several days after incident		RS

Last update 04/02/2016

Peace River Regional District

Emergency Incident Register

22	Fri, Dec 09,2008		No Action	Moberly Lake housefire, no response from homeowners for assistance	RS, RM
21	Sun, Nov 23, 2008		No Action	Notified by MOE, Peace Pork structure fire killing mass livestock	RS
20	Tue, Nov 11, 2008		No Action	Conoco Phillips Rig Fire No Rural Residents Impacted, PRRD was notified	RS
19	Sat, Oct 25, 2008		No Action	Jackfish housefire, information came to us 2 days after the fire	RS
18	Fri, Oct 17, 2008		No Action	Braisey housefire, resident declined ESS assistance	RS
17	Sun, Oct 12, 2008		No Action	TDG on Beatton Airport Road, RD notified	RS
16	Sun, Aug 17, 2008		No Action	Sulpher Fire, EPC Chetwynd notified Director Caton	RS
15	Wed, Aug 13, 2008	092 260	Level I ESS	Administer ESS Level I to Rolla Housefire Victim	RS,TM, RM
14	Tue, July 5, 2008	092 138	No Action	Housefire at secondary residence Szoo Rd, N of Watson Spring, thanked us, but delined assistance	RS
13	Thu, May 15, 2008	090 824	Level I ESS	Progress Housefire Victim	RS TM
12	Wed, May 8, 2008	090 737	Level I ESS	Rural Upper Halfway Reserve Fire Victim	RS TM
11	Wed, Apr 16, 2008	N/A	Obtain Resources	Bunkhouse fire then subsequent Propane fire at Sasquatch Crossing (Pink Mtn)	RS
10	Feb,??,2008	N/A	No Action	Taylor Rural Housefire Decline ESS	RS
9	Mon Feb 11, 2008	085158	Level I ESS	Arras housefire	RM
8	Dec 2008	N/A	Liase with OGC	Conoco Phillips Rig Fire No Rural Residents Impacted	RS
7	Fri. Jun 1 2007	080 790	Level I ESS	Charlie Lake Fire Burnout Victim	RS
6	Mon. Jun 4 2007	various	Activate EOC	Possible flooding impacting low lying areas, Moberly Lk, Hasler Flats, Upper Halfway	RS
5	Mon. May 7 2007	N/A	Liase with OGC	Pipeline sour gas leak in Montney, liase with OGC for additional information	RS
4	Fri. May 25 2007	080 948	Activate EOC	Evacuation Order implemented in Wonowon re: commercial fire in hotel with fuel component	RS DK GK SS CW
3	Wed. Jan. 10 2007	074 764	Activate EOC	Broker information on behalf of a multi-agency response in the South Peace (Braden Rd)	RS
2	Sat. Aug. 5 2006	N/A	Liase with OGC	Encana well fire close to Tomslake, liase with OGC for additional information	SA FB
1	Tue. Jul. 4 2006	070 600	Activate EOC	Interface fire Evacuation Alert implemented on behalf of Wonowon residents	RS and office

From: bcaem-members@googlegroups.com [mailto:bcaem-members@googlegroups.com] **On Behalf Of** Bill Elsner
Sent: Thursday, October 22, 2015 2:48 PM
To: BCAEM membership list <bcaem-members@googlegroups.com>
Subject: [BCAEM-Members] FW: Release of the EMBC Strategy To Advance Support For Local Authority EM Programs
Importance: High

For the interest of those of you that may not receive this recently released document:

Note that under *Themes for Success 2: Relationship Building Actions to Enhance Relationships* on page 10-11 EMBC will appoint a liaison to work with BCAEM and others.

Regards,

Bill

Bill Elsner CEM, CTR
Director, Southwest Region
British Columbia Association of Emergency Managers
604-885-6887
www.bcaem.ca
From: Cunnings, Ian TRAN:EX [mailto:Ian.Cunnings@gov.bc.ca]
Sent: October-22-15 2:12 PM

Subject: Release of the EMBC Strategy To Advance Support For Local Authority EM Programs
Importance: High

In our continued efforts to support local government partners we are now able to introduce the EMBC three-year strategy for services to local governments. The attached document entitled "**A Strategy To Advance Support For Local Authority Emergency Management Programs**" has just been approved and is being made available on the EMBC website. The strategy is designed to increase the support offered by EMBC to local authorities as they work to build and improve their emergency programs.

The goals of the strategy are:

1. To apply a flexible approach to tool development that recognizes the differences between local authority emergency programs;
2. To provide EMBC staff the tools, resources and training to ensure effective program delivery to local authorities;
3. To create more opportunities for meaningful dialogue and communications between EMBC and local authorities; and
4. To promote leadership and provide governance through partnership, collaboration and shared learning.

Emergency Program Coordinators and EMBC staff are the mainstay of emergency management for BC communities; working together towards the goals in this strategy will further strengthen emergency management in BC.

If you have any questions or comments, don't' hesitate to get a hold of myself Chad or Sandy.

Ian Cunnings
Senior Regional Manager, Southwest Region

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EMERGENCY MANAGEMENT BRITISH COLUMBIA

A STRATEGY TO ADVANCE SUPPORT FOR LOCAL AUTHORITY EMERGENCY MANAGEMENT PROGRAMS

OCTOBER 14, 2015

MESSAGE FROM THE ASSISTANT DEPUTY MINISTER

I am pleased to introduce this three-year strategy for our services to local governments. Emergency management is a shared responsibility. That said, Emergency Management British Columbia (EMBC) has a unique leadership role in providing support and guidance to local authority emergency programs. Over the course of the last year, we have reviewed past consultations, sought guidance from emergency program coordinators, held internal discussions and studied other jurisdictions in order to seek ways that we can improve our service delivery to local authority emergency programs.

There is an increasing acknowledgement that strong local emergency management programs have a direct influence on a community's degree of resilience when faced with a disaster. This strategy is designed to improve the support offered by EMBC to local authority emergency programs as they work to build and improve their programs. The goals of the strategy are:

1. To apply a flexible approach to tool development that recognizes the differences between local authority emergency programs;
2. To provide EMBC staff the tools, resources and training to ensure effective program delivery to local authorities;
3. To create more opportunities for meaningful dialogue and communications between EMBC and local authorities; and
4. To promote leadership and provide governance through partnership, collaboration and shared learning.

This strategy is an important step towards EMBC's commitment to the strategic goal: "EMBC is effective in supporting other responsible authorities in their mandate to mitigate and manage emergencies and disasters." Emergency Program Coordinators supported by EMBC staff are the backbone of emergency management for BC communities. The diverse list of deliverables in this strategy reaffirms the long-term commitment to enable the success of emergency programs.

Pat Quealey
Assistant Deputy Minister
Emergency Management BC

Expected Outcome

Local authority emergency programs are well supported through consistent communications and improved, modernized tools provided by EMBC.

Strategic Goals

- To apply a flexible approach to tool development that recognizes the differences between local authority emergency programs.
- To provide EMBC staff the tools, resources and training to ensure effective program delivery to local authorities.
- To create more opportunities for meaningful dialogue and communications between EMBC and local authorities.
- To lead and provide governance through partnership, collaboration and shared learning.

Themes for Success/Priority Actions

Leadership through knowledge sharing

- Determine appropriate ways to promote knowledge sharing within the field of practice between Emergency Program Coordinators.
- Cultivate knowledge sharing through existent and new networks.
- Continue Annual Seasonal Readiness Workshops.
- Host facilitated provincial discussions.

Relationship building

- Regularly participate in events such as the Emergency Preparedness and Business Continuity Conference etc.
- Re-invigorate the community profile process and review the current template to include mitigation considerations.
- Ensure linkages between local government strategies, regional emergency management partnership strategies and provincial strategies to enhance information sharing, eliminate duplication of effort and foster greater collaboration.
- Appoint an EMBC liaison to work more closely with those organizations serving local authorities and emergency programs.

Improved external communications

- Update local authority-specific website content for clarity and ease of use.
- Conduct ongoing reviews of local authority-specific website content to ensure it is up-to-date.
- Establish a communication protocol for the organization to ensure that regional staff and EPCs are well informed of all projects and policy changes.
- With input from Government Communications and Public Engagement, develop a workshop that outlines the different methods and tools that are available for engagement within the BC Public Service for EMBC staff.

Enhanced tools and policy

- Develop materials that outline the legislated requirements of a local authority emergency programs.
- Update the document "Financial Assistance for Emergency Response and Recovery, A Guide for BC Local Authorities and First Nations".
- Update Emergency Operation Centre Forms. The priority for the first year of this strategy will be the Situation Report.
- Create a toolkit for local authority emergency management planning.
- Update the Hazard, Risk and Vulnerability Tool.
- Update the recovery toolkit.
- Consider the development of mobile applications to augment tools.
- Analyze current EMBC policy and related procedures to determine areas for change. Work with the EMBC policy team to create or update policy as determined by analysis.

Supported regional staff

- Provide training and supporting materials to regional staff for each resource developed.
- Support training in areas that will directly impact and enhance the capacity of staff to service local authorities.

Contributing to the achievement of the EMBC Strategic Goal: EMBC is effective in supporting other Responsible authorities in their mandate to mitigate and manage emergencies and disasters.

Limitations/Constraints

- Resources/Finances
- Training
- Time

Considerations

Local Government

- Diversity of local government programs in capacity, experience, hazards and governance model
- Degree of support from local government bodies is varied
- Desire for more learning opportunities
- Desire for consistent communications from EMBC
- Desire for updated tools and policy
- Desire for an easy-to-use website
- Desire to be consulted from the beginning on projects or policy that will affect them
- Desire for more collaboration

Emergency Management BC

- Consistent approach, interpretation and application of tools and policy across the province is required
- Desire for an intuitive website
- Need for increased support in the implementation phase of policy and tools in order to ensure their long-term success
- Desire for more opportunities for relationship building through face-to-face meetings, participation in exercises and planning
- Increase support to local government preparedness activities

INTRODUCTION

This strategy is directly related to the Emergency Management British Columbia (EMBC) Strategic Plan (2014-2017). Part of EMBC's mission is to support other authorities within their areas of jurisdiction. The third goal of EMBC's Strategic Plan states: "EMBC is effective in supporting other responsible authorities in their mandate to mitigate and manage emergencies and disasters."

As specified under the *Partnerships* line of effort, "Over the course of the next three years, EMBC intends to better engage local authorities through a variety of communication methods, to modernize the tools that are available, and to promote a better understanding of EMBC policies, roles and responsibilities."

This document specifically meets the 2014/15 deliverable of the EMBC Strategic Plan: "Based on research and a gap analysis develop a strategy to engage, inform and support local authority emergency management programs." As such, this strategy outlines actions to advance EMBC service delivery to local authority emergency programs. The primary scope of this strategy is to support the EMBC Regional Offices in their work with local authorities. Thus, several of the actions described in this strategy are either general emergency management deliverables or are related to the policies, procedures and provincial toolkits that are available and promoted by regional staff.

EMBC has six regional offices working closely with all emergency management stakeholders including local governments, First Nations, federal departments, industry, non-government organizations and volunteers. The six EMBC regional offices have a total combined staff of less than 20 personnel who, in some cases, do their work across vast distances in areas ranging from urban to rural.

There are other areas of EMBC that provide ongoing, direct support to local authorities including the Flood Protection Program, Disaster Financial Assistance, Public Education, the Public Safety Lifeline Volunteer program, and the Training and Exercise Program. Although this strategy was developed with their support, it does not outline the deliverables of those programs over the next three years. This strategy is an evolving document and it will be reviewed and adjusted at the end of each fiscal year.

In order to establish a broad understanding of the relationships between EMBC staff and local authorities, a questionnaire was distributed to local authorities asking about the tools that are used on the EMBC website and recommendations for enhanced engagement and communications. One-on-one interviews and focus groups were also held with EMBC staff across the organization. Furthermore, Canadian and international emergency management organization websites were reviewed to look at current support and tools offered by other jurisdictions. By reviewing these websites a general understanding of potential improvements to EMBC tools and websites was observed. The tools that are referenced in this document include the guidelines and forms that are available on the EMBC website (for example, the Evacuation Guidelines and EOC forms). Previous EMBC studies and consultations were also reviewed.

All of the above inputs led to the development of the themes for success outlined here. Priorities were determined by focusing on changes and initiatives where there is the **largest impact** as well as **a realistic reflection of current resources**. A reflection of this is that many of the actions outlined in this strategy are **province-wide**. The actions in this strategy should be considered as steps in the evolution of EMBC activities.

VISION AND END STATE

Vision: EMBC is engaging and communicating with local authority emergency management programs through high quality service delivery.

The intended long-term outcome for this framework is that local authority emergency programs are well-supported through consistent communications and improved, modernized tools provided by EMBC. By enhancing a model of engagement that encourages partnership, dialogue and ongoing problem solving, it is anticipated that EMBC will better understand relevant issues and will be better able to seek cooperative solutions and support local authorities as a result. Through increased understanding and interactions, EMBC and local authorities will work to achieve the shared goal of a safer British Columbia.

GOALS FOR SUCCESS

This strategy is designed to enhance and augment EMBC's communication, support and engagement with local authority emergency programs, specifically focusing on general emergency management programming. There are four goals related to this strategy:

1. To apply a flexible approach to tool development that recognizes the differences between local authority emergency programs;

2. To provide EMBC staff the tools, resources and training to ensure effective program delivery to local authorities;

3. To create more opportunities for meaningful dialogue and communications between EMBC and local authorities; and

4. To promote leadership and provide governance through partnership, collaboration and shared learning.

Five themes for success have been identified based on the interviews and research that were conducted while forming this strategy. These themes will guide the actions of EMBC for the next three years. The themes for success are:

1. Leadership through knowledge sharing;

2. Relationship building;

3. Improved external communications;

4. Enhanced tools and policy; and

5. Supported regional staff.

GUIDING PRINCIPLES FOR EMBC ENGAGEMENT AND COMMUNICATION

EMBC AS A SUPPORTIVE BODY

As an organization, EMBC aims to provide guidance and expertise while recognizing that local Emergency Program Coordinators (EPCs) are the experts and leaders within their communities.

COMMUNICATION IS A TWO-WAY PROCESS

In order for communication to be effective, it must be an active dialogue between local authorities and the Province through EMBC. Communications will aim to build a relationship that is empowering, collaborative and cooperative, and rooted in meaningful dialogue.

FOCUSED ON IMPROVEMENT

The aim of work done to support and engage local authorities will seek to bring advancements to both local authorities and EMBC through increasing efficiencies, collaborative problem solving and the attainment of shared goals.

CLEAR AND CONCISE CONTENT

Publications and communications will be written in clear and concise language in order to ensure understanding as well as encourage uptake and effective use.

FLEXIBLE PRODUCTS

Products will be released in different formats in order to recognize the diversity in size, resources and requirements of different emergency programs. Wherever possible, products will be scalable in order to meet the needs and requirements of different emergency programs.

RECOGNIZE AND UNDERSTAND COMPLEXITY

Emergency managers are better positioned to support the community when they have an understanding of the unique characteristics and interdependencies within the local context. Through regular interactions with local authorities and their emergency programs, EMBC staff will better understand each local authority's unique qualities and complexities leading to a more comprehensive support for the community.

STRATEGIC CONTEXT

TRENDS

Overall, governments are facing increased severity and frequency of emergencies due to factors such as environmental change, increased urbanization and development in high-risk areas. The economic impacts of more recent emergencies are staggering, and costs will continue to rise. An example of this is the 2013 floods in Southern Alberta which resulted in an estimated six billion dollars of loss.[1] These long-term effects are not limited to large events. Many small or medium emergency events present long-standing impacts and legacies for communities.

Over the course of several years, the field of emergency management has changed and evolved. Historically, the primary focus of emergency managers was to lead the response to an emergency event. Now the field is extremely diverse and is specializing. Reflective of this professionalization of the field is the increased number of emergency management academic programs that are further shifting the field towards a social science. In addition to applying further skills and resources to the phases of preparedness, mitigation and recovery, the influence of emergency management in community planning and social stability is becoming increasingly recognized.

This shift in the field is also creating the need for emergency managers to diversify their skill sets. There is an increased demand for emergency managers to be adaptive, innovative and effective communicators. According to the Conference Board of Canada, skills in political awareness, stakeholder management and systems thinking are necessary to effectively address the dynamic and complex issues that are faced within the field of emergency management both now and in the future.

There is also an increased recognition by government bodies that the community level is often the best place to begin to address some of the complex problems or risks. The entry of this train of thought to the emergency management field is nicely summarized in the Australian Government's *Community Engagement Framework*:

> "A 'community safety approach' to building disaster resilience recognizes active engagement with and empowerment of the community as central to achieving resilience over the long term. This approach does not reduce government or agency responsibility in emergency management, but strengthens community participation and influence. It recognizes that resilience is enhanced when communities play a key role in their own safety…Disaster resilience is based upon existing strengths and relationships. Individuals and communities are the starting point to build disaster resilience and the way to work with communities is to connect with what is already there. At a practical level this means working in partnership with the community, building on existing networks, resources and strengths, identifying and supporting the development of community leaders and empowering the community to exercise choice and take responsibility. It means adopting flexible approaches in the way we communicate with and within communities."

Internationally there are several examples of shifting national approaches toward building local capabilities and resilience, as well as capitalizing on the expertise held at the local level. Approaches built to strengthen a community's level of resilience often aim to identify the interdependencies and relationships that do and can exist within a community. There are many elements that contribute to the degree of community resilience, including local leadership, capacities, degrees of personal preparedness, and the social fabric of a community.

[1] Canadian Disaster Database, www.publicsafety.gc.ca

In reflecting on these trends, it is clear that the professional and geographic context is changing for emergency managers. Emergency managers at all levels of government are facing similar challenges and exploring parallel questions across the province and the world.

OPPORTUNITIES

Within British Columbia we are fortunate to have a body of passionate, skilled and experienced Emergency Program Coordinators and a strong network of relationships between practitioners. Across the province, EPCs are stepping forward as leaders in their communities, working tirelessly to improve public safety within their communities. Strengthening and supporting the efforts of these leaders is a great opportunity.

In addition there is a growing body of knowledge from both practitioners and academia regarding emergency events, preparedness and recovery. There are many resources at the local, provincial/state and national level that reflect current best practices and lessons learned.

New technology, such as social media, online meeting tools, blogs and wikis, makes collaboration and communication in diverse ways less expensive and achievable. These technologies provide opportunities to diversify the way that organizations communicate with their stakeholders and meet the varied needs of the audience.

EMBC is already part of an extensive network of organizations that includes private sector, ministry representatives, and federal, provincial and territorial governments. EMBC staff are leaders in facilitating multi-level, cross-sector collaboration. There is an opportunity to capitalize on these already established relationships with the intent of addressing some of the concerns of local authority emergency programs.

This strategy represents a number of excellent opportunities to strengthen the degree of public safety across the province, through enhanced support to local authority programs. Increased relationship building and face-to-face interactions will increase EMBC's capability to address the unique and complex environment at the local level. Flexible tools will increase the degree of use by local emergency programs, particularly if they are developed in collaboration with those in the field. This strategy also aims to increase organizational efficiencies, leading to an increase in the amount of time available to staff and emergency programs. Overall, through improved communications, encouraging support amongst EPCs and enhancing tools, this strategy is expected to positively influence public safety within communities across the province.

CHALLENGES AND RISKS

There are a variety of challenges and risks that will influence the outcomes of this strategy. The approaches in this strategy reflect a change to the way that EMBC engages and communicates with local authorities. Organizational changes take time, and there will need to be appropriate support, training, communication and discussion amongst EMBC staff to encourage and solidify that shift.

In order for the strategy to be successful, it must be appropriately resourced to ensure that momentum is maintained with both staff and local authorities. The capacity and time of EMBC staff and local authorities to participate in the initiatives outlined in this strategy are limited and, as a result, projects must be well-managed to ensure success and buy-in.

The willingness of local authorities to be engaged in some of the initiatives is expected to vary. Those who are willing to be engaged will have input to the changes to tools, policy and processes.

The complexity of some of the policy areas within the field of emergency management also poses a challenge. Several of the challenges that emergency managers face in all levels of government are multi-faceted and require many diverse solutions. Often, several pieces of legislation overlap and diverse groups with varied interests are impacted. Because of this complex context, in order to make progress all parties must commit to a collaborative approach that promotes compromise, understanding, partnerships and ongoing improvement.

THEME FOR SUCCESS 1: LEADERSHIP THROUGH KNOWLEDGE SHARING

During the interviews, there was strong consensus among the EPCs for EMBC to exert additional leadership in promoting information sharing regarding current best practices in the field. This includes sharing best practices and lessons learned from other jurisdictions, providing access to current research, and exposing challenges for discussion. Part of the basis for this was that EMBC is in the unique position of being regularly exposed to emergencies and experts in the field provincially, nationally and internationally.

EMBC learns a great deal from the EPCs who, as a group, have expressed the desire to learn from EMBC. There is also an opportunity for EPCs to learn from each other. It was clear in the local authority questionnaire results that there are universal challenges across emergency programs, such as time constraints, limited funding, and gaining or maintaining the status of emergency programs within the local government structure. Resource levels and the amount of personal experience also influence the degrees of success that are experienced by local authority programs. In addition, the future challenges of increased severity and frequency of emergencies, and the need to increase community resilience are also equally faced by EPCs and the Province.

There are a number of groups across the province and the country that offer a forum for knowledge sharing, such as the BC Association for Emergency Managers, the Canadian Risks and Hazards Network , and regional emergency management councils. Cultivating knowledge sharing through pre-existing networks, as well as finding new ways to promote knowledge will create opportunities for meaningful discussions and learning.

By working to build knowledge within the province, EMBC aims to exemplify leadership in the field and to expose EPCs to new ideas. Through a dedicated effort, EMBC would like to encourage a strong information sharing network amongst EPCs so they are able to build off each other's successes and lessons learned.

ACTIONS TO BUILD KNOWLEDGE

- Determine appropriate ways to promote knowledge sharing within the field of practice between EPCs. Cultivate knowledge sharing through existent and new networks;
- Continue annual seasonal readiness workshops;[2] and
- Host facilitated provincial discussions regarding topics such as:
    - Lessons learned in recent emergencies;
    - Informed practices to address universal challenges felt by emergency programs, such as public apathy or preparedness campaigning; and,
    - New tools and research.

THEME FOR SUCCESS 2: RELATIONSHIP BUILDING

In emergency management, partnerships and strong relationships contribute to the effectiveness of response and recovery. Relationships work to break down barriers, reduce preconceived judgments and provide a better understanding of stakeholder roles, responsibilities and resources.

[2] Seasonal readiness workshops are hosted by regional staff and are held once or twice a year depending on the region. Participation is both face-to-face and via conference call.

Overall, the results of the EMBC regional staff and local authority questionnaires were similar. It is clear that regional EMBC staff have an understanding of the needs, interests and concerns of EPCs. This understanding is built on the strength of the personal relationships that have developed between regional staff and the local authorities. EMBC regional staff stressed how important face-to-face interactions are for relationship building. Opportunities for face-to-face interactions include the Seasonal Readiness Workshops, one-on-one meetings, planning committee meetings, training and exercises, and conference or event participation. The level of involvement in local authority exercises and planning varies across the regions. In addition, regional staff feel that regularly completing community risk profiles is an excellent way to gain an understanding of the intricacies and capabilities of each emergency program.

Frequent staff turnover within emergency programs also illustrates the importance of investing in relationship-building. EMBC must be able to consistently invest time to do this in order to stay apprised of local strengths and challenges, as well as provide appropriate guidance to EPCs when it is requested.

In addition to continuing to build relationships between EMBC and local authorities, there is a potential for EMBC to capitalize on its current partnerships and relationships with other agencies with the intent of increasing support for local authority emergency programs.

ACTIONS TO ENHANCE RELATIONSHIPS

- Regularly participate in events such as the Emergency Preparedness and the Business Continuity Conference;
- Re-invigorate the community risk profile process and review the current template to include mitigation considerations;
- Ensure linkages between local government strategies, regional emergency management partnership strategies and provincial strategies to enhance information sharing, eliminate duplication of effort and foster greater collaboration; and
- Appoint an EMBC liaison to work more closely with those organizations serving local authorities and emergency programs, such as the BC Association of Emergency Managers, the Local Government Management Association, and the Union of BC Municipalities. Look for opportunities to present at meetings and AGMs.

THEME FOR SUCCESS 3: IMPROVED EXTERNAL COMMUNICATIONS

Currently EMBC communicates with local authorities through a variety of means including face-to-face meetings, conferences , training events and seasonal readiness workshops. Overall EMBC would like to improve external communications by creating more opportunities for interaction with local authorities and promoting dialogue around information and improvements. A general desire for consistent and regular communications from the organization was highlighted by local authorities.

A major tool in communicating with stakeholders is the EMBC website. It is host to an extensive suite of tools that touch on many of the key elements of emergency planning, response and recovery. For many years, the EMBC website has been a key source of information for local authorities. Regardless of the extensive depth of information on the website, feedback received through the consultations indicate that use of the EMBC website has dropped. By re-organizing and rewriting the section of the website dedicated to local authority emergency programs, efficiencies will be felt by EPCs and EMBC staff alike.

In addition to the website, there are other communication and engagement methods that could be employed to augment EMBC's current external communications with local authorities. Generally, communications are most effective when they are consistent, regular and through a variety of means. In stakeholder engagement, it is also ideal that stakeholders are informed as early as possible and that information is shared openly. Feedback from the local authority survey, previous consultations and observations in the field clearly indicate that local authorities would like to be engaged and informed at the beginning of projects and initiatives. The type of engagement or communication method that is used during a project is also ideally informed by the desired outcome. For example, an information campaign for the public would be wide-reaching and apply different engagement methods than a negotiation amongst a small group regarding responsibilities for an emergency management plan. By working to communicate consistently through diverse methods and to employ appropriate methods of engagement, there is an opportunity to better serve local authority emergency programs.

ACTIONS TO IMPROVE COMMUNICATIONS

- Update local authority-specific website content for clarity and ease of use;
- Conduct ongoing reviews of local authority-specific website content to ensure it is up-to-date;
- Establish a communication protocol for the organization to ensure that regional staff and EPCs are well-informed of all projects and policy changes; and
- With input from Government Communications and Public Engagement, develop a workshop that outlines the different methods and tools that are available for engagement within the BC Public Service for EMBC staff.

THEME FOR SUCCESS 4: ENHANCED TOOLS AND POLICY

There are several tools and publications on the EMBC website designed for local authority emergency programs. The needs and experience level of the emergency management programs within local authorities vary, and tools must continue to reflect the diverse needs of emergency programs in B.C. It is important that tools on the EMBC website are diversified, scalable and current, and ones that reflect the changes in the field of emergency management. Furthermore, the intended audience and uses of the tools or publication must be clearly outlined. Additionally, new delivery methods such as video, infographics and self-directed learning could be used to augment the understanding of the tools and of emergency management at the local authority level.

EPCs in the province represent a wealth of information and experience. There is a great opportunity to build on this by properly engaging local authorities in product development. In addition, by involving EPCs, the tools will better reflect the local context and diversity of programs. Their involvement will be crucial in ensuring that the tools are scalable whenever possible. In order to capitalize on the wealth of experience held at the local level, EMBC will work to engage local authorities through the entire cycle of the creation of tools and guidelines so that tools reflect their needs and capacities.

EPCs would appreciate a better understanding of requirements under legislation and general recommendations for their emergency programs. Moving forward, tools shall continue to reflect what is required by legislation and what is optional (i.e. driven by community needs or requirements).

EMBC would like to improve its policy program and better outline the process of analysis, development, consultation and ongoing review. In addition, EMBC would like to simplify procedures wherever possible with the hopes of freeing up time for staff and EPCs to focus on other important work. These updates to the policy program would aim to ensure that:

- EMBC policy is kept up-to-date and is reflective of current practices;
- EMBC policies related to local authorities continue to be applied consistently across the province;
- There is a common understanding regarding policy among staff and local authorities;
- Local authorities continue to be engaged in the policy development process; and
- Processes related to policy are straightforward and simple to execute.

ACTIONS TO IMPROVE TOOLS AND POLICY

- Develop materials that outline the legislated requirements of local authority emergency programs;
- Update the document *Financial Assistance for Emergency Response and Recovery, A Guide for BC Local Authorities and First Nations;*
- Update EOC forms with the priority for the first year of this strategy being the Situation Report;
- Create a toolkit for local authority emergency management planning;
- Update the Hazard, Risk and Vulnerability Tool;
- Update the recovery toolkit;
- Consider the development of mobile applications to augment existing tools; and
- Analyze current EMBC policies and related procedures to determine areas for change and work with the EMBC policy team to create and update policy as necessary.

THEME FOR SUCCESS 5: SUPPORTED REGIONAL STAFF

In order for the educational materials and guides to be successful EMBC staff need to be supported and trained so that they can communicate and facilitate the use of the tools with ease. For each resource that is developed, it is crucial that accompanying training is available for EMBC staff. Modules for training delivery to local authorities will also ensure that resources are implemented consistently. By employing various training platforms regional staff can better support local authorities through a variety of methods such as face-to-face, self-study and facilitator-led options. This will guarantee that EMBC staff are well-equipped to assist local authorities with using EMBC tools.

In addition, staff require ongoing relevant training to maintain their level of expertise and to continue to be valuable leaders in support of local authorities. It is important that EMBC staff are continuously learning in order to appropriately fill leadership roles and support local authority emergency programs.

ACTIONS TO SUPPORT REGIONAL STAFF:

- Provide training and supporting materials to regional staff for each resource developed; and
- Support training in areas that will directly impact and enhance the capacity of staff to service local authorities such as:
    - Advanced interpersonal communications;
    - Facilitation and conflict resolution;
    - Crisis leadership;
    - First Nations cultural awareness;
    - Project and strategic planning;
    - Training related to local government structure and governance; and
    - Exercise development and design.

SUMMARY THREE-YEAR ACTION PLAN

Theme for Success	2015/16	2016/17	2017/18
Leadership Through Knowledge Sharing	Determine appropriate ways to promote knowledge sharing within the field of practice between Emergency Program Coordinators (EPCs). Cultivate knowledge sharing through existent or new networks.		
	Continue annual seasonal readiness workshops.		
	Host facilitated provincial discussions.		
Relationship Building	Regularly participate in events such as the Emergency Preparedness and Business Continuity Conference.		
		Re-invigorate the community risk profile process and review the current template to include mitigation considerations.	
	Ensure linkages between local government strategies, regional emergency management partnership strategies and provincial strategies to enhance information sharing, eliminate duplication of effort and foster greater collaboration.		
	Appoint an EMBC liaison to work more closely with those organizations serving local authorities and emergency programs, such as the BC Association of Emergency Managers, the Local Government Management Association, and the Union of BC Municipalities. Look for opportunities to present at meetings and AGMs.		
Improved External Communications	Update local authority-specific website content for clarity and ease-of-use.		
		Conduct ongoing reviews of local authority-specific website content to ensure it is up-to-date.	
		Establish a communication protocol for the organization to ensure that regional staff and EPCs are well-informed of all projects and policy changes.	
			With input from Government Communications and Public Engagement, develop a workshop that outlines the different methods and tools that are available for engagement within the BC Public Service for EMBC staff.

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Training related to local government structure and governance; and
Exercise development and design.</td></tr>
</table>

For Reference:
January 26, 2012 EEC requested bylaws be placed on all future agendas

PEACE RIVER REGIONAL DISTRICT
By-law No. 1598, 2005

A by-law for the establishment of an Emergency and Disaster Service for Electoral Areas 'B' ,'C', 'D' and 'E'.

WHEREAS, the *Emergency Program Act, R.S.B.C. 1996, c. 111* authorizes the Board of the Peace River Regional District to undertake measures to prepare for, respond to, and recover from emergencies and disasters;

NOW THEREFORE the Regional Board of the Peace River Regional District, in open meeting assembled, enacts as follows:

1. The Board hereby establishes a service to prepare, respond and recover from emergencies and disasters.

2. The boundaries of the service are the boundaries of the Peace River Regional District excluding the District of Chetwynd, City of Dawson Creek, City of Fort St John, District of Hudson's Hope, Village of Pouce Coupe, District of Taylor and the District of Tumbler Ridge.

3. The participating areas for the service are the Peace River Regional District Electoral Areas 'B', 'C', 'D' and 'E'.

4. All costs related to this service shall be recovered by one or more of the following:

   a) property value taxes imposed on land and improvements in accordance with Part 23, Division 4.3 of the Local Government Act, R.S.B.C. 1996, c.323;
   b) revenue raised by other means authorized by the Local Government Act, R.S.B.C. 1996, c.275 or another Act;

   c) revenue raised by way of agreement, enterprise, gift, grant or otherwise.

5. The maximum that may be requisitioned under Section 4 for the service shall be the greater of:

   a) $250,000; or

   b) the product of a property value tax of $0.03 for each $1,000 of net taxable value of land and improvements included in the service area.

6. This By-law may be cited as "Peace River Regional District Emergency and Disaster Service Establishment By-law No. 1598, 2005."

READ A FIRST TIME this 13th day of OCTOBER, 2005.
READ A SECOND TIME this 13th day of OCTOBER, 2005.
READ A THIRD TIME this 13th day of OCTOBER, 2005.
APPROVED by the Minister of Community Services this 16th day of NOVEMBER 2005
ADOPTED this 24th day of NOVEMBER, 2005.

CERTIFIED a TRUE and CORRECT COPY of "Peace River Regional District Emergency and Disaster Service Establishment By-law No. 1598, 2005."

Harald Hansen, Administrator

THE CORPORATE SEAL of the Peace River Regional District was hereto affixed in the presence of:

Karen Goodings, Chair

Harald Hansen, Administrator

I HEREBY CERTIFY the foregoing to be a true and correct copy of "Peace River Regional District Emergency and Disaster Service Establishment By-law No. 1598, 2005" as read a third time by the Regional Board of the Peace River Regional District on the 13th day of OCTOBER, 2005.

Harald Hansen, Administrator

For Reference:
January 26, 2012 EEC requested bylaws be placed on all future agendas

PEACE RIVER REGIONAL DISTRICT
By-law No. 1599, 2005

A by-law for the administration and operation of the
Emergency and Disaster Service

WHEREAS the Board of the Peace River Regional District has, by "Peace River Regional District Emergency and Disaster Service Establishment By-law No. 1598, 2005", established an Emergency and Disaster Service;

AND WHEREAS, pursuant to the provisions of the *Emergency Program Act, R.S.B.C. 1996, c. 111*, the Board must prepare or cause to be prepared local emergency plans respecting preparation for, response to and recovery from emergencies and disasters and establish and maintain an emergency management organization to develop, maintain and implement emergency plans and other preparedness, response and recovery measurers for emergencies and disasters for the Electoral Areas within the Regional District;

NOW THEREFORE, the Board of the Peace River Regional District in open meeting assembled enacts as follows:

1. **Citation**

1.1 This By-law shall be cited as the "Peace River Regional District Emergency and Disaster Operations By-law No. 1599, 2005".

2. **Interpretation**

2.1 In this bylaw:

a) **"Act"** means the "*Emergency Program Act*", *R.S.B.C., c.111*, and any regulations made thereunder;

b) **"Board"** means the Board of Directors of the Peace River Regional District;

c) **"Chair"** means that person elected by the Board as chair;

d) **"Declaration of a state of local emergency"** means a declaration of the Board or the Chair that an emergency exists or is imminent in the Regional District;

e) **"Disaster"** means a calamity that:

(i) is caused by accident, fire, explosion or technical failure or by the forces of nature, and
(ii) has resulted in serious harm to the health, safety or welfare of people, or in widespread damage to property;

2. **Interpretation** (continued)

f) **"emergency"**, means a present or imminent event or circumstance that:
   (i) is caused by accident, fire, explosion or technical failure or by the forces of nature, and
   (ii) requires prompt co-ordination of action or special regulation of persons or property, to protect the health, safety, or welfare of people or to limit damage to property;

g) **Emergency Co-ordinator"** means that person appointed under Section 5.1 of this by-law;

h) **"Emergency Executive Committee"** means that Committee appointed under Section 4.1 of this by-law;

i) **"Emergency Management Organization"** means that organization established under Section 3.1 of this by-law;

j) **"Emergency Program"** means the emergency plans and other preparedness, response and recovery measures for emergencies and disasters developed and implemented from time to time by the Emergency Management Organization;

k) **"Service Area"** means the service area established under "Peace River Regional District Emergency and Disaster Service Establishment By-law No. 1598, 2005."

3. **EMERGENCY MANAGEMENT ORGANIZATION**

3.1 An "Emergency Management organization" is established comprised of:
   a) the Emergency Executive Committee;
   b) the Emergency Co-ordinator;
   c) such other persons appointed and sub-committees and working groups established and which are charged with emergency preparedness, response and recovery measures.

4. **EMERGENCY EXECUTIVE COMMITTEE DUTIES AND RESPONSIBILITIES**:

4.1 An "Emergency Executive Committee" is established comprised of:
   a) the Directors of the Board representing Electoral Areas 'B', 'C', 'D' and 'E';
   b) the Chief Administrative Officer for the Regional District or designate; and
   c) such other persons as may be appointed to the Committee by the Board from time to time.

4.2 The Emergency Executive Committee shall elect a Chair and Vice-Chair.

4.3 The Emergency Executive Committee may establish such Sub-Committees and Working Groups as deemed necessary to facilitate emergency preparedness, response and recovery programs.

4. EMERGENCY EXECUTIVE COMMITTEE DUTIES AND RESPONSIBILITIES:

4.4 The Emergency Executive Committee will be responsible for the following duties and responsibilities:

a) providing policy guidance and direction to the Emergency Co-ordinator and such other persons appointed and Sub-Committees and Working Groups established under this by-law for developing and implementing the emergency program;

b) reviewing and approving the Emergency Program prepared by the Emergency Coordinator;.

c) preparing and submitting to the Board for approval an annual budget for the development and implementation of the Emergency Program;

d) negotiating and recommending to the Board agreements with other governments, for the purpose of emergency assistance or the formulation of coordinated emergency preparedness, response or recovery;

e) negotiating and recommending to the Board agreements with individuals, bodies, corporations or other non-government agencies for the provisions of goods and services in delivering the Emergency Program; and

f) meeting not less than two times a year with the Emergency Co-ordinator to stay informed of the status of the Emergency Program related initiatives and activities.

5. EMERGENCY CO-ORDINATOR

5.1 The Board shall appoint an Emergency Co-ordinator that will report directly to the Emergency Executive Committee.

5.2 The Emergency Coordinator will be responsible for the following duties and responsibilities:

a) preparing and presenting to the Emergency Executive Committee for annual review and approval an Emergency Program which includes:

i) a periodic review and updating of plans and procedures for that review;
ii) an emergency response exercise program and training program;
iii) procedures by which emergency resources may be obtained;
iv) procedures by which emergency plans are to be implemented;
v) warning procedures to those persons who may be harmed or who may suffer loss in an Emergency of impending Disaster;
vi) procedures to coordinate the provision of food, clothing, shelter, transportation and medical services to victims of Emergencies and Disasters;

5. EMERGENCY CO-ORDINATOR

vii) procedures to establish priorities for restoring essential services provided by the Regional District that are interrupted during an Emergency or Disaster;

viii) procedures to recommend priorities for restoring essential services not provided by the Regional District that are interrupted during and Emergency or Disaster; and

ix) roles and responsibilities for all persons appointed pursuant to this By-law whose roles and responsibilities are not otherwise defined in this Bylaw.

b) Making such amendments to the Emergency Program as are necessary to ensure that the information contained in the Emergency Program remains current at all times;

c) Advising the Emergency Executive Committee on all matters relating to the Emergency Program;

d) Providing day to day administration of the Emergency Program, including the co-ordination of staff involvement in emergency management, encouraging community preparedness and liaising with external organizations for emergency management purposes;

e) identifying and maintaining information on potential or real hazards and the impact that such hazards could have on the Service Area;

f) ensuring municipal departments in the Service Area keep updated emergency plans that are consistent with and support the Emergency Program;

g) being the liaison with other external support organizations and function as the point of contact with the Provincial Emergency Program and other government agencies with regards to emergencies;

h) selecting and processing candidates for federal or provincial emergency program training courses;

i) co-ordinating the delivery or conduct studies, training and exercises within the Service Area to ensure the Emergency Program is understood, effective and in a state of readiness; and

j) performing such other duties as may be assigned by the Emergency Executive Committee.

6. POWER ASSOCIATED WITH THE DECLARATION OF A STATE OF LOCAL EMERGENCY

6.1 Once a Declaration of a state of local emergency is made by the Board or the Chair pursuant to the Act in respect of all or part of the Service Area, the Emergency Executive Committee may, subject to the limitations in the Act, exercise all of the powers given to the Board or the Chair in a Declared state of local emergency under the Act.

READ A FIRST TIME this 13th day of OCTOBER, 2005.
READ A SECOND TIME this 13th day of OCTOBER, 2005.
READ A THIRD TIME this 13th day of OCTOBER, 2005.
ADOPTED this 24th day of NOVEMBER, 2005.

CERTIFIED a TRUE and CORRECT COPY of "Peace River Regional District Emergency and Disaster Operations By-law No. 1599, 2005."

Harald Hansen, Administrator

THE CORPORATE SEAL of the Peace River Regional District was hereto affixed in the presence of:

Karen Goodings, Chair

Harald Hansen, Administrator

PEACE RIVER REGIONAL DISTRICT

EMERGENCY MANAGEMENT PROGRAM DIRECTIVE

SEPTEMBER 2014

Prepared for:

The Peace River Regional District
1981 Alaska Avenue
Dawson Creek, BC
V1G 4H8

Emergency Program Coordinator
(250) 784-3218

****

***Prepared By**:*

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Acronyms and Abbreviations

BCP	Business Continuity Plan (Planning)
BIA	Business Impact Analysis
CAO	Chief Administrative Officer
EOC	Emergency Operations Centre
EMBC	Emergency Management British Columbia
ERP	Emergency Response Plan
ESS	Emergency Social Services
HRVA	Hazard, Risk and Vulnerability Analysis
ICP	Incident Command Post
ICS	Incident Command System
PRRD	Peace River Regional District

Letter of Introduction

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1. INTRODUCTION

Aim

The aim of the Peace River Regional District (PRRD) Emergency Program Directive is to provide strategic and long-term direction to the development and maintenance of the PRRD Emergency Program.

Scope

This Directive addresses:

- An overview of the PRRD;
- A description of the PRRD Emergency Program including:
    - PRRD organization for emergency management;
    - Emergency program planning factors; and
    - Structure of the PRRD Emergency Program.
- Annexes describing program priorities for the period 2014-2019 and training, exercise and validation objectives.

Responsibility

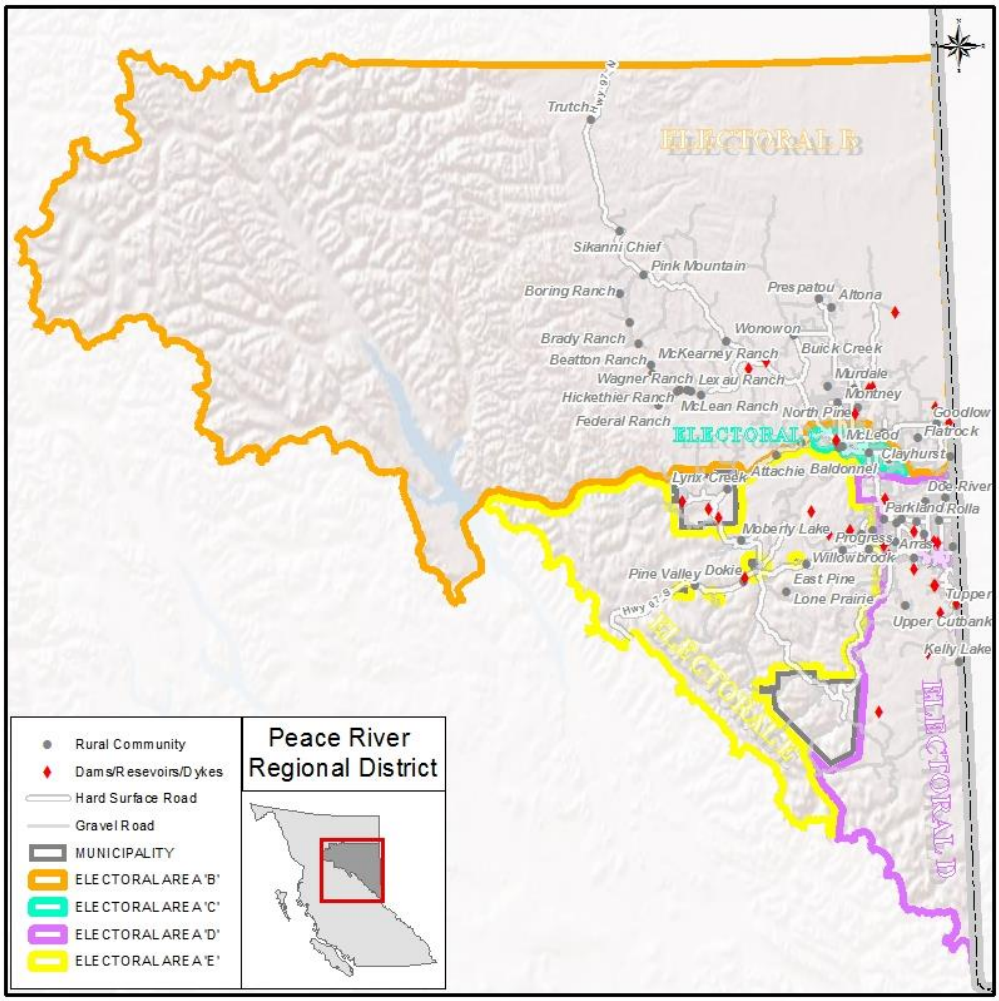
The PRRD Manager of Community Services, as the PRRD Emergency Coordinator, is responsible to maintain this directive.

2. THE PEACE RIVER REGIONAL DISTRICT (PRRD)

2.1 Description

The PRRD area covers a significant section (119,000 square kilometers) of Northeast British Columbia and serves a number of rural areas (Electoral Areas B, C, D and E) with an estimated rural population of 20,000 residents. There are both small and larger unincorporated rural centres such as:

- Pink Mountain
- Wonowon
- Prespatou
- Montney
- Cecil Lake
- Charlie Lake
- Baldonnel
- Tomslake
- Arras
- Groundbirch
- Moberly Lake
- Hasler Flats



The topography of the area varies from Rocky Mountains in the west to the Interior Plains in the eastern sections. Tributaries of the Fort Nelson River drain the northern portion of the PRRD.

Working cooperatively, the Electoral Areas and member municipalities of the PRRD provide a wide range of services throughout the region including emergency services. This function provides support for first responders and communities when dealing with a variety of natural and man-made disasters. The PRRD experiences flooding, wild fires, windstorms and numerous man-made disasters coming from industrial and domestic activities.

2.2 Mission

The Peace River Regional District works cooperatively to:

- Provide a broad range of local and regional services that reflect the interests, values and goals of our citizens;
- Provide leadership in changing environments to meet the current and future needs of our residents and businesses; and
- Speak with a unified voice on behalf of rural, community and regional interests.

2.3 Vision

The Peace River Regional District strives to:

- Preserve and enhance the spirit, traditions and unique character of the Peace;
- Create sustainability through a diverse economy, high rural and community lifestyles and a healthy, safe environment; and
- Unify and strengthen the Peace by providing cooperative, innovative leadership.

2.4 Values

These values are what the PRRD stands for and believes:

- Accountability: Take ownership and accept responsibility for making decisions and the follow-up to implement those decisions
- Integrity: Make decisions for, and act in the best interests of, the Region
- Fairness: Act in an unbiased way, with a sense of fair play
- Respect: Show consideration for people, lands, and all governing bodies
- Trust: in one another
- Credibility: Ensure the business of the Regional District is transparent and believable
- Cooperation: Be willing to work together to support one another
- Leadership: Make sound decisions and demonstrate a vision for today, while focusing on the future

2.5 Goals

- Work together and support one another
- Be a unified voice…be a player

- Be a leader in sustainability
- Be fiscally responsible
- Maintain a professional working environment
- Provide a quality service delivery

3. THE PRRD EMERGENCY PROGRAM

3.1 Objective

The objective of the PRRD Emergency Program is to develop, maintain, coordinate and implement systems, protocols and processes to mitigate, prepare for, respond to and recover from emergencies and disasters.

3.2 Scope

The PRRD is legislated to provide emergency management services to the residents of the Electoral Areas B, C, D and E of the PRRD in the following ways:

- Training to staff and volunteers;
- Emergency Social Services (ESS);
- Support for First Responders through Emergency Operations Centres (EOC);
- Work with Emergency Management BC (EMBC);
- Provides support to other local governments when needed;
- Advocacy;
- Planning; and
- Recovery

Although located within boundaries of PRRD the municipalities of Dawson Creek, Fort St. John, Chetwynd, Taylor, Pouce Coupe, Hudson's Hope and Tumbler Ridge have their own emergency response plans and programs.

3.3 Legislation and Regulations

The PRRD Emergency Program complies with the following legislation and regulations:

- BC Emergency Program Act;
- BC Local Authority Emergency Management Regulation; and
- PRRD Bylaws 1598 and 1599.

3.4 References

The following references have been considered in the development of this directive:

- PRRD Emergency Services Strategic Plan 2012-2017;
- PRRD Hazard, Risk and Vulnerability Analysis 2014; and
- Canadian Standards Association CSA Z1600 Emergency Management and Business Continuity Programs

3.5 PRRD Organization for Emergency Management

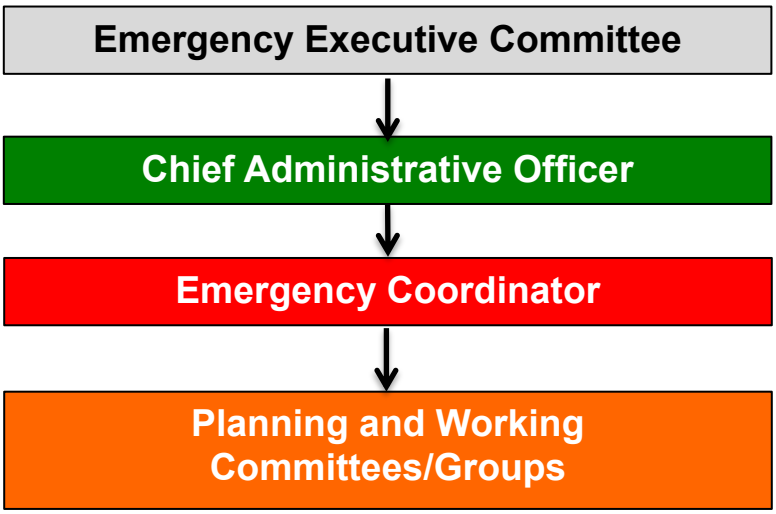


Diagram 1: PRRD Organization for Emergency Management

3.5.1 The Emergency Executive Committee

Pursuant to Bylaws No. 1598 and 1599 the Emergency Executive Committee is responsible for setting policy, authority and directions, ensuring all aspects of the PRRD Emergency Program are adequately funded and addressed.

The Emergency Executive Committee meets a minimum of two times a year and consists of the following members:

- The 4 Electoral Area Directors, one of whom will be elected as Chair and one elected as Vice Chair;
- The Chief Administrative Officer (CAO), and
- Any other such members that the Board may appoint.

3.5.2 Emergency Coordinator

The Manager of Community Services has been appointed and assigned the responsibilities of the PRRD Emergency Coordinator. When an incident occurs, the Emergency Coordinator, in this capacity, reports directly to the CAO or designate, and receives direction and support from the CAO and/or the PRRD Emergency Executive Committee.

The Emergency Coordinator's primary responsibilities include, but are not limited to:

- Developing and maintaining the PRRD Emergency Program and associated plans;
- Liaising with other Emergency Coordinators, EMBC, fire response societies or volunteer fire departments, other municipalities or Regional Districts, volunteers

and agencies such as utilities, oil and gas industries, school board, health, and other government agencies, etc. to coordinate emergency plans, actions and protocols;
- Identifying resources for emergency purposes;
- Establishing and maintaining a functioning EOC;
- Developing and maintaining public education materials and volunteer programs;
- Coordinating and/or providing training and exercise opportunities for the staff and volunteers; and
- Assisting with emergency response and recovery operations.

3.5.3 Planning and Working Committees or Groups

The Emergency Coordinator can strike any planning and working committees or groups to support the development or enhancement of the PRRD Emergency Program.

These planning or working groups are of particular importance where outside voice, input and assistance from agencies likely to be involved in emergency management would add significant insights and/or resources to the coordination necessary.

3.6 Emergency Program Planning Factors

The following factors influence emergency planning in PRRD:

Geographical size and relative limited population of the Regional District. PRRD is a very large, relatively sparsely populated entity. This results in the following planning considerations:

- Telephone communications with residents is inconsistent; with cellular phone coverage being fairly good in urban areas but deteriorating the further one gets from main road networks. There is a significant reliance on relatively fragile landline telephone communications in remote areas;
- Road networks are limited, and in some areas of PRRD (the far west) direct access can only be gained from other regional districts;
- The large distances reduce the effectiveness of timely emergency response; and
- The limited population reduces the number of persons to participate in volunteer programs such as Emergency Social Services and volunteer fire departments.

Senior management support to PRRD Emergency Program. PRRD senior management support the PRRD program through the following:

- The assignment of dedicated staff to manage the program;
- The allocation of adequate funds to support the program; and
- Encouraging the ongoing training of PRRD staff to support the program.

Limited size of Regional District staff. Notwithstanding the support provided by PRRD senior management, the emergency program is somewhat limited by available staff resources:

- Dedicated emergency management staff also has additional non-emergency management responsibilities;
- The small number of staff limit the ability to fully operate the EOC and concurrently open Incident Command Posts (ICPs); and
- PRRD has no integral first responders other than the Charlie Lake Volunteer Fire Department.

Relationship with member municipalities and First Nations. Generally PRRD has an excellent working relationship with the member municipalities, however, this working relationship could be improved with:

- An integrated Regional Emergency Social Services (ESS) plan;
- Greater participation in EMBC-sponsored emergency training by member municipalities;
- Closer coordination in the activation and operation of EOCs; and
- Ideally, one consolidated Regional Emergency Program totally inclusive of all PRRD electoral areas and municipalities.[1]

Further, the PRRD needs to give consideration to building relationships and partnerships with First Nations within the region. Two wildfires during the summer of 2014 posed threats to both electoral area and First Nations residents. In order to ensure coordinated evacuations and consistent public information during an emergency, the PRRD needs to consider working closer with First Nations communities (before an event) in a similar fashion as it does with its member municipalities.

Scope of hazards. The scope of hazards threatening PRRD is summarized in Section 3.7.2 and described in detail in the Regional hazard, Risk, Vulnerability Assessment (HRVA) study. However the following planning factors should be considered:

- Many of the hazards facing PRRD are limited to specific geographical areas;
- The effects of climate change on PRRD have not been examined in detail and could have significant effects on hazards such as river flooding and interface fires; and
- Some of the hazards are directly related to specific industrial/utility stakeholders.

Relationship with industrial/utility stakeholders. Inconsistent Federal and Provincial regulations and legislation have led to a wide discrepancy in how various industrial and utility stakeholders approach emergency management and how they coordinate their actions with PRRD. In particular:

[1] Note that there are a number of regional models that exist and a Regional Emergency Program could be achieved through formal partnership agreements

- BC Hydro has not developed their dam safety planning in enough detail to satisfy PRRD;
- CN Rail is reluctant to coordinate their emergency planning with local authorities;
- Although most oil and gas companies have good emergency response plans some are reluctant to extend their responsibilities outside their immediate emergency preparedness zone, including extended ESS support; and
- PRRD does have the support of the BC Oil and Gas Commission and their field offices in Fort St. John and Dawson Creek.

3.7 Structure Of The PRRD Emergency Program

3.7.1 The Emergency Management Continuum

The following diagram shows the relationship between the phases of emergency management and business continuity.

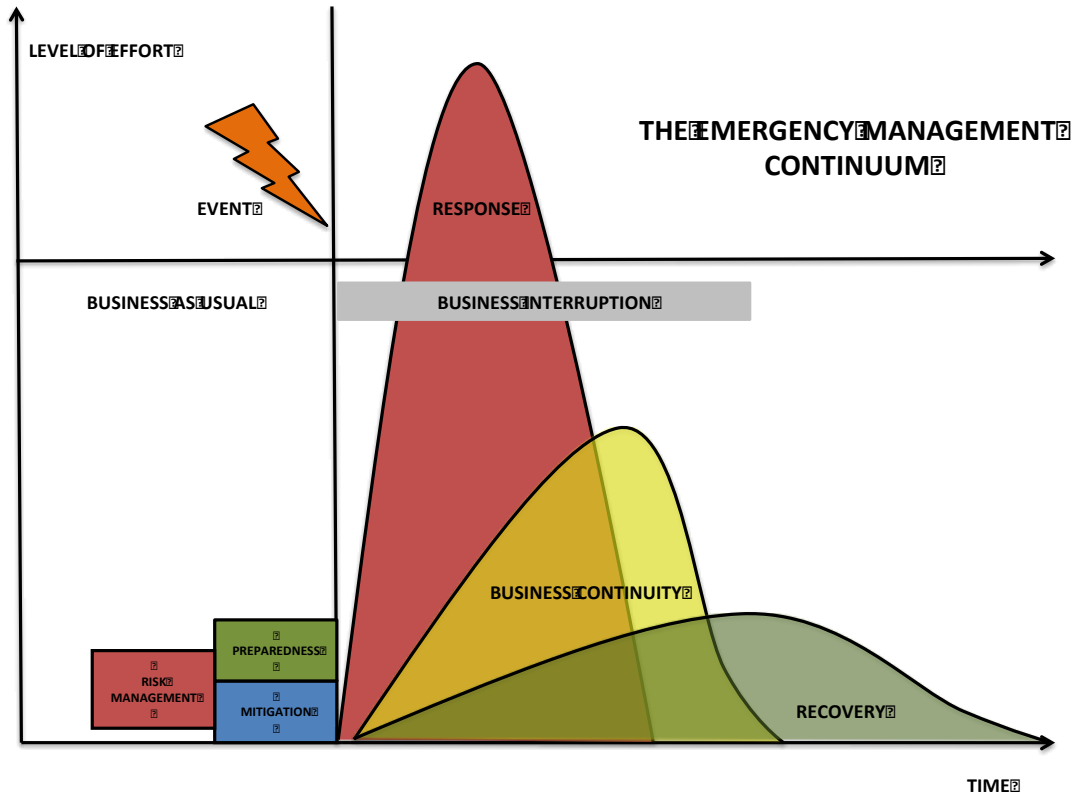


Diagram 2: The Emergency Management Continuum

Risk Management (HRVA). The first step in emergency management is to identify and assess the threats posed by natural and human-made sources. This is accomplished by conducting a Hazard, Risk and Vulnerability Analysis (HRVA) that will identify preparedness and mitigation measures.

Preparedness and Mitigation. When risks have been identified, mitigation measures should be identified to eliminate or reduce the effects of these risks. Where risks cannot be eliminated or reduced to an acceptable level appropriate preparedness measures should be developed including emergency plans and training.

Response. Immediately following the emergency event a robust and effective response effort will be implemented, focused mainly on life safety and the protection of critical infrastructure.

Business Continuity. Business continuity plans will be implemented to restore core operations to essential levels.

Recovery. Depending on the level of damage caused by the event, longer-term recovery activities may be required to restore a wider range of services and infrastructure.

3.7.2 PRRD Emergency Program Elements

The following diagram shows how the PRRD Emergency Program addresses business continuity and emergency management in a coherent structure.

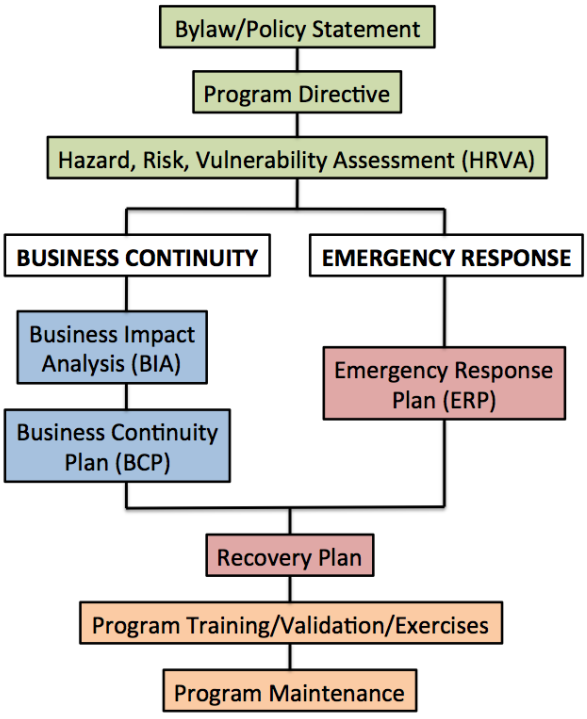


Diagram 3: Elements of the PRRD Emergency Program

Bylaw/Policy Statement. PRRD has two bylaws that address the emergency program:

- 1598: A bylaw for the establishment of an Emergency and Disaster Services for Electoral Areas B, C, D and E; and
- 1599: A bylaw for the administration and operation of the Emergency and Disaster Services.

These bylaws should be reviewed and updated on an "as-required" basis.

Program Directive. The PRRD Emergency Program Directive serves as the overarching guide to the emergency program and includes a five-year program development plan.

Hazard, Risk, Vulnerability Assessment. PRRD conducted a baseline HRVA in 2014 and this should be reviewed and updated whenever there is a change to any of the hazards, planning assumptions or factors.

Consequences						
	Very High				• Hazardous material spills • Interface fire	• Power outages >3 days • Severe winter weather
	High			• Dam failure • Animal disease		• Flooding • Oil & gas facility emergency
	Moderate		• Mine accidents • MV Accidents • Human disease	• Drought • Pest infestations		
	Low	• Ice storms/fog	• Structural collapse • Debris • Avalanches	• Erosion/ accretion • Avalanches • Seismic events • Fire		
	Very Low	• Hailstorms • Air crashes • Land subsidence • Tornadoes • Heat waves	• Plant diseases • Ice jams			
		Very Low	Low	Moderate	High	Very High
	Likelihood					

Diagram 4: PRRD Risk Summary

Business Continuity Plan. PRRD should conduct a Business Impact Analysis (BIA) and develop a Business Continuity Plan (BCP) to support the resumption of core business activities within stated timeframes.

Rural Emergency Response Plan. PRRD updated their Rural Emergency Response Plan (ERP) in 2014. This plan should be reviewed whenever there is a change in hazards or regional response structure or procedures.

Recovery Plan. The nature of the hazards faced by PRRD is such that extensive infrastructure damage could occur requiring the development of a comprehensive recovery plan.

Program Training and Validation/Exercises. To make this program effective, staff must be trained and plans practiced, evaluated and updated. Annex B to this plan includes an overview of training, validation and exercise activities.

Program Maintenance. Each element of the emergency program should be reviewed and updated:

- Following major training events related to that element;
- Following use of the program element during or following a real event;
- As a result of a change to the structure or procedures used by PRRD; and
- As a result of a change to legislation or regulation.

Annex A: PRRD Emergency Program Priorities 2015 - 2019

Overview

This annex is written with reference to the PRRD Emergency Services Strategic Plan 2012 – 2017 but has been adjusted to the period 2015 - 2019.

By the end of 2014 PRRD will have completed:

- A bylaw review;
- The Emergency Program Directive;
- An HRVA; and
- A Rural Emergency Response Plan.

The period 2015 – 2019 should focus on completing a Regional District Business Continuity Plan, a Regional Recovery Plan, pursuing a more regionally focused approach to emergency management, ESS, public education and the training, exercises and validation activities to support these plans.

Assumptions and Constraints

It is assumed that adequate sustained funding will be provided to achieve the objectives described in this annex.

A constraint to meeting these objectives will be the ability of PRRD staff to develop and manage the emergency program. On paper, the PRRD staffs the emergency program with two .5 full-time equivalents (FTE) equating to 1 FTE, however, it appears that two staff are only able to dedicate .25 of their time to this responsibility equating to only .5 FTE overall. This is inadequate and not consistent with most Regional Districts in BC where one dedicated emergency coordinator is typical. As well, the demand on emergency management staff in PRRD is only likely to increase. For example:

- Climate change is likely to result in increased interface fire and flooding events, increasing the workload on PRRD emergency staff;
- The Oil and Gas industry continues to increase their work in PRRD which results in more emergency plans and project notifications to be reviewed and more exercises to participate in;
- Some representatives from industry have been requesting that the PRRD take a larger leadership role in planning and coordinating regional meetings and training opportunities; and
- BC is implementing a new regional partnership strategy, and while the details are not yet known, this will add additional work to PRRD emergency staff.

Given the increasing workload, demands of the program, geography and travel time, consideration should be given to ensuring that there is truly 1 FTE dedicated to emergency preparedness and management.

Priorities

Ongoing

The following objectives will be addressed on an ongoing basis:

- Conduct flood inundation and terrain mapping for vulnerable areas;
- Examine opportunities to increase community resiliency to disasters by investing in resources or technology;
- Conduct individual training to support the emergency program;
- Develop and support community emergency preparedness programs for vulnerable areas;
- Deliver public education throughout the region;
- Establish and maintain dedicated resources for the EOC, such as dedicated computers and EOC voicemail on the phones;
- Continue to develop partnerships and relationships with government and industry stakeholders;
- Develop Regional ESS capabilities; and
- Implement weekly or bi-weekly short duration EOC training sessions for staff to further develop their skills and understanding of their roles.

2015

- **Conduct Regional Emergency Management Feasibility Study**. Identify actions that can be taken to effectively unite emergency management on a regional basis between the PRRD, member municipalities and First Nations;
- **Examine opportunities to develop Regional Emergency Social Services Capabilities;**
- **Examine and determine the feasibility of a public emergency notification systems; and**
- **Examine whether the PRRD should take a lead role in planning and coordinating regional training/conferences in partnership with industry and other government stakeholders to increase emergency preparedness;**
- **Collective Training and Exercises**. Conduct a tabletop exercise for EOC staff to confirm their roles and responsibilities during an emergency response: and
- **Establish more comprehensive EOC protocols around communications, confidentiality, EOC access, etc**.

2016

- **Develop Regional Recovery Plan**. Develop a regional plan to guide short and long-term recovery activities;
- **Collective Training and Exercises**. Conduct a functional EOC exercise to validate the Emergency Response Plan and evaluate EOC procedures.

2017

- **Develop Regional District Business Continuity Plan**. Conduct a Business Impact Analysis (BIA) and develop appropriate business continuity plans for PRRD departments;
- **Collective Training and Exercises**. Conduct a tabletop exercise for Regional EOC staff to confirm their roles and responsibilities during recovery. Training in 2017 should focus on training staff to implement departmental business continuity plans.

2018

- **Develop Debris Management Plan**;
- **Collective Training and Exercises**.. Conduct a functional EOC exercise to introduce recovery planning and to practice the transition from response to recovery.

2019

- **Review and Update the Regional HRVA and Emergency Response Plan.** As required;
- **Collective Training and Exercises**. Conduct a major functional or full-scale exercise to practice the regional response to a major disaster

Annex B: Budget Allocation

The 2014 PRRD Budget Forecast allocates the following amounts in support of the major emergency management priorities listed in Annex A. The figure in brackets shows the year each is currently funded, which may differ from the schedule in Annex A. Budget allocations were made before this Directive was prepared and there may need to adjust budget allocations in light of the priorities identified:

- 2015 - Regional Emergency Management Feasibility Study - $30,000 (2017)
- 2016 - Regional Recovery Plan - $45,000 (2015)
- 2017 - Regional Business Continuity Plan - $75,000 (2016)
- 2019 - Review and Update Regional Emergency & Evacuation Plan - $25,000 (2017)

The amounts in the budget appear to be reasonable and adequate to fund the main priorities as listed.

Annex C: Training, Validation and Exercises

The successful implementation of an emergency program requires the training of personnel dedicated to the execution of the program and the regular validation and adjustment to plans and procedures as situations change. This annex outlines the individual and collective training and validation exercises that should be followed to insure the success of this program.

Individual Training

PRRD staff assigned roles in the Emergency Program should complete the following training (All training available from the Justice Institute of BC unless otherwise indicated):

	Introduction to Emergency Management	Introduction to Emergency Operations Centres	Incident Command 100	EOC Essentials	EOC III Operations	EOC III Planning	EOC III Logistics	EOC III Finance	Information Officer	Community Recovery	Emergency Evacuations	Guidelines for Financial Assistance	Rapid Damage Assessment	Emergency Management for Elected Officials	Incident Command System 100	ESS Registration & Referrals	ESS Recepetion Center	ESS Group Lodging	ESS Managing Walk-in Volunteers	ESS Resource Acquisition	ESS Director
EOC STAFF																					
EOC Director	✓	✓	✓	✓	✓	✓	✓		✓			✓		✓	✓						
Deputy EOC Director	✓	✓	✓	✓	✓	✓	✓		✓			✓		✓	✓						
Liaison Officer/EPC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Information Officer	✓	✓	✓	✓	✓	✓			✓	✓	✓										
Risk Manager	✓	✓	✓	✓																	
Operations Section Chief	✓	✓	✓	✓	✓	✓					✓		✓		✓						
ESS Director	✓	✓	✓	✓	✓											✓	✓	✓	✓	✓	✓
Operations Staff	✓	✓	✓	✓	✓																
Planning Section Chief	✓	✓	✓	✓	✓	✓					✓										
Planning Staff	✓	✓	✓	✓		✓															
GIS Unit	✓	✓	✓	✓		✓					✓										
Damage Assessment Unit	✓	✓	✓	✓		✓							✓								
Recovery Unit	✓	✓	✓	✓		✓				✓											
Logistics Section Chief	✓	✓	✓	✓			✓														
Logistics Staff	✓	✓	✓	✓			✓														
Finance Chief	✓	✓	✓	✓				✓				✓									
Finance Staff	✓	✓	✓	✓				✓				✓									
Field Staff																					
Rapid Damage Assessment	✓	✓		✓	✓								✓		✓						
ESS Reception Center Manager	✓	✓		✓												✓	✓	✓	✓	✓	✓
ESS Staff	✓	✓														✓	✓			✓	

Collective Training

EOC Team Building. The first level of collective training is EOC team building. This may occur using training events including all EOC staff or may be focused on specific section staff.

EOC Staff Training**.** Once staff are trained in their individual and team roles and responsibilities they should participate in EOC training as an entire group. This training may take the form of any of the types of exercises shown in the table below.

Validation

Once the ability of EOC staff to execute their responsibilities has been confirmed the next step is to validate PRRD plans through more demanding exercises. These exercises should be focused on validation and testing plans, not individual staff member skills. Exercises should be progressive and build upon and confirm skills and procedures practiced in earlier training event

Level	Type/Format	Structure
1	**Orientation** (Discussion-based)	The orientation exercise is conducted at an introductory level to familiarize participants with roles, plans, procedures or equipment. It is presented as an informal discussion in a group setting with little or no simulation. A variety of seminar formats can be used, including lecture, discussion, slide or video presentation or panel discussion.
2	**Tabletop** (Discussion-based)	A tabletop exercise is a facilitated analysis of an emergency situation in an informal, low-stress environment. It is designed to elicit constructive discussion as participants examine and resolve problems based on existing operational plans. Tabletop exercises lend themselves to broad discussion of policies and procedures, provide an opportunity for participating organizations and staffs to become acquainted with one another and are good preparation for more complex exercises.
3	**Drill** (Operations-based)	A drill is a coordinated, supervised exercise activity normally used to test a single specific operation or function. With a drill, there is no attempt to coordinate organizations or fully activate an EOC. Its role is to practice and perfect one clearly defined part of a response plan and to help prepare for more extensive exercises.
4	**Functional** (Operations-based)	A functional exercise is a simulated, interactive exercise that tests the capability of an organization to respond to a simulated event. This is a moderate-to-high stress activity that simulates an incident in the most realistic manner possible short of moving resources to a field site. A functional exercise is always a prerequisite to a full-scale exercise.
5	**Full-Scale** (Operations-based)	A full-scale exercise simulates a real event as closely as possible. It is an exercise designed to evaluate the operational capability of emergency management systems in a stressful environment that simulates actual response conditions and requires the mobilization and actual movement of emergency personnel, equipment, and resources.

Table 1: Types of Training Events