

# BRITISH COLUMBIA

## Community Emergency Preparedness Survey for Hazardous Materials

September 1998

Provincial Emergency  
Program



Ministry of Environment,  
Lands and Parks



Major Industrial Accidents  
Council of Canada





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## Community Emergency Preparedness Survey for Hazardous Materials

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Appendix 2: Communities Surveyed

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## Executive Summary

In January 1998, a Hazardous Materials Emergency Preparedness Survey was mailed to 59 British Columbia local governments. These municipalities were selected as they have been identified as having hazardous materials (haz-mat) facilities that contain or transport substances in such quantities and potential hazard as to be capable of causing significant public harm or environmental damage if spilled or released. These facilities include railway terminals, petroleum distribution centres, pulp mills, chemical plants, and other industrial sites. Forty-seven of these municipalities (80%) responded at the time of writing this report.

This survey is a joint undertaking of the Government of British Columbia (Ministry of Attorney General and Ministry of Environment, Lands and Parks) and the Major Industrial Accidents Council of Canada (MIACC).

The purpose of the survey was to develop baseline information on local government planning and preparedness in the event of an accidental release of known hazardous material. The MIACC document *Guiding Principles for Joint Municipal and Industrial Emergency Preparedness* (1993), written to promote community safety where hazardous material risk exists, was used to design the questionnaire and was provided with the survey package. Each question was analyzed to determine a general pattern in emergency preparedness for hazardous material spills, and to develop preliminary conclusions.

The results indicate that municipalities recognize the value of emergency planning and risk assessment. However, many of the respondents have completed only the first stage in their planning: 91% have prepared plans, but only 30% have performed risk assessments. Almost every community has an emergency coordinator (98%), but only one-third have a joint community/industry committee to address haz-mat emergency preparedness.

Operationally, local Fire Departments provide the first government response to a chemical spill. Most larger municipalities with full-time firefighters have trained personnel to manage a haz-mat spill. In smaller centres with 100 or fewer firefighters, 26% of firefighters are trained to an awareness level of haz-mat response; 7% are trained to an operational level and 3% to technician level. These departments often rely on the expertise of Ministry of Environment, Lands and Parks regional Emergency Response Officers (79%) to provide technical/specialist advice on hazardous material response, or the Provincial Emergency Program (PEP) Regional Manager (66%) to provide other emergency services.

In general, municipalities consider that they require or could use further assistance from industry and the province (66%). The survey revealed that to improve community safety, effort is needed to:

- coordinate municipal and industrial emergency programs (32% had joint committees);
- assess risk (30% had completed haz-mat risk assessments);
- gather and share information;
- develop communications equipment, systems and procedures;
- undertake joint training and exercises; and
- develop mutual aid or assistance agreements.

Population has a significant relation to emergency preparedness, in that the province's largest communities (more than 100,000 residents) have the highest level of preparedness.

The municipalities are interested in receiving additional information and assistance from MIACC, PEP and MELP, and consider training and emergency exercises to be critical. The smallest communities were among the most interested in the issues raised by this survey, and many requested further information on how to prepare for emergencies and how to improve community safety. As one Fire Chief states, "Cost has been a major factor in our ability to enhance our capabilities." Several municipalities cited financial limitations as having a major impact on their level of emergency preparedness and look to the sponsoring agencies as sources of information, resources, and funding for this initiative.

Although further analysis and follow-up can be done, there are clear indications that many communities would benefit from increased community/industry joint planning, additional risk assessments, further "haz-mat" information, and enhanced training and emergency response exercises.

Comments from recipients of this report are encouraged.

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## 1.0 Introduction

### Background:

The Government of British Columbia, in partnership with the Major Industrial Accidents Council of Canada (MIACC), undertook a survey of local government's emergency preparedness and ability to respond to hazardous material (haz-mat) spills. The survey provided an opportunity for government and industry to share information and to foster co-operative emergency preparedness.

MIACC is a not-for-profit Canadian organization that works through voluntary and cooperative processes with industry and all levels of government to reduce the risk of major industrial accidents involving hazardous substances. The Ministry of Environment, Lands and Parks is the lead provincial agency under the *Emergency Program Act* for prevention of, preparedness for, and response to haz-mat spills. The Ministry of Attorney General, through the Provincial Emergency Program (PEP), provides coordination and liaison with local governments on emergency preparedness and planning.

Comment on these survey results and on the preliminary conclusions is encouraged and welcome (see section 5.0 below, "Request for Comment"). Please send your comments to:

Stafford Reid  
Enforcement and Emergencies  
Ministry of Environment, Lands and Parks  
PO Box 9338  
Stn. Prov. Govt.  
Victoria BC V8W 9M1

### Survey Design and Process:

MIACC has identified communities that contain "threshold" amounts of materials of a particularly high hazard and that are commonly found in fixed sites (storage, manufacturing) or along transportation routes (see Appendix 1). Surveys were sent only to those communities (cities, municipalities, regional districts, villages) known to have hazardous materials sites, transportation routes, or both (see Appendix 2). The mayor or other community leaders were notified in advance of the survey.

The surveys were sent to Fire Departments since they are First Responders and play a pivotal role in emergency response to haz-mat incidents. They are also familiar with local industry and community emergency preparedness. Furthermore, the focus on local government is commensurate with the *Provincial Government's Strategy for Response* (1992) whereby local governments are responsible for providing the initial response to most emergencies occurring within their boundaries.

MIACC has also prepared a document entitled *Guiding Principles for Joint Municipal and Industry Emergency Preparedness* (1993), intended to improve community safety through coordinating emergency preparedness between industry and municipalities. The survey questions were developed using this report. MIACC has also prepared criteria to guide the levels of community prevention, preparedness and response actions needed to reduce the frequency and severity of major industrial accidents involving hazardous materials (see Appendix 3). The three criteria - essential, enhanced, and excellent - were used to evaluate the survey results.

### Hazardous Material Risk in British Columbia:

It is important to understand the risk of an industrial haz-mat accident in British Columbia to evaluate the findings.

Past events in British Columbia underline the need for industry, municipalities and the province to prevent, prepare for and respond to accidents involving hazardous substances (industrial accidents). Some notable industrial accidents in British Columbia include:

- Russian trawler fire at Esquimalt Graving Dock (October, 1997);

- MacMillan Bloedel Pulpmill chlorine dioxide release in Powell River (October, 1994);
- Rainy Hollow DDT abandoned site incident, in what is now Tatshenshini-Alsek Wilderness Park (September, 1994);
- Styrene spill in Burrard Inlet, Vancouver Harbour (April, 1994); and
- Canada Cedar Pole fire in Galloway (December, 1991).

The most recent major industrial accident of national scope that reminds Canadians of the need to improve community safety was the Plastimet Recycling Plant fire in Hamilton, Ontario (July, 1997) which fully engulfed 400 tonnes of plastics.

Accidents can occur in facilities where hazardous substances are manufactured, handled, stored or disposed of, or during transportation. MIACC has identified over 1300 sites throughout Canada that have quantities and types of hazardous materials that, if released, have a high probability of causing serious public and environmental harm off-site. About 188 sites in 73 communities have been identified in British Columbia. Some sites and communities are the subject of ongoing verification or will be engaged in other activities, but 59 were selected to receive this survey.

#### Roles of Industry and Government:

Achieving the highest level of emergency preparedness and reduction in the frequency and severity of haz-mat incidents requires a shared responsibility between all levels of government, and industry. The *Guiding Principles for Joint Municipal and Industrial Emergency Preparedness* emphasizes the need to link government and industrial emergency programs. An objective of the survey is to assess the linkages of such elements at both the response planning and operational stages. A brief description of roles of industry and government is provided.

Using the “polluter pay principle”, it is the responsibility of industry to use, transport, manufacture, or store hazardous materials in such a way as to prevent accidental releases and be prepared to respond. The Ministry of Environment, Lands and Parks has prepared *Guidelines for Industry Emergency Response Contingency Plans* (1992) to assist in this responsibility.

Under the Provincial Government’s *Strategy for Emergency Response* (1992), local governments are responsible for providing the initial response to most emergencies occurring within their municipal boundaries. Local governments may request assistance from neighbouring municipalities, the private sector or the provincial government, but response is generally delivered by Fire Departments. The provincial government will assume response management if the event occurs in an area where there is no local government, if the event is of such a magnitude that a local government requests provincial direction, or if the emergency is under provincial jurisdiction. The federal government may also provide direction and support during a haz-mat incident.

The Ministry of Environment, Lands and Parks is the lead provincial agency under the *Emergency Program Act* for prevention of, preparedness for, and response to oil and haz-mat spills. The Ministry handles about 4,000 notifications of spills a year, of which one or two a month are problematic, major spills of a petroleum product or other hazardous material.

The Ministry of Attorney General through the Provincial Emergency Program (PEP) has the responsibility to work with local governments and provincial agencies to improve emergency preparedness. PEP may provide support services such as agency liaison and evacuation during an industrial accident.

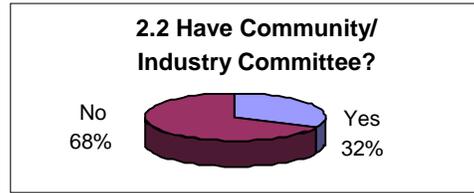
**2.0 Questions and Results**

**COMMUNITY EMERGENCY PLANNING**

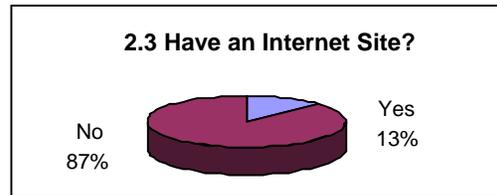
**2.1** Does your community have an emergency coordinator who is responsible for the development of your community plan?  
 YES: 46  
 NO: 1



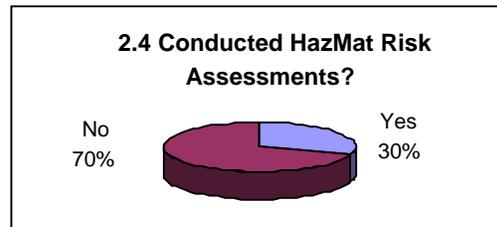
**2.2** Does your community have a joint community/industry committee or similar body that deals with emergency preparedness and community awareness for hazardous material prevention and preparedness?  
 YES: 15  
 NO: 32



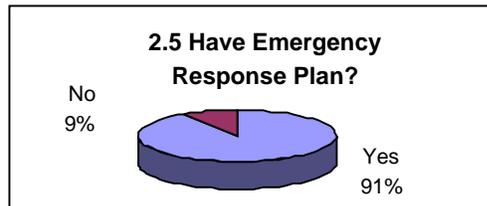
**2.3** Is there an internet site that provides information about your community's emergency preparedness?  
 YES: 6  
 NO: 41



**2.4** Has your community undertaken risk assessments regarding hazardous materials?  
 YES: 14  
 NO: 33

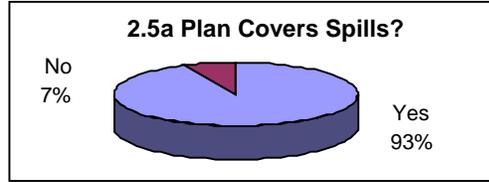


**2.5** Does your municipality have a community emergency plan?  
 YES: 43  
 NO: 4



If YES, what emergencies does it address?

Spills – 40; earthquakes – 38;  
floods – 38; dam failures – 15;  
other – 30 (mostly tsunami and forest fires)



**2.6** Have you tested/exercised your emergency plan since 1995?

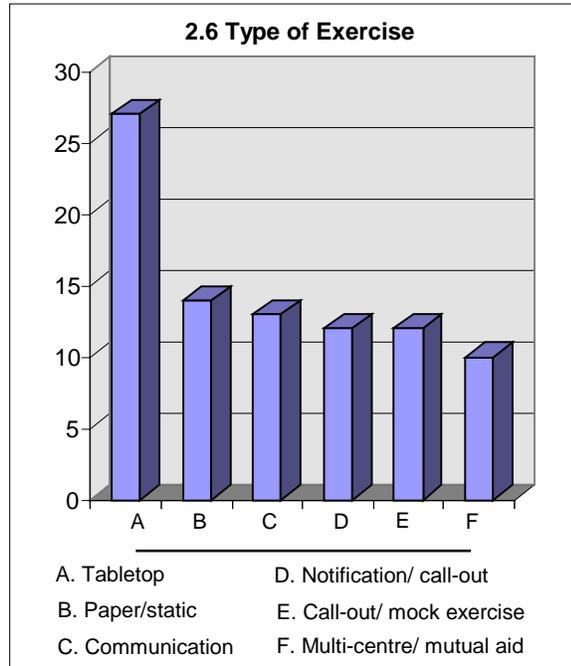
YES: 36

NO: 7



If YES, what type of exercise was performed?

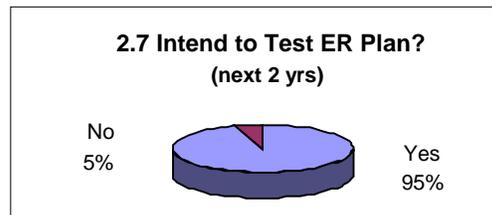
Tabletop – 27  
Paper/static – 14  
Communication – 13  
Notification/call-out – 12  
Total call-out/field mock exercise – 12  
Multi-centre/mutual aid – 10



**2.7** Do you intend to test the plan within the next two years?

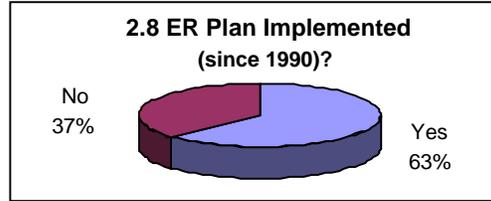
YES: 41

NO: 2



**2.8** Have you implemented your emergency plan, in whole or in part, due to an emergency since 1990?

YES: 27  
NO: 16



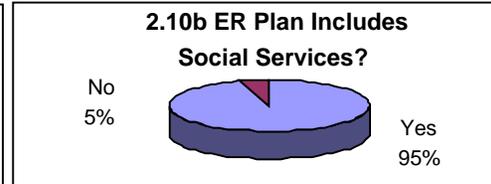
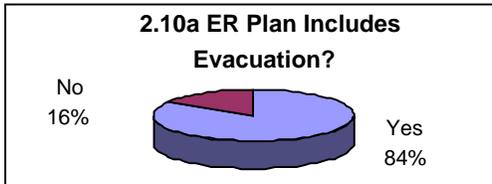
**2.9** Has your community emergency plan been tested with the industries/sites listed as List 1 Hazardous Materials Facilities within your community?

YES: 15  
NO: 28



**2.10** Does your community have an evacuation plan that includes:

- a) physical evacuation to reception centres? YES 36 NO 7
- b) emergency social services plans to care for evacuees? YES 41 NO 2



- c) if "YES" to (a) or (b), date of last plan revision:  
ongoing – 5; 1998 – 4; 1997 – 18; 1996 – 2; 1995—5; 1992 – 1

**2.11** If you do not have a community emergency plan, is it your community's intention to develop one?

YES: 2  
NO: 2

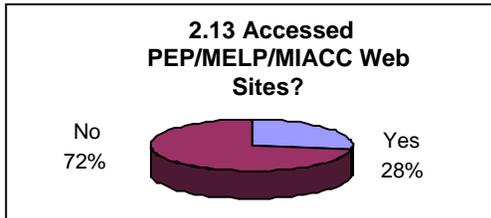
If "YES", when? "soon" and "unknown"

**2.12** Are you familiar with any of the following sources of information and/or services?

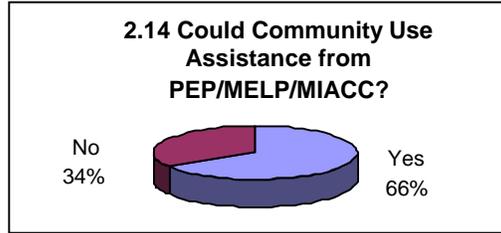
- a) PEP Emergency Response publications and services YES 46 / NO 1
- b) BC Environment Emergency Response publications and services YES 36 / NO 11
- c) MIACC Emergency Preparedness publications and services YES 25 / NO 22

**2.13** Have you accessed the web-sites of these agencies and organizations?

YES: 13  
NO: 34



**2.14** Does your community require or could it use any further assistance from PEP, BC Environment, MIACC, or others?  
 YES: 31  
 NO: 16



**HAZMAT OPERATIONAL PREPAREDNESS**

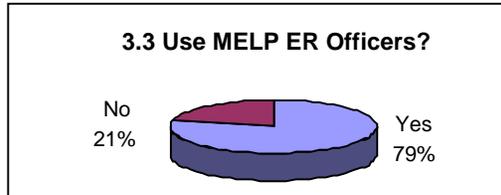
**3.1** How many Fire Department staff are (a) regular, and (b) volunteer?  
 Regular – 2655  
 Volunteer – 1923

NOTE: some departments did not provide a breakdown of staff numbers.

**3.2** Does your Fire Department have a dedicated haz-mat vehicle?  
 YES: 15  
 NO: 32

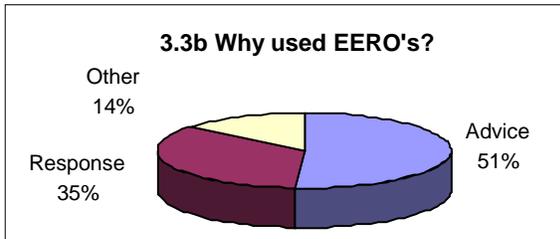


**3.3** Does your Fire Department utilize Environmental Emergency Response Officers (EEROs) for haz-mat response?  
 YES: 37  
 NO: 10



If so, does your department require them regularly, 9  
 - or infrequently? 19

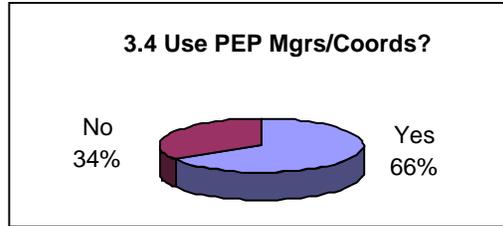
EERO's are utilized for:  
 - technical advice 22,  
 - response management 15,  
 - other 6.



(In the "Other" category, EERO's were used for spill clean-up; clean-up requirements; support; provincial government awareness; and contact for environmental problems/concerns.)

**3.4** Does your Fire Department utilize Provincial Emergency Program (PEP) Regional Managers or Emergency Program Coordinators for haz-mat response?

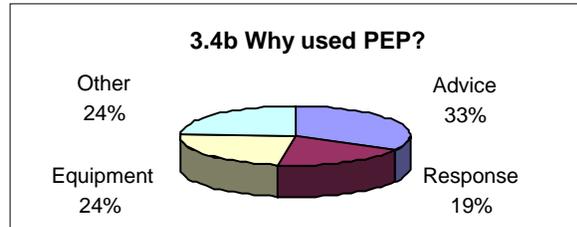
YES: 31  
NO: 16



If so, does your department require them regularly, 4  
- or infrequently? 18

PEP is utilized for:

- technical advice 15,
- response management 9,
- specialized equipment 12,
- other 11.



(PEP was also used for funding; information; provincial government awareness; provision of task numbers; responding outside municipality; assisting with evacuations; and limited resource management.)

**3.5** Does your Fire Department utilize haz-mat specialists from Fire Departments outside your fire control area for haz-mat response?

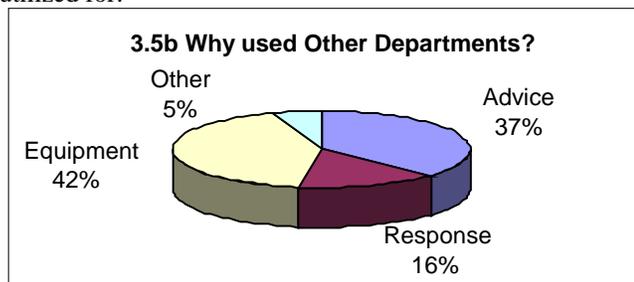
YES: 12  
NO: 35



If so, does your department require them regularly, 0  
- or infrequently? 7

Other local Fire Departments are utilized for:

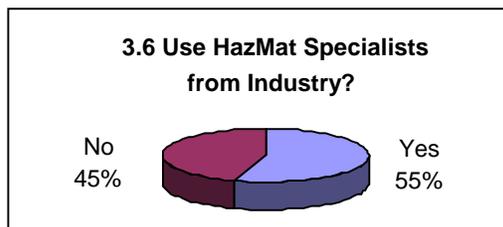
- technical advice 4,
- response management 3,
- specialized equipment 6,
- other 1.



(Other departments were also contacted for trained technicians.)

**3.6** Does your Fire Department utilize industry haz-mat specialists within your community for haz-mat response?

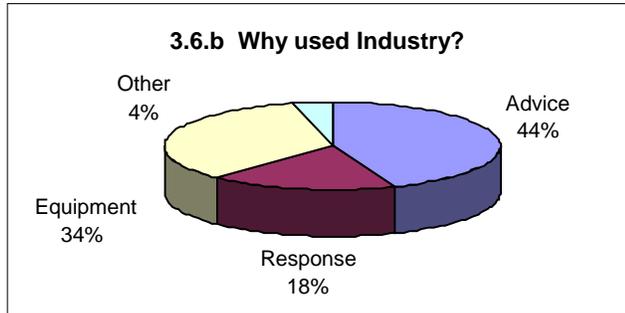
YES: 26  
NO: 21



If so, does your department require them regularly, 7  
 - or infrequently? 15

Industry haz-mat specialists are utilized for:

- technical advice 23,
- response management 9,
- specialized equipment 18,
- other 2.



(Industry haz-mat specialists were used for clean-up and disposal; personnel; and industry-specific products.)

3.7 Does your Fire Department contract haz-mat specialists?

YES: 2

NO: 45

NOTE: five municipalities get haz-mat information from CANUTEC, an Ottawa-based organization without response capability.

If YES, what firm is contracted with most frequently?

Stan Chem – 1; Phillips – 1



3.8 Are any of your Fire Department's personnel trained specifically for haz-mat response management?

YES: 37

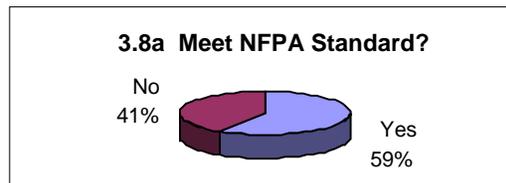
NO: 10



If yes, are they trained to a standard equivalent to NFPA?

YES: 22

NO: 15



Also, what number of firefighters are trained to the following levels:

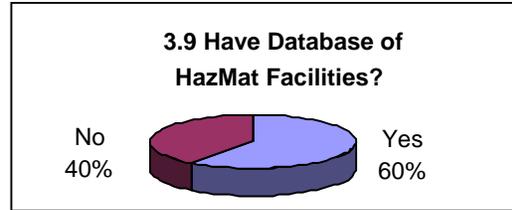
- Awareness: 2643
- Operations: 590
- Technician: 199
- Specialist: 1

NOTE: figures may be inaccurate, as some municipalities did not provide numbers of firefighters trained to specific levels. Also, several municipalities seemed to have counted firefighters more than once (i.e. one person trained to the "Technician" level may or may not have been included in the "Awareness" and "Operations" levels).

**3.9** Does your Fire Department keep a current data-base of facilities that have hazardous materials?

YES: 28

NO: 19



### 3.0 Comments and Analysis

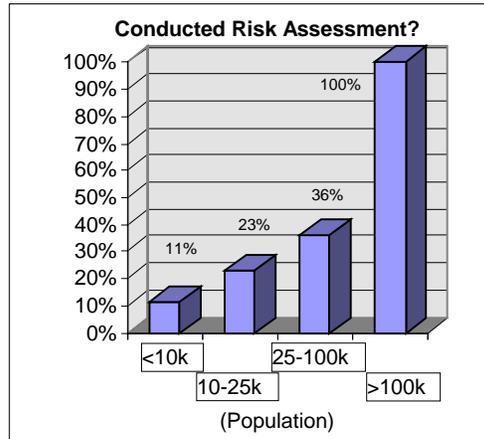
The following provides preliminary comments and analysis based on the survey results. As the data is subject to interpretation, comments are welcomed from industry, local government, government and other agencies, and the public. (See section 5.0 below, “Request for Comment.”)

#### COMMUNITY EMERGENCY PLANNING

1. The *Emergency Program Act* and Regulations require local governments to have an emergencies coordinator and to prepare emergency plans, and 98% of responding communities have a coordinator responsible for drawing up plans. The survey did not address the training level of the coordinators or the standard of plans, or assess compliance with the *Emergency Program Act* or Regulations.

One-third of all municipalities maintain a joint community/industry committee to address hazardous materials preparedness (though one municipality commented that they “meet with industry members on an ongoing basis” but not as a committee). Population is not a significant factor in the existence of a joint body. (See questions 2.1 and 2.2.)

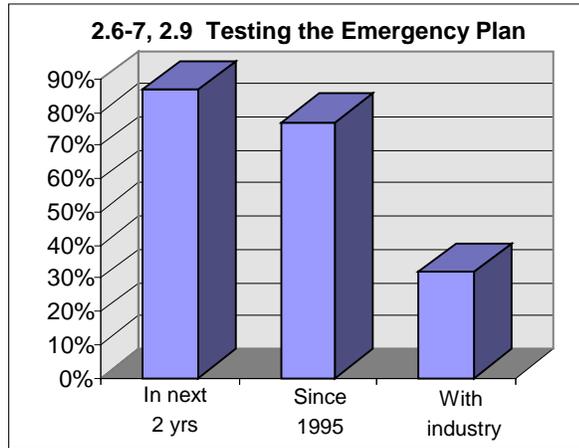
2. Few municipalities utilize the internet for emergency preparedness. Only 13% maintain emergency information on websites, and only 28% have accessed the websites of one or more of the agencies sponsoring this survey. (See questions 2.3 and 2.13.)
3. 30% of municipalities have undertaken haz-mat risk assessments, and some of those respondents considered their own assessments to be out of date or of little value. One community specifically stated that they “need assistance in completing risk assessments.” There is a significant relationship between population and the likelihood that risk assessments have been completed. (See question 2.4.)



4. 91% of municipalities have an emergency plan, and half of those without a plan intend to develop one. (All four municipalities without a plan have a population of fewer than 10,000 people.) Several municipalities did not provide details about what the plans were intended to address, but generally they focus on spills, earthquakes, and floods; several municipalities listed additional risks, from aircraft crashes to construction disasters.

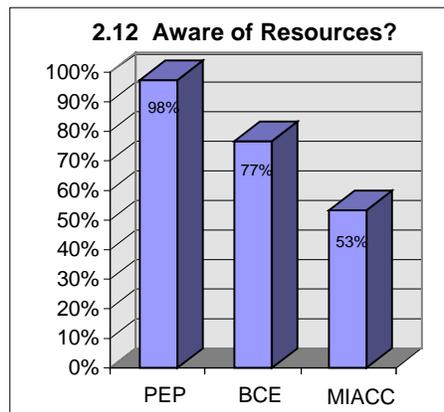
84% of plans include physical evacuation to reception centres and 95% include social services. (See questions 2.5, 2.10 and 2.11.)

- 5. Municipalities see value in testing their emergency plans; 84% have tested or exercised them since 1995, and 95% plan to do so within the next two years. However, only 35% of municipalities have tested their emergency plans with the local List 1 Hazardous Materials Facilities, a number similar to the proportion of communities with joint community/industry committees. (See questions 2.6, 2.7 and 2.9.)



- 6. 63% of municipalities have implemented their emergency plans in whole or in part since 1990. The bulk of deployments have been for such natural events as floods (11, including four in one community) and snow-storms (3), but they have also been utilized several times for haz-mat response (9, ranging from sewage breaks to gas leaks to explosions). (See question 2.8.)

- 7. Municipalities are generally aware of information and resources available from PEP, MIACC and BC Environment. (See question 2.12.)



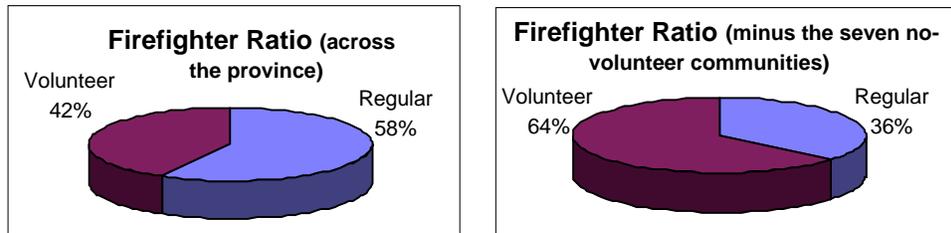
- 8. The municipalities were generally interested in getting assistance from the sponsoring organizations, but few of them provided specific information about the kind of assistance

they required. An exception was one larger municipality which provided an itemized and detailed list of needs.

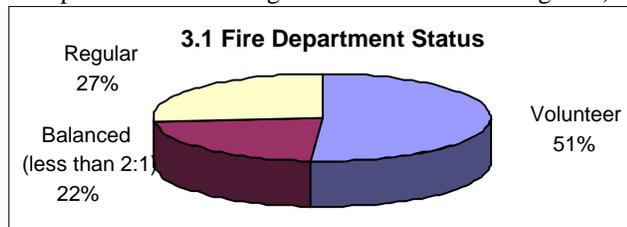
A number of municipalities asked for help completing Hazardous Materials Risk Assessments, and for funds to help with training and other expenses: “Money would be nice,” wrote one Fire Chief. However, several stated that they were unclear about the resources available or the breakdown of responsibilities. One municipality answered “we have developed our plan largely by ourselves. It appears to work. PEP should provide direction and guidance.” The sponsoring organizations must continue to work toward fulfilling their mandate, since one community responded “Any help would be great. How do we get started?” (See question 2.14.)

**HAZMAT OPERATIONAL PREPAREDNESS**

1. Firefighters will be the first responders to emergencies for most communities. Across the province regular firefighters outnumber volunteers 2655 to 1923, but this is somewhat misleading: nearly one-third of all regular firefighters are employed in one city that has no volunteers, and 58% of regular firefighters are concentrated in seven communities without volunteers.



51% of departments are staffed primarily by volunteers; 22% are staffed by a relative balance of regulars and volunteers; and 27% are staffed primarily by regulars. Smaller municipalities are served by volunteer fire departments (14 out of 18; only one of the 18 smallest municipalities has more regular than volunteer firefighters). (See question 3.1.)



2. The survey asked for figures on the number of firefighters trained to different haz-mat capabilities, but nine departments gave only a yes/no response. In addition, some departments seem to have included the same firefighters more than once. Only 36 respondents provided sufficient detail to determine proportions of training levels in the province. Further information must be sought to provide an accurate picture of emergency response capability by Fire Departments across the province.

This survey did not assess the effectiveness of training provided to firefighters, but in general, regular firefighters receive more haz-mat training than do volunteer firefighters. There is a clear trend toward higher levels of training in departments with larger concentrations of regular firefighters.

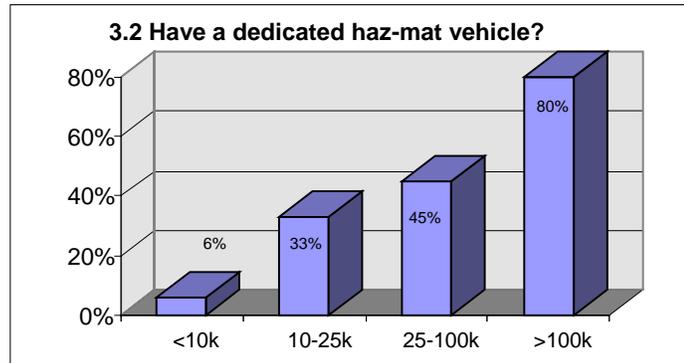
	<b>Awareness</b>	<b>Operations</b>	<b>Technician</b>	<b>Specialist</b>
<b>Volunteer</b>	42%	12%	2%	1 person
<b>Balance</b>	67%	10%	4%	0 persons
<b>Regular</b>	81%	19%	8%	0 persons

Another significant factor in the training level of firefighters is the size of the department. In the 22 responding departments with fewer than 100 firefighters, 26% are trained to the awareness level; 7% to operations; 3% to technician; and one person to specialist. In the 14 with more than 100 firefighters, 74% are trained to the awareness level; 16% to operations; 5% to technician; and no one to specialist.

	<b>Awareness</b>	<b>Operations</b>	<b>Technician</b>	<b>Specialist</b>
<b>Fewer than 100 firefighters</b>	26%	7%	3%	1 person
<b>More than 100 firefighters</b>	74%	16%	5%	0 persons

One municipality resists the strategy of training firefighters to be haz-mat responders: “haz-mat response is potentially dangerous, and one must question how much time must be devoted to maintaining a reasonable level of training to the exclusion of other department emergency mandates.” However, the lack of some first-responder training could leave a community vulnerable in the event of an incident. (See question 3.8.)

3. One-third of respondents have a vehicle dedicated to haz-mat response. However, the bulk of those that have a dedicated haz-mat vehicle have populations greater than 100,000. (See question 3.2.)



4. Emergency preparedness is seriously affected by the size of the municipality. For example, all four municipalities without an emergency plan have populations of fewer than 10,000 people.

	Pop. less than 10,000	Pop. more than 100,000
Exercised emergency plan with industry?	14% (2 of 14)	60% (3 of 5)
Exercised emergency plan since 1995?	79% (11 of 14)	100% (5 of 5)
Completed one or more haz-mat risk assessments?	11% (2 of 18)	100% (5 of 5)
Possess dedicated haz-mat response vehicle?	11% (2 of 18)	80% (4 of 5)

5. 79% and 66% of municipalities utilize Environmental Emergency Response Officers (EERO's) and Provincial Emergency Program (PEP) Zone Managers of the Ministry of Attorney General respectively for haz-mat responses, but most respondents specify that they use staff for information, funding/training (mostly PEP) and cleanup (mostly EERO's). One community was unaware that the EERO resource was available to them, several communities were critical of PEP's response capability, and one commented of the EERO's that "this department does not have the budget for training or the equipment needed for haz-mat incidents." (See questions 3.3 and 3.4.)

6. The only municipalities to utilize the Fire Departments of other municipalities are in the Lower Mainland; many of those are looking forward to a proposed GVRD initiative on haz-mat response teams. Most other municipalities are too isolated for mutual aid to be effective in a situation requiring quick response time.

One municipality sees emergencies rather differently: "Ultimately and eventually industry will 'own' the problem fully after life threat is mitigated." Fire Departments utilize industry haz-mat specialists more often than they utilize other departments, especially in smaller communities. One respondent commented, "we have started to become prepared thanks to our local mill." In another city, the Fire Department and local industries are cooperating to set up a permanent two-acre training site. (See questions 3.5 and 3.6.)

7. Only two municipalities have contracted haz-mat specialists. Five others get information from CANUTEC, an Ottawa-based agency of Transport Canada that provides chemical information and response advice by telephone; CANUTEC provides no response management. (See question 3.7.)

8. 60% of respondents keep a current database of haz-mat sites, and 6 of them provided information about facilities omitted from List 1. Several respondents stated that the quantities specified for a facility to make it on List 1 are too large, especially for smaller communities. However, MIACC maintains other lists for smaller quantities of materials and for less hazardous materials; this survey is part of just one dimension of their planning. (See question 3.9.)

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#### **4.0 Areas for Future Action**

Although the information obtained through this survey is preliminary and follow-up discussion at the local level is needed, areas for future action in some communities are clearly indicated. These include encouragement, promotion or support of:

- joint industry/community emergency planning at the local or area level;
- emergency haz-mat planning that meets established standards;
- practical risk assessments that focus and strengthen industry/community planning;
- community databases of high risk materials and sites;
- enhanced haz-mat training; and
- planned and coordinated emergency response exercises.

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#### **5.0 Request for Comment**

The information gathered in this survey, and additional data to be gathered later, will guide future programs towards fostering safer communities in British Columbia. Comments on the above data and preliminary analysis are welcomed from industry, local government, government and other agencies, and the public. Please send your comments and recommendations to:

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