



City of Richmond

Report to Committee

To: Community Safety Committee
From: Suzanne Bycraft
Manager, Emergency & Environmental Programs
Re: **Dangerous Goods Spill Response Plan and
Pollution Prevention & Clean Up Regulation Bylaw 7435**

To Community Safety - Dec. 10/02
Date: November 27, 2002
File: 8060-20-7435

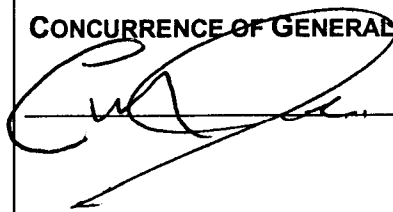
Staff Recommendation

1. That the Dangerous Goods Spill Response Plan dated October 7, 2002, be approved as the method of responding to dangerous goods spills and pollution incidents as required under the B.C. Emergency Program Act.
2. That the General Manager – Community Safety be directed to:
 - a) Update the Dangerous Goods Spill Response Plan a minimum of twice per year, and
 - b) Undertake a complete review of the Dangerous Goods Spill Response Plan every three years and present this updated review to Council through the appropriate Standing Committee, as authorized in Section 5, Managing and Maintaining the Plan, of the Dangerous Goods Spill Response Plan.
3. That the following amounts be included in the Fire Department's operational base budget:

a) Initial training:	\$25,000	One-time cost in 2003
b) On-Going training:	\$10,000	Annual operating costs commencing in 2004
c) Equipment replacement:	\$10,000	Annual operating costs commencing in 2004
4. That Bylaw 7435, Pollution Prevention & Clean Up Regulation Bylaw, be introduced and given first, second and third readings.

Suzanne Bycraft
Manager, Emergency & Environmental Programs

Att. 2

FOR ORIGINATING DIVISION USE ONLY		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Fire Rescue	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Roads & Dykes	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Sewerage & Drainage	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Law	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

Staff Report

Origin

Richmond Fire Rescue and Public Works Operations staff respond routinely to a number of hazardous materials spills and pollution incidents throughout the City. While the City does not have hazardous materials response capability (i.e. a Hazmat Team), staff respond to the best of their ability. Responding staff lack the required training and necessary equipment, however, to ensure our response is managed appropriately, and in accordance with established safety practices.

In cases where the spill is significant, or when a spill is inside a building, the City may activate mutual aid to engage the City of Vancouver's Hazmat Response Team. The response time is approximately 1 hour, and the average cost per activation is approximately \$15,000. Furthermore, the City currently has no legal mechanism available to recover costs associated with cleaning up spills caused by others.

To address these issues, a comprehensive "Dangerous Goods Spill Response Plan" was developed which clearly outlines the roles, responsibilities, and resources necessary to ensure a well-managed response. Bylaw 7435, "Pollution Prevention & Clean Up Regulation", was also developed to provide a cost-recovery mechanism for costs incurred by the City associated with spill clean-up.

This report presents the completed plan and bylaw for Council's consideration.

Analysis

The City has an obligation, under several federal and provincial statutes, to ensure measures are in place to protect the environment in relation to hazardous material spills. The City is liable for damages caused to the environment resulting from a spill which travels through the City's infrastructure, regardless of whether the City caused the spill. To be effective, therefore, our plans must provide for initial response, spill containment, clean-up and remediation actions.

The development of a Richmond Technical Hazmat Team is one option for addressing the initial response and spill containment requirements. This cost is estimated at a minimum of \$250,000 annually. Even with a Technical Hazmat Team, measures would still be needed to address clean-up and remediation activities.

There is a high cost associated with establishing a Technical Hazmat Team or engaging the services of a mutual aid partner with hazmat capability. This, coupled with the need for a more fully integrated response to address all aspects of spill incidents, led to the development of an alternative response model which provides for maximum response capability in the most cost-effective manner. The elements of this model form the basis for the "Dangerous Goods Spill Response Plan", and are summarized below:

Training – Operational level training for hazardous materials has been identified as appropriate for Richmond Fire Rescue staff. This is training below that for designated hazardous materials responders (i.e. "technician" level), but will

provide for the safety of responders and ensure an adequate level of response to spill incidents. Newly-trained firefighters receive Operational level training. However, because this was not considered an identified need in previous years, there are a number of Richmond firefighters who are not trained to the operational level.

A train-the-trainer model is proposed, at an initial cost of \$25,000. Ongoing training costs, commencing in 2004, are \$10,000 annually.

The training requirement for Public Works staff is awareness level, including practical strategies for spill mitigation and clean-up on City roads, or in City storm or sanitary sewer systems. Such training is available and can be delivered to the appropriate Public Works Operations staff within existing budget allocations.

Equipment – This is a principal need for Richmond Fire Rescue to coordinate rescue and response efforts in accordance with standard safety precautions. The equipment needs include personal protective equipment, monitoring equipment (for unknown chemicals), decontamination equipment, etc. The equipment cost is \$88,104.77. Through JEPP, the City has received funding approval in the amount of \$66,078.58. The net cost to the City is \$22,026.19, see Attachment 1.

The equipment needs for Public Works Operations staff are much less extensive due to the nature of the spills they would respond to under the Plan, and can be accommodated within existing budget allocations. A spill response trailer, which contains absorbent products and safety equipment, is currently stored at the Works Yard which allows for quick access to items. The trailer can also easily be towed to the spill incident site, if required.

Response Plan – The Dangerous Goods Spill Response Plan provides a comprehensive risk assessment as required under the Emergency Program Act. It clearly identifies the roles and responsibilities of staff and various agencies, as well as the response strategy and actions to be applied, and the resources available to aid in the response. An overview of the response strategy is contained in Attachment 2. The complete Plan is presented with this report.

Supplier Agreements – The City has entered into agreements with suppliers to ensure access to key potential services are available. The following companies have been engaged:

- Rocky Mountain Environmental – to provide 24 hour access to dangerous goods response supplies.
- Hazco Environmental – to transport and process collected spill materials and undertake remediation, as required.
- CEDA-REACTOR Ltd. – to provide technical advice, spill response and clean-up services.

Bylaw - Bylaw 7435, Pollution Prevention and Clean-Up Regulation Bylaw, is an amalgamation of the existing “Containment Prohibition Discharge Bylaw 4476” (adopted in 1985) and the new provisions identified for spill clean-up and response.

Bylaw 7435 maintains but updates the previous provisions of Bylaw 4476 relating to pollution prevention, and also provides for the following:

- Requires that unknown products be properly identified.
- Requires that responsible parties clean up spills. Designates the property owner as the responsible party in cases where the spiller is not known.
- Allows for compliance orders to be served concerning cleaning up polluting substances and/or spills. Also included is the authority for the City to carry out the compliance order at the responsible party’s cost.
- Provides the City the authority to clean-up spills immediately, in emergency situations, at the responsible party’s cost.

In order to ensure the information in the Spill Response Plan remains current and relevant, the information must be maintained on a regular basis. The plan must also be practised at various times and evaluated after incidents occur to make appropriate adjustments. These maintenance activities will be accommodated within existing budget allocations. During the presentation of this item to the City’s Emergency Planning Committee (EPC), staff were requested to pursue maintenance, registration and update information in an electronic format that could be made available electronically to first responders at the scene. While this is recognized as a longer term objective, it cannot be accommodated within existing resources. This issue will be pursued as a funding request in the 2003 budget.

An alternative option to the spill response strategy as outlined would be to rely on a combination of contracted service providers and the Vancouver Hazmat Team to respond to spill events. This is not recommended due to the delayed response times and the considerable costs that could be incurred by the City. It is not an option to maintain the status quo due to the risk the City assumes in not having adequate training and equipment for staff who have the responsibility to respond to these incidents.

Financial Impact

The net start-up cost associated with the Dangerous Goods Response Plan is \$47,026.19:

Training	\$ 25,000
Equipment	<u>\$ 88,105</u>
Total	\$113,105
Less Grant	<u>(\$66,079)</u>
Net Cost	\$ 47,026

The annual operating costs are as follows:

Training	\$10,000
Equipment Replacement	<u>\$10,000</u>
Net Annual Cost	\$20,000

The equipment purchase is provided for in the 2003 Environmental Programs approved budget. In the event the plan is approved, funding for the initial training costs of \$25,000 will be included in Richmond Fire Rescue's 2003 base level operating budget and will **not** be put forward as an additional level request. Funding for the ongoing annual operating costs of \$20,000 will be included in the Richmond Fire Rescue base level budget, commencing in 2004.

Conclusion

The Dangerous Goods Spill Response Plan represents a comprehensive and coordinated approach to managing pollution and spill incidents in a cost-effective manner. It provides the opportunity to recover clean-up and remediation costs in situations where the City is required to carry out this work.

The current approach to spill response management is not acceptable due to the risk associated with insufficient training and equipment. The City also faces unknown (and unbudgeted) costs each year associated with engaging the services of a Technical Hazardous Materials Response Team.



Suzanne Bycraft
Manager, Emergency & Environmental Programs

SJB:



950-20

August 14, 2002

Wendy Mah
City of Richmond
6911 No. 3 Road
Richmond BC V6Y 2C1

Dear Wendy Mah:

**Re: 2002/2003 JEPP Application for BC # 521/02 — CBRN Incident Response
Equipment**

The Joint Emergency Preparedness Program (JEPP) application, which was submitted to the Provincial Emergency Program (PEP) for the above-noted project, has been approved by the Office of Critical Infrastructure Protection and Emergency Preparedness (OC�PEP). Accordingly, you may begin work on this project.

OC�PEP's approval is based on a 75/25% federal/local government split, or a maximum federal share of \$66,078.58, whichever is the lesser amount. The approved amount was based on the total project cost of \$88,104.77.

Funding has been approved solely for the specific purpose(s) stated in your application. Costs for activities that have not been approved by PEP, and subsequently by OC�PEP, will not be reimbursed. Separate accounting, and preferably accounts, must be established and maintained for all project expenditures. This aspect is extremely important as all JEPP claims:

- ▶ require a complete accounting of all costs; and
- ▶ are subject to audit by provincial and federal auditors.

JEPP funds will not be paid in advance; they will only be provided to reimburse for pre-approved expenditures and costs, once the project is complete and only after OC�PEP has approved the final claim.

.../2

Ministry of
Public Safety and
Solicitor General

Provincial Emergency
Program

Mailing Address:
PO Box 9201 Stn Prov Govt
Victoria BC V8W 9J1

Location:
455 Boleskine Road
Victoria BC V8Z 1E7

Telephone: (250) 952-4913
Facsimile: (250) 952-4888

Wendy Mah
Page 2
August 14, 2002

This project must be completed, invoices received and paid for on or before March 31, 2003. All claims must be in to PEP, at the latest by March 31, 2003. Upon project completion, please visit the PEP web site (www.pep.bc.ca) to obtain claim instructions, a claim calculation worksheet and a claim form, which must be completed in order to make a claim.

If at any time it has been determined that the project will not proceed, please notify PEP as soon as possible, so the available funding may be immediately redirected to projects waiting for funding approvals.

I wish you every success with your project. If you have any questions, please contact me at (250) 952-4816 or email teresa.ferguson@gems3.gov.bc.ca.

Sincerely,



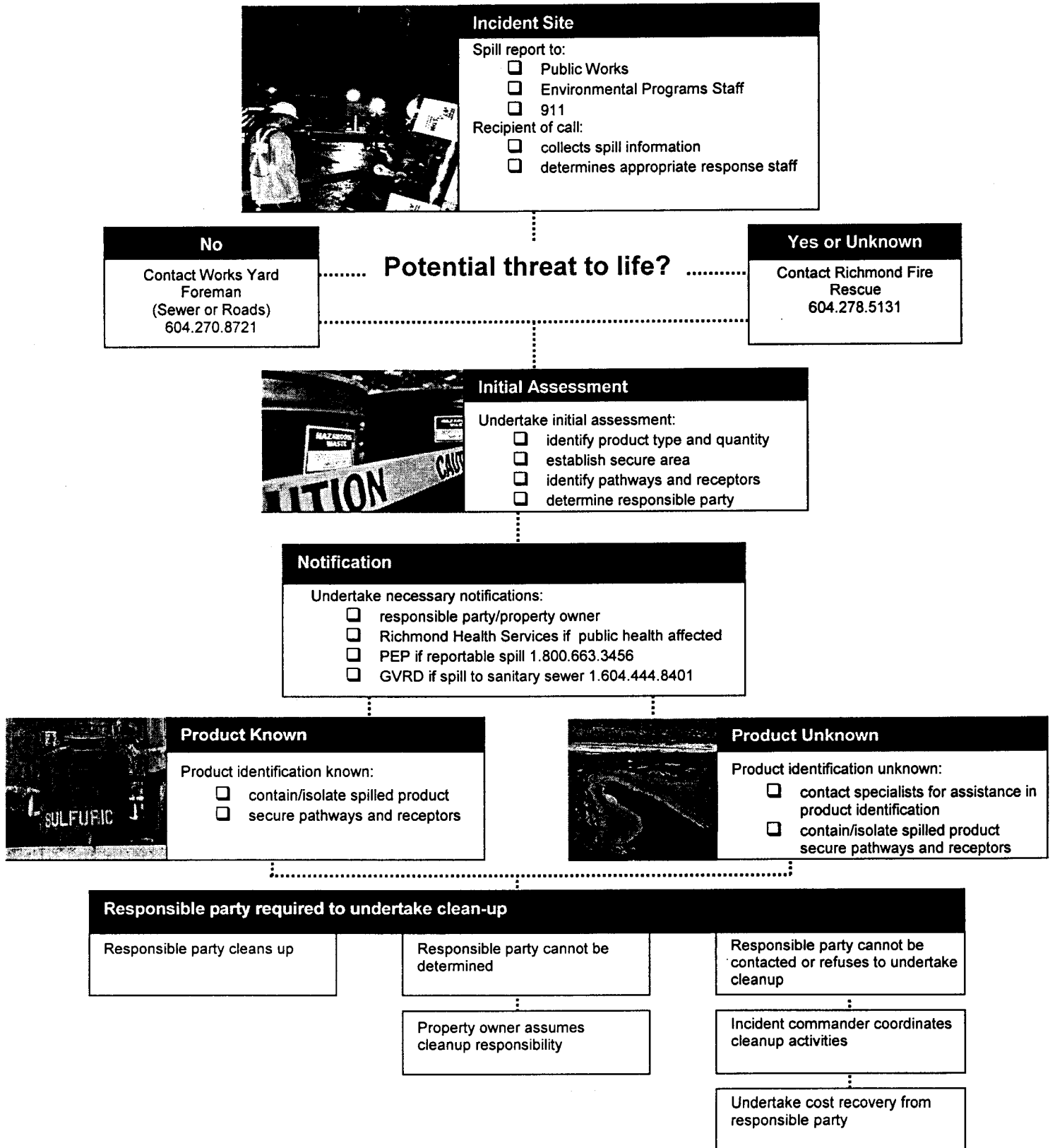
Teresa Ferguson
Federal/Provincial Programs Officer

TF:sgp

cc: John Oakley, PEP Regional Manager

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Basic Response Flow Chart



Acknowledgements

The Dangerous Goods Spill Response Plan demonstrates Richmond City Council's commitment to ensure the safety of citizens and the protection of the environment in the event of a dangerous goods release.

City Council's leadership in this area has included spearheading a number of emergency planning initiatives to ensure a well-planned and managed approach to emergencies. Council has assigned responsibility for carrying out these initiatives to the Emergency Planning Committee. This committee formed a Task Group, comprised of the following individuals, to develop the Dangerous Goods Spill Response Plan:

Suzanne Bycraft	<i>Emergency & Environmental Programs Manager</i>
Gary Frolander	<i>Storm Sewer Foreman, Engineering & Public Works Division</i>
Murray Sellers	<i>Roads Foreman, Engineering & Public Works Division</i>
Reg Smith	<i>Deputy Fire Chief, Richmond Fire Rescue</i>

The Task Group acknowledges Robin Gardner, Emergency Management Coordinator, Greater Vancouver Regional District for his assistance in the development of the plan.

Executive Summary

The Dangerous Goods Spill Response Plan is a plan of action

The “Dangerous Goods Spill Response Plan” identifies the risk assessment, prevention initiatives, and the preparedness, response and recovery measures in place to manage dangerous goods and pollution incidents in the City of Richmond. The document focuses on management and strategic approaches, rather than detailed procedures.

The Spill Response Plan is part of the City’s overall Emergency Plan

This plan represents a threat-specific component of the City’s overall Emergency Plan.

The Spill Response Plan, addresses, in particular:

- The City of Richmond’s overall assessment of risk concerning dangerous goods incidents, as required under the British Columbia Emergency Program Act, and
- The overall strategy and response to be applied in the event of a dangerous goods spill pollution incident, including roles and responsibilities for City of Richmond staff.

The plan is based on the understanding that those responsible for causing a dangerous goods spill are responsible for cleaning it up

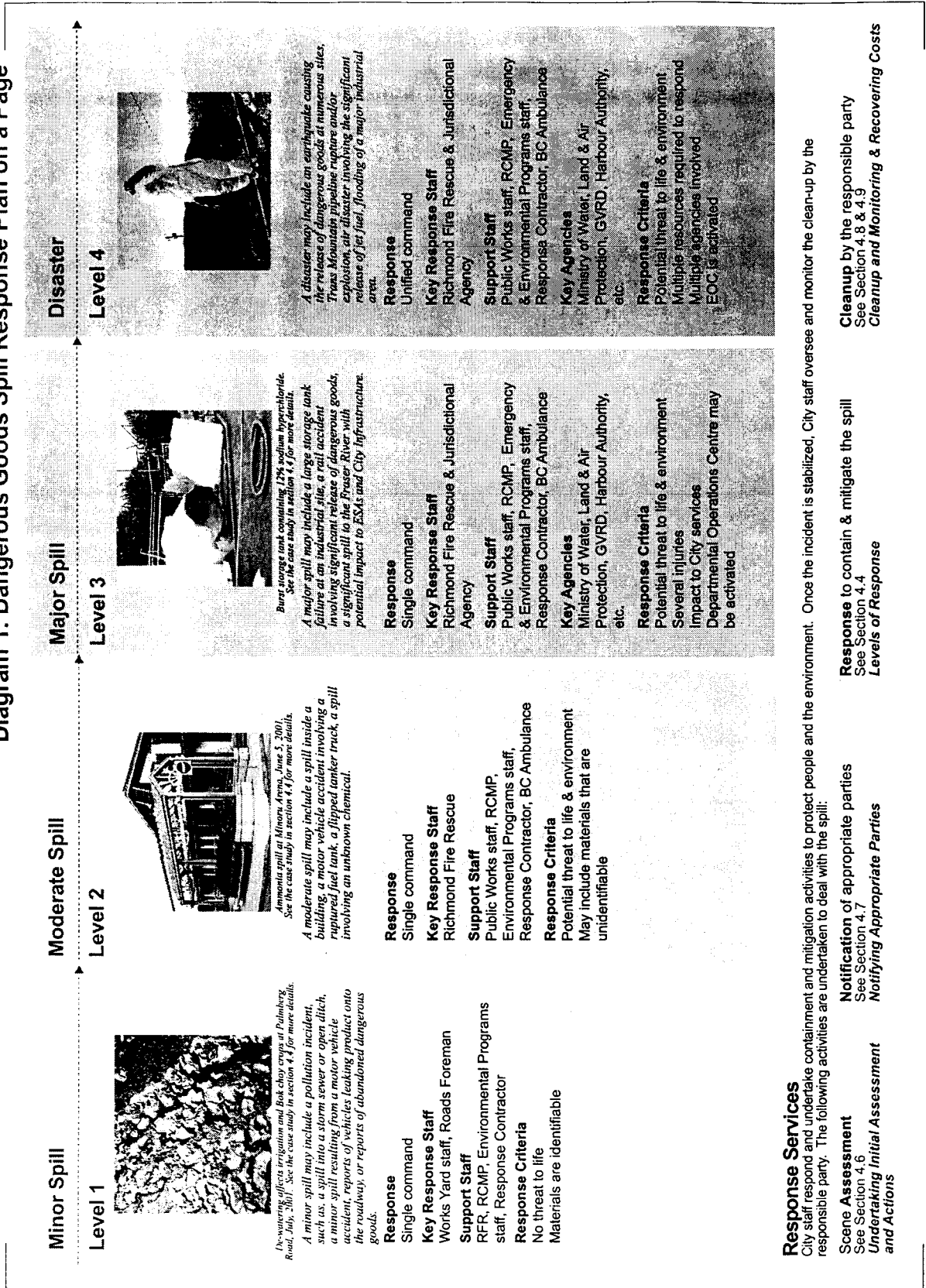
While the City has a pivotal role to play in dealing with a dangerous goods spill – dispatching emergency personnel, addressing immediate needs, and stabilizing the situation, mitigating and containing the spill, identifying the responsible party and so on – the City holds the individual or company that caused the spill accountable for the costs associated with the spill cleanup.

The City of Richmond’s approach places accountability for the costs associated with a spill cleanup on the individual or company that caused the spill. Under the plan, the City will respond to a spill in order to ensure the protection of public health and safety as well as the environment. For cleanup activities, the City’s role is one of monitoring and, where necessary, enforcement, to ensure appropriate steps are taken by the responsible party to clean up spills.

This plan is supported by a bylaw

The plan is supported by the City of Richmond Bylaw 7435, Pollution Prevention & Clean-up Regulation, which establishes overall responsibility and levels of service provided by the City relative to spill incidents.

Diagram 1: Dangerous Goods Spill Response Plan on a Page



Plan Activation



This plan is activated when individuals call 911 or the Public Works dispatch at 04.270.8721 to report a spill.
See Section 4.2
Reporting the Spill

Dangerous Goods Spill Response Plan

Table 4 - Levels of Response

Activation Level	Level 1	Level 2	Level 3	Level 4
Type of Incident Criteria	<p>Minor spill</p> <ul style="list-style-type: none"> materials are identifiable no threat to life abandoned dangerous goods 	<p>Moderate spill</p> <ul style="list-style-type: none"> materials cannot be identified or managed by City Works Yard Staff injured individuals city services or roadways interrupted 	<p>Major Spill</p> <ul style="list-style-type: none"> threat to life and environment several injuries issues of liability to the City of Richmond one or more city services interrupted or shut down large media response 	<p>Disaster</p> <ul style="list-style-type: none"> incident is caused as the result of a major emergency or disaster multiple resources needed to assist multiple agencies involved large media response
Potential Response Measures	<ul style="list-style-type: none"> spill can be managed with existing supplies response contractors may be contacted to assist 	<ul style="list-style-type: none"> Richmond Fire Rescue required to co-ordinate and monitor clean up response contractors may be contacted to assist 	<ul style="list-style-type: none"> evacuation required activation of DOC spill response contractor for clean up Provincial and federal response agencies involved in response 	<ul style="list-style-type: none"> City may declare local state of emergency EOC Activated immediate evacuation major disaster contractors required to initiate response
Lead Response staff/agencies	<i>City Works Yard Staff</i>	<i>Richmond Fire Rescue</i>	<i>Richmond Fire Rescue</i>	<i>Richmond Fire Rescue</i> <i>RCMP</i> <i>City Works Yard Staff</i>
Command	Single	Single	Single	Unified
Key Agencies	RFR RCMP Waste Disposal Contractor Responsible party/property owner	City Works Yard Staff Spill Response Contractor RCMP Responsible party/property owner	RCMP PEP City Works Yard Staff BC Ambulance Spill Response Contractor Responsible party/property owner	BC Ambulance PEP Spill Response Contractor Responsible party/property Ministry of Water, Land and Air Protection owner
EOC Activation	No activation	No activation	Optional activation of Departmental Operations Centre	Activation

Dangerous Goods Spill Response Plan Activation Quick Reference

1. Plan Activation

This plan is activated when individuals report a spill to one of the following:

- 911 or
- Public Works Dispatch 604.270.8721

2. Collect Incident Information

see Section 4.2 Reporting the Spill

Persons receiving the call will collect the following information:

- Name & telephone number of person reporting the spill
- Name & telephone number of responsible party and/or property owner
- Location of spill and description of surrounding area
- Time of spill
- Substance spilled
- Quantity spilled
- Apparent causes
- Action taken

3. Assess Level of Response

- | | |
|--|---|
| ▪ Potential threat to life | Richmond Fire Rescue responds |
| ▪ Spill with no potential threat to life | Works Yard – Roads, Storm or Sanitary Sewer Foreman |
| ▪ Unknown threat and/or product | Richmond Fire Rescue responds |

4. Response

see Section 4.4 Levels of Response


Public Works Staff or Richmond Fire Rescue respond and undertake containment and mitigation activities to protect people and the environment.

5. Clean-Up & Recovery

Responsible party undertakes clean-up, Incident Commander, with the support of Environmental Programs, monitors and/or coordinates the clean-up response.

Dangerous Goods Spill Response Plan

Basic Response Flow Chart



Incident Site

Spill report to:

- 911
- Public Works
- Environmental Programs

Recipient of call:

- collects spill information
- determines appropriate response staff


No

Contact Works Yard Foreman (Sewer or Roads) 604.270.8721

Potential threat to life?

Yes or Unknown

Contact Richmond Fire Rescue 604.278.5131



Initial Assessment

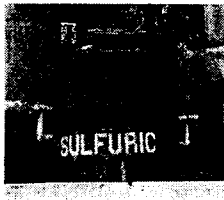
Undertake initial assessment:

- identify product type and quantity
- establish secure area
- identify pathways and receptors
- determine responsible party

Notification

Undertake necessary notifications:

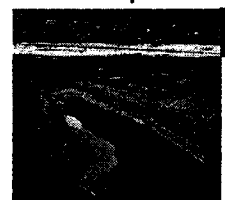
- responsible party/property owner
- Council if media interest or Declaration of a State of Local Emergency required
- Richmond Health Services if public health affected
- PEP if reportable spill 1.800.663.3456
- GVRD if spill to sanitary sewer 1.604.444.8401



Product Known

Product identification known:

- contain/isolate spilled product
- secure pathways and receptors



Product Unknown

Product identification unknown:

- contact specialists for assistance in product identification
- contain/isolate spilled product secure pathways and receptors

Responsible party required to undertake clean-up

Responsible party cleans up	Responsible party cannot be determined	Responsible party cannot be contacted or refuses to undertake clean-up
	Property owner assumes cleanup responsibility	Incident commander coordinates cleanup activities
		Undertake cost recovery from responsible party

Environmental Programs evaluates to ensure compliance in accordance with requirements

Dangerous Goods Spill Response Plan

*Spill Report Form
Pursuant to the Spill Reporting Regulation of the Waste Management Act.*

Spill Report	
Name:	
Telephone Number:	
<i>Spill Information</i>	
1. Name of person or company causing spill:	
2. Telephone number of company that caused the spill:	
3. Location of spill:	
4. Further description of spill location and surrounding area:	
5. Time of spill:	
6. Type of substance spilled:	
7. Quantity spilled:	
8. Cause and effect of spill:	
<i>Response Actions</i>	
Details of action taken or proposed to stop, contain and minimize the effects of the spill:	
Details of further action contemplated or required:	
<i>Response Personnel</i>	
Lead Agency:	
Incident Commander:	Contact Number:
Names of the agencies on site:	
Names of other persons or agencies advised concerning the spill:	
<i>For office use</i>	
Completed by:	
Date:	

Table of Contents

Acknowledgements	1
Executive Summary	3
Quick Reference	7
Plan Approval & Authority	13
1.1 Plan Approval	13
1.2 Plan Authority.....	14
1.3 Other Applicable Regulations.....	15
Introduction	17
2.1 Purpose of the Spill Response Plan	17
2.2 Scope of the Spill Response Plan	19
2.3 Foundations of the Spill Response Plan	21
Assessing Risk	23
3.1 Identifying Potential Spill Incidents	23
Concept Of Operations	51
4.1 Overview of the Spill Response Strategy	51
4.2 Reporting the Spill	53
4.3 Activating the Plan.....	57
4.4 Levels of Response	57
LEVEL I – Minor Incident	57
LEVEL II – Moderate Incident.....	59
LEVEL III – Major Incident	61
LEVEL IV – Disaster	63
4.5 Response Organization	65
4.6 Undertaking Initial Assessment and Actions.....	68
4.7 Notifying Appropriate Parties	69
4.8 Cleanup and Monitoring.....	71
4.9 Recovering Costs	72
4.10 Roles and Responsibilities	73
4.10.1 Contracted Support.....	73
4.10.2 Richmond Agencies	73
Richmond Fire Rescue	73
Richmond Fire Rescue Dispatch.....	73
Public Works Dispatch	73
Public Works Operations.....	74
Richmond RCMP	74
Environmental Programs Manager	74
Emergency Programs Manager	75
Manager of Communications	75
Richmond Health Services.....	75

Dangerous Goods Spill Response Plan

4.10.3 Other Agencies	76
Environment Canada	76
Transport Canada – CANUTEC	76
Canadian Coast Guard (CCG)	76
Provincial Emergency Program	77
Ministry of Water, Land and Air Protection	77
BC Ambulance	77
4.11 Additional Information	78
Managing and Maintaining the Plan	79
5.1 Updates	79
5.2 Additions and Modifications	79
5.3 General Maintenance	79
5.4 Training	79
5.5 Dangerous Goods Supplies	83
Distribution	87
6.1 Distribution List	87
6.2 Revision History	88
Glossary	89
Appendix 1 – Regulatory Framework	93
Federal Regulatory Framework	93
Transportation of Dangerous Goods Act & Reportable Quantities	93
Canadian Environmental Protection Act (CEPA)	94
Fisheries Act	94
Migratory Birds Convention Act	95
Canada Shipping Act	95
Provincial Regulatory Framework	96
Emergency Program Act	96
Waste Management Act & Reporting Regulation	96
Municipal By-laws	98
GVRD	98
City of Richmond	98
Appendix 2 – Transportation of Dangerous Goods Classes & Divisions	99
Appendix 3 – Risk Assessment Maps included here	103
Appendix 4 – Emergency Communications Directory	107
Appendix 5 - Drainage Pump Stations listed here	113
Appendix 6 - Sanitary Pump Stations listed here	115

Plan Approval & Authority

1.1 Plan Approval

1. That the Dangerous Goods Spill Response Plan dated October 7, 2002 be approved as the risk assessment and method of responding to dangerous goods spills and pollution incidents as required under the B.C. Emergency Program Act.
2. That the General Manager – Community Safety be directed to:
 - a) Update the Dangerous Goods Spill Response Plan a minimum of twice per year, and
 - b) Undertake a complete review of the Dangerous Goods Spill Response Plan every three years and present this updated review to Council through the appropriate Standing Committee, as authorized in Section 5, Managing and Maintaining the Plan, of the Dangerous Goods Spill Response Plan.

Certified a true and correct copy of Resolution # _____, adopted by Council on _____.

City Clerk

Date

1.2 Plan Authority

Pursuant to the B.C. Emergency Program Act, local authorities must plan for emergencies. This means that Richmond City Council must:

- Prepare local emergency plans respecting preparation for, response to and recovery from emergencies and disasters.
- Establish and maintain an emergency management organization.
- Provide policy guidance and direction to the emergency management organization and procedures by which that guidance and direction is to be provided.
- Require a periodic review and updating of the emergency plans.
- As of October 7, 2002, Richmond City Council has established the following:

Table 1 – City of Richmond Bylaws, Agreements and Policies

Document Number	Name	Date approved by council
Bylaw 7435	Pollution Prevention & Cleanup Regulation Bylaw	Date TBA
REDMS 295927	Workers' Compensation Board Agreement for Facility Use in an Emergency	August 27, 2001
Bylaw 7234	Emergency Management Organization Establishment	July 30, 2001
REDMS 135090	Public Works Mutual Aid Agreement	February 14, 2000
Bylaw 6553	Agreements - Mutual Aid Fire Fighting Services	November 14, 1995
	Municipal Police Unit Agreement	April 28, 1992
Policy 2002	City Buildings – Post Earthquake Use	November 12, 1990

The Dangerous Goods Spill Response Plan was prepared in accordance with the legislative requirements outlined in the Emergency Program Act for the Province of British Columbia. Further, this plan is based on the B.C. Emergency Response Management System (BCERMS) standards and has adopted the response objectives, structure and functions prescribed.

1.3 Other Applicable Regulations

Certain federal, provincial and regional/municipal regulations may apply to the City of Richmond in the event of a dangerous goods spill. These regulations include:

Federal Regulations

- Transportation of Dangerous Goods Act
- Canadian Environmental Protection Act
- Migratory Birds Convention Act
- Canada Shipping Act

Provincial Regulations

- Emergency Program Act
- Waste Management Act

Regional Regulations

- GVRD Sanitary Sewer Spill, Bylaw 64, Section 4.4

These regulations and their potential application are discussed in Appendix 1.

Introduction

2.1 Purpose of the Spill Response Plan

The over-arching goal of the Spill Response Plan is to protect public health and safety, and the environment in the event of a spill involving dangerous goods.

The purpose of the Spill Response Plan is to outline the City of Richmond's strategy for addressing dangerous goods

spills that occur within Richmond's jurisdictional boundary. The Plan assesses risks and assigns roles, responsibilities and procedures to follow in the event of a dangerous goods spill.

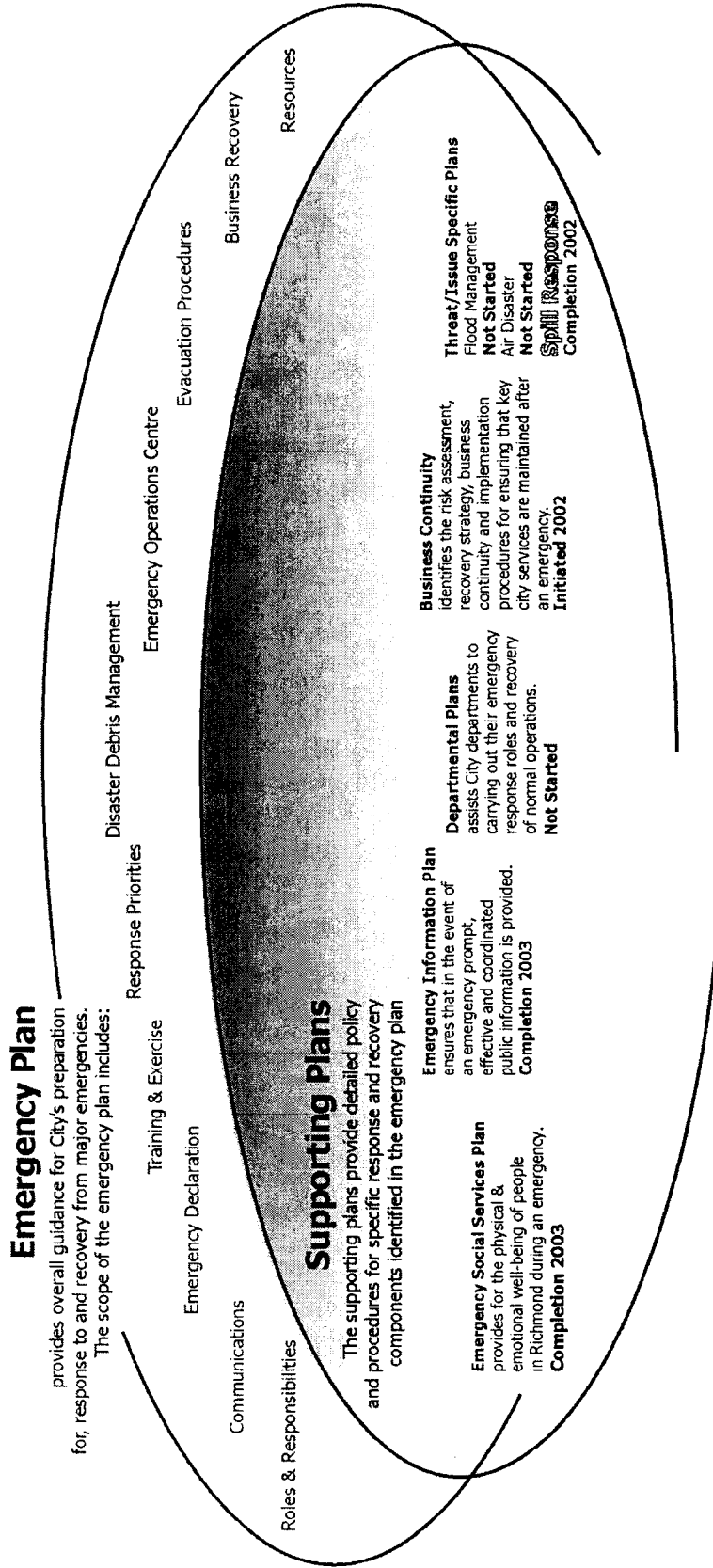
A local authority must reflect in the local emergency plan ... the potential emergencies and disasters that could (occur) ... the local authority's assessment of the relative risk of occurrence, and the potential impact on people and property...

Emergency Program Act, Local Authority Emergency management Regulation (1995), Section 2 (1).

The plan provides for a safe, timely, effective and coordinated response by the City, supporting agencies and the parties responsible for the spill.

This plan represents a threat-specific component of the City's overall Emergency Plan, as show in Diagram 2 (following page).

Diagram 2 - City of Richmond Emergency Program Overview



Dangerous Goods Spill Response Plan

2.2 Scope of the Spill Response Plan

The Spill Response Plan applies to spill incidents that occur within the City of Richmond's jurisdictional area.

The Spill Response Plan applies to dangerous goods, as defined by the federal Transportation of Dangerous Goods Act.

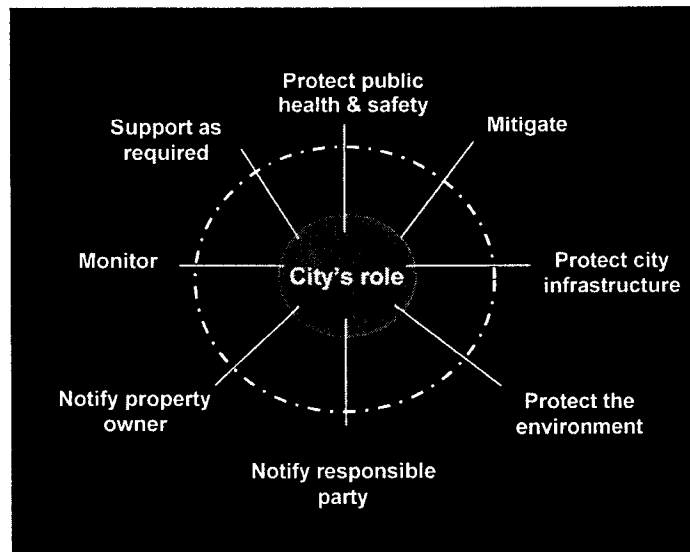
This includes:

1. Explosives
2. Gases
3. Flammable liquids
4. Flammable Solids, spontaneously combustible and dangerous when wet
5. Oxidizing substances and organic peroxides
6. Poisonous and infectious substances
7. Radioactive materials
8. Corrosive substances
9. Miscellaneous dangerous goods

For further hazard descriptions and divisions, see Appendix 2.

The plan also addresses spills of non-dangerous goods (not classified as) that cause a threat to the environment.

The plan does not address biological, nuclear, or radiological materials.



Where the City is the responsible party, the City will assume all responsibility for mitigation, cleanup and remediation.

Where the responsible party is an individual or company other than the City, the City will:

- Protect public health and safety, and the environment to the degree possible.
- Undertake initial mitigation to contain the spill.
- Protect municipal infrastructure, particularly as it relates to preventing or mitigating the transfer of dangerous goods to the environment via the City's infrastructure.
- Notify the responsible party and property owner.
- Monitor the mitigation, cleanup and remediation activities of the responsible party to ensure environment protection priorities are met.

- Provided requested support and assistance to the responsible party on a cost-recovery basis.

Where the responsible party and/or property owner cannot be contacted or refuses to undertake the appropriate action (including required mitigation, cleanup and remedial activities as determined necessary by the City Incident Commander), the City will undertake these activities and recover these costs from the responsible party and/or property owner, as authorized by Bylaw 7435 - Pollution Prevention & Cleanup Regulation. For a copy of the bylaw see Appendix 1.

Where the spill occurs in the City of Richmond, but on property regulated by others, the City will:

- Protect public health and safety, and the environment to the degree possible.
- Undertake initial mitigation to contain the spill.
- Protect municipal infrastructure, particularly as it relates to preventing or mitigating the transfer of dangerous goods to the environment via the City's infrastructure.
- Notify the responsible party and property owner.
- Provided requested support and assistance to the responsible party on a cost-recovery basis.

2.3 Foundations of the Spill Response Plan

The Spill Response Plan is based on a number of assumptions. These include:

1. The party causing a spill - that is, the person or company who immediately before the spill had possession, charge or control of the spilled substance - is responsible for cleaning up the spill. This responsible party is liable for all costs associated with mitigation, cleanup and remediation.
2. A federal service is available through the Transport Dangerous Goods Directorate of Transport Canada (CANUTEC) to guide and direct City response staff in identifying products, and to provide advice concerning mitigation, safety issues, and technical information related to dangerous goods spills.
3. A provincial service is available through the B.C. Ministry of Water, Land and Air Protection's Environmental Emergency Program to provide technical support, advice and guidance concerning dangerous goods incidents.
4. The Incident Command System (ICS) will be used to manage the response to an incident that occurs in Richmond's jurisdictional area.

Assessing Risk

3.1 Identifying Potential Spill Incidents

A risk assessment was undertaken to identify areas and environments within Richmond that are particularly sensitive to dangerous goods incidents. The assessment focused on three areas of concern:

- environmentally sensitive areas
- high risk areas, and
- dangerous goods and special waste sites (specifically, locations where dangerous goods are most likely to be stored, handled or transported/transferred).

The information contained in this section is confidential and is, therefore, excluded.

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Concept Of Operations

4.1 Overview of the Spill Response Strategy

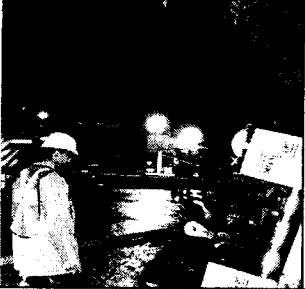
The basic spill response strategy includes the following key steps:

1. Report spill, or receive report of spill
2. Collect information on the spill
3. Make initial assessment to determine the appropriate level of response
4. Undertake an initial investigation
5. Make necessary notifications
6. Determine required response strategy
7. Notify the responsible party of the spill and the planned response
8. Cleanup the spill
9. Monitor and undertake follow-up activities
10. Recover response costs from the responsible party

This basic response strategy is illustrated as a flow chart in Diagram 3.

Dangerous Goods Spill Response Plan

**Diagram 3 -
Basic Response
Flow Chart**



Incident Site

Spill report to:

- 911
- Public Works
- Environmental Programs

Recipient of call:

- collects spill information
- determines appropriate response staff


No

Contact Works Yard Foreman (Sewer or Roads) 604.270.8721

Potential threat to life?

Yes or Unknown

Contact Richmond Fire Rescue 604.278.5131



Initial Assessment

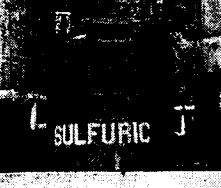
Undertake initial assessment:

- identify product type and quantity
- establish secure area
- identify pathways and receptors
- determine responsible party

Notification

Undertake necessary notifications:


- responsible party/property owner
- Council if media interest or Declaration of a State of Local Emergency required
- Richmond Health Services if public health affected
- PEP if reportable spill 1.800.663.3456
- GVRD if spill to sanitary sewer 1.604.444.8401



Product Known

Product identification known:

- contain/isolate spilled product
- secure pathways and receptors



Product Unknown

Product identification unknown:

- contact specialists for assistance in product identification
- contain/isolate spilled product secure pathways and receptors

Responsible party required to undertake clean-up

Responsible party cleans up	Responsible party cannot be determined	Responsible party cannot be contacted or refuses to undertake clean-up
	Property owner assumes cleanup responsibility	Incident commander coordinates cleanup activities
		Undertake cost recovery from responsible party

Environmental Programs evaluates to ensure compliance in accordance with requirements

4.2 Reporting the Spill

The person who had possession, charge or control of a substance immediately before its spill is required to immediately report the spill under the BC Spill Reporting Regulation.

In addition, the Regulation stipulates that where it appears that a report has not been made, persons observing a spill are required to report the spill.

Persons reporting a spill are likely to call 911 and/or City Dispatch. City staff receiving a report of a spill will collect as much of the following information as possible:

Dangerous Goods Spill Response Plan

Spill Report Form
 Pursuant to the Spill Reporting Regulation of the Waste Management Act.

Spill Report	
Name:	
Telephone Number:	
<i>Spill Information</i>	
9. Name of person or company causing spill:	
10. Telephone number of company that caused the spill:	
11. Location of spill:	
12. Further description of spill location and surrounding area:	
13. Time of spill:	
14. Type of substance spilled:	
15. Quantity spilled:	
16. Cause and effect of spill:	
<i>Response Actions</i>	
Details of action taken or proposed to stop, contain and minimize the effects of the spill:	
Details of further action contemplated or required:	
<i>Response Personnel</i>	
Lead Agency:	
Incident Commander:	Contact Number:
Names of the agencies on site:	
Names of other persons or agencies advised concerning the spill:	
<i>For office use</i>	
Completed by:	
Date:	

4.3 Activating the Plan

City staff receiving the call will collect this information. Staff will determine and contact the appropriate responding department, for example: Richmond Fire Rescue, Public Works Operations Storm Sanitary Sewer, or Roads.

4.4 Levels of Response

Depending on the magnitude of the spill incident, this plan may be activated to one of four levels.

These four levels of activation are:

LEVEL I – Minor Incident

Incidents in this category might include: a spill in the storm drainage system, a spill on the road with no threat to life, or abandoned dangerous goods

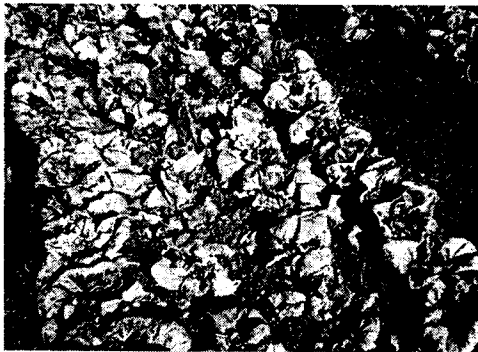
A minor spill incident is one in which the City of Richmond Works Yard staff can respond and terminate the event without activating a Level II callout. Activation of the City of Richmond’s overall Emergency Plan is not required.

A minor incident involves:

- Spill materials that the responding staff can identify
- Spill materials that can be contained and cleaned up, and the incident safely terminated, with supplies on hand
- Events that do not pose immediate threat to life and/or property
- No injuries
- No liability to the City of Richmond
- No media interest

Level 1 - Case Study

De-watering affects irrigation



Richmond staff had a puzzling situation on their hands in July 2001 when a local farmer called to say his bok choy crop was dying. The farmer had irrigated his crop with ditch water a few days earlier, and now his crop was suffering.

City staff visited the site and, observing no obvious spill or source of contamination, called in a consultant to assist. The City also immediately notified a representative of the Provincial Emergency Program (PEP). As much of the poor quality water was extracted as was feasible and manual pumps were shut off to prevent the water from entering the Fraser River. The City provided a fresh source of water supply to affected farmers. Richmond Health was notified of the problem.

The consultant conducted a number of environmental analyses in order to identify the source of the problem. It was determined that City construction works in the vicinity were affecting the freshwater ditch system. City crews were installing a new culvert and, in accordance with conventional practice, were de-watering (draining) the surrounding area. The extracted water was being discharged to the freshwater ditch system close to where the concerned farmer drew irrigation water for his crops. Unfortunately, the water extracted had a high salinity and high concentrations of dissolved iron.

The City significantly reduced pumping activity and worked with EVS Environmental Consulting to place piping in the ditch system and deliver air that would raise oxygen levels in the water and cause the dissolved iron to precipitate into a less toxic form. The ditches were also flushed with de-chlorinated municipal water.

Unfortunately, before the water had all been treated, water levels in the ditch rose and, with the onset of heavy rain, flooding became a serious concern. The City contacted PEP and was given authorization to release the water in to the Fraser River. Fish mortalities were observed near the point of discharge.

Once the flood risk had passed, the manual pumps were shut and the City continued conducting treatment and making changes to its construction practice. The City has taken a number of steps to ensure that future construction does not result in similar difficulties, including modifying construction practices where de-watering activities are required.

LEVEL II – Moderate Incident

Incidents in this category might include: a spill or disposal of an unidentifiable product or accident involving a fuel tank rupture with a potential threat to life

A moderate spill incident may require the involvement of a contractor to collect residual materials.

A moderate spill incident is one in which Richmond Fire Rescue (RFR) must attend.

A moderate spill incident involves:

- Materials that the City Works Yard staff cannot identify, or that are identified as materials beyond the Works Yard staff's scope of training
- Events that pose an immediate threat to life and/or property
- Injured personnel (BC Ambulance Service is required)
- The need for RFR to coordinate and monitor clean up efforts
- Spills to creeks, rivers, and harbours that require notification to outside regulatory agencies
- Potential liability to the City of Richmond
- City services or roadways interrupted or impaired
- RCMP support, potentially including traffic detours
- Media interest.

Level 2 - Case Study

Ammonia Spill

On June 5, 2001 Richmond Fire Rescue received reports of an odour, and people experiencing burning eyes, in the Minoru Park area. They investigated and found isolated pockets of a slight odour of ammonia. With the assistance of City Works Yard staff, the source of the odour was identified as a ditch near Minoru Arena.

Earlier in the day, a contractor servicing the condenser for the Arena's refrigeration unit had removed ammonia from the unit, diluted it, and begun flushing the chemical. The contractor had intended to discharge the diluted ammonia to the sanitary sewer system, but instead, mistakenly discharged it to the storm sewer system. When the Storm Sewer Foreman arrived on the scene, the water hose used to dilute the solution was still running. It was turned off in order to stop the flow. The odour began to worsen and, over the next several hours, a spill response was mounted.

Richmond Fire Rescue established a Command Post at Minoru Arena and began preparation to isolate and evacuate the immediate area. The Emergency and Environmental Programs Manager was notified; who in turn notified the Vancouver/Richmond Health Board and contacted the Provincial Emergency Program to request an Environmental Emergency Response Officer.

After tests and consultation, it was determined that the ammonia should be collected and discharged to the sanitary sewer system. GVRD Source Control was notified of the intended action, drainage pathways were isolated with sandbags and flushing commenced. Richmond Fire Rescue pumped water into the drainage system and City Works Yard staff drew the flushed water out with suction vehicles. The material was then discharged to the sanitary sewer system.

The contractor who caused the spill attended the scene, accepted full responsibility and agreed to pay all related clean-up charges. The City has worked with the company to ensure proper disposal procedures are followed in the future.



Minoru Arenas at Minoru Gate

LEVEL III – Major Incident

Incidents in this category might include: a rupture to the Transmountain Pipeline, a significant spill at an industrial site with a potential threat to life

A major spill incident is one in which there are potentially severe threats to life and the environment. The City may declare a localized state of emergency and issue an evacuation order.

Richmond Fire Rescue is the lead response agency for Level III incidents.

A major spill incident involves:

- Hazardous materials that are either of a great quantity or pose a serious threat to life and/or property.
- Several injuries (BC Ambulance Service is required)
- Provincial and Federal personnel taking control of response efforts
- Severe impact to one or more environments (land, air or water)
- Issues of liability to the City of Richmond
- One or more City services interrupted or shut down entirely
- Large media response

In addition, the incident has the potential to require:

- the activation of evacuation procedures
- the activation of the Emergency Operations Centre
- the involvement of a contractor to provide a response service

Level 3 - Case Study

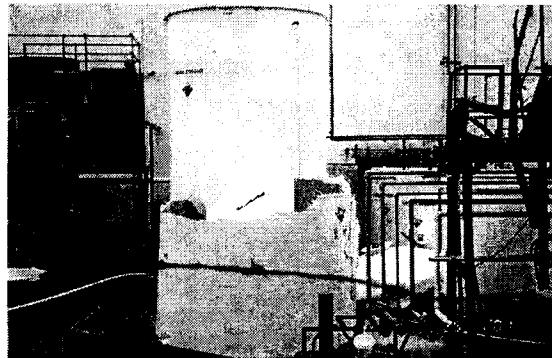
Ruptured tank

The right individuals made the right call on November 6, 2001 when a tank containing a 12% solution of sodium hyperchloride (a Class 8, corrosive liquid commonly referred to as bleach) ruptured at Canadian Miraclean Products Ltd. on Horseshoe Way in Richmond.

A staff member called 911 to report the incident and request help. The fire department was first on the scene, assessing the situation, insuring there was no threat to life, and redirecting traffic away from the site.

While most of the bleach from the ruptured tank was captured in a containment pit on-site (as was liquid from a second tank that had been damaged by the first tank's rupture), approximately 1000 to 1500 gallons of bleach overflowed in to an adjacent storm drain.

The fire department evacuated all buildings in the immediate area (affecting two neighbouring businesses), closed the roads, and called for back-up. The City of Richmond Works Yard, RCMP, Ministry of Water, Land and Air Protection, BC Ambulance Service, Workers' Compensation Board and the response and clean-up companies under contract to Miraclean were notified.



Ruptured tank contained sodium hyperchloride solution

When the Ministry of Water, Land and Air Protection and the response company arrived, the storm sewers were plugged and testing began to determine pH levels and the amount of chlorine present in the water along the entire storm sewer route, from the plant to the outflow in Horseshoe Slough. The storm sewers were pumped out, then flushed with clean water.

Once the situation was deemed under control, Miraclean and their contractors took charge of clean-up efforts at the plant.

LEVEL IV – Disaster

Incidents in this category might include: an earthquake causing the release of dangerous goods at numerous sites, Trans Mountain Pipeline rupture and/or explosion, air disaster involving the significant release of jet fuel, flooding of a major industrial site

In a major disaster, contractors will be required to initiate a spill response.

Table 3 - Levels of Response, details the four levels of response as discussed in this section.

A major disaster requires immediate evacuation orders. The Emergency Control Group (ECG) gives notification to activate the Emergency Operations Centre.

A Level IV response involves multiple agencies. Richmond Fire Rescue is the lead response agency, however, a unified command structure may be implemented. Lead responsibility can also be assumed by the Ministry of Water, Land and Air Protection.

A disaster of this magnitude involves one or more of the following:

- TransMountain Pipeline
- Downed aircraft within city
- Large-scale incidents at the Vancouver International Airport (YVR).
- Rail disasters involving dangerous goods - Large spill events in the harbours
- Large fires in industrial areas involving hazardous materials
- Gaseous emissions
- Incidents involving explosives.

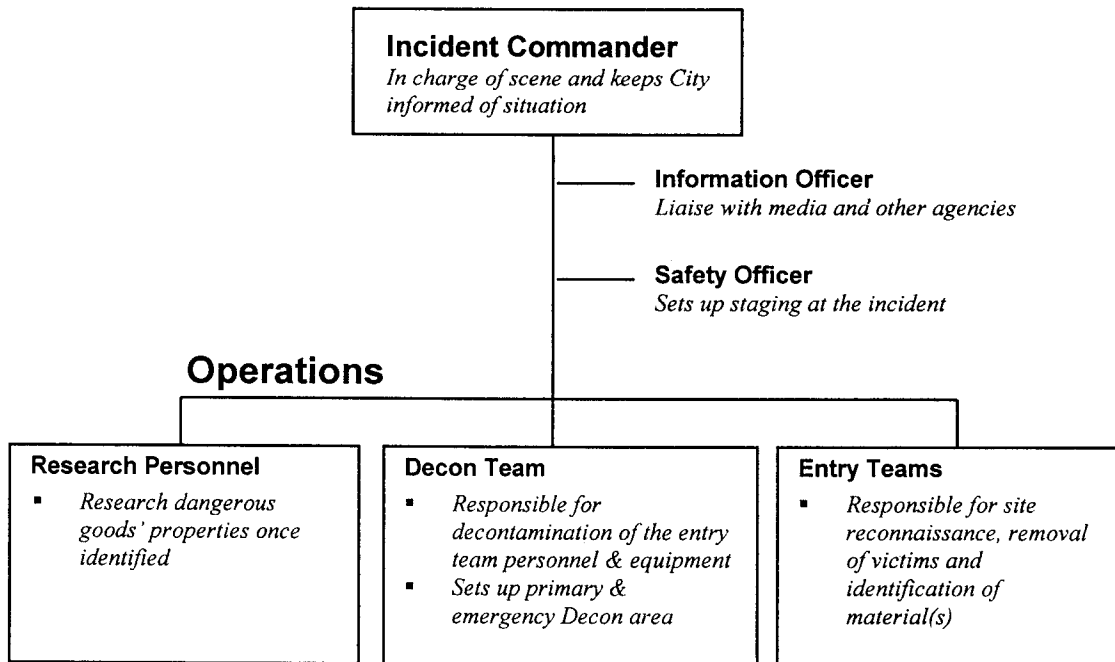
Dangerous Goods Spill Response Plan

Table 4 - Levels of Response

	Level 1		Level 2		Level 3		Level 4	
Activation Level	Minor spill	Moderate spill	Major Spill	Disaster				
Type of Incident Criteria	<ul style="list-style-type: none"> materials are identifiable no threat to life abandoned dangerous goods 	<ul style="list-style-type: none"> materials cannot be identified or managed by City Works Yard Staff injured individuals city services or roadways interrupted 	<ul style="list-style-type: none"> threat to life and environment several injuries issues of liability to the City of Richmond one or more city services interrupted or shut down large media response 	<ul style="list-style-type: none"> incident is caused as the result of a major emergency or disaster multiple resources needed to assist multiple agencies involved large media response 				
Potential Response Measures	<ul style="list-style-type: none"> spill can be managed with existing supplies response contractors may be contacted to assist 	<ul style="list-style-type: none"> Richmond Fire Rescue required to co-ordinate and monitor clean up response contractors may be contacted to assist 	<ul style="list-style-type: none"> evacuation required activation of DOC spill response contractor for clean up Provincial and federal response agencies involved in response 	<ul style="list-style-type: none"> City may declare local state of emergency EOC Activated immediate evacuation major disaster contractors required to initiate response 				
Lead Response staff/agencies	<i>City Works Yard Staff</i>	<i>Richmond Fire Rescue</i>	<i>Richmond Fire Rescue</i>	<i>Richmond Fire Rescue</i>				
Command	Single	Single	Single	Single				
Key Agencies	RFR RCMP Waste Disposal Contractor Responsible party/property owner	City Works Yard Staff Spill Response Contractor RCMP Responsible party/property owner	City Works Yard Staff BC Ambulance Spill Response Contractor Responsible party/property owner	BC Ambulance PEP Spill Response Contractor Responsible party/property Ministry of Water, Land and Air Protection owner				
EOC Activation	No activation	No activation	Optional activation of Departmental Operations Centre	Activation				

4.5 Response Organization

Diagram 3 - Incident Command Organizational Chart



Based on the British Columbia Emergency Response Management System (BCERMS), there are a prescribed set of response objectives set out in the following priority:

- provide for the safety and health of all responders,
- save lives,
- reduce suffering,
- protect public health,
- protect government infrastructure,
- protect property,
- protect the environment, and
- reduce economic and social losses

To ensure that all response activities follow these priorities response staff on site will be organized according to the Incident Command System (ICS). At an event involving dangerous goods, the HAZMAT ICS defines specific roles and duties for the personnel who are physically at the scene. These roles, as shown in diagram 3 above, are:

- Incident Commander
- Safety Officer
- Research Officer
- Information Officer
- Decon Team
- Entry Team

Depending on the scale of the incident the personnel involved may have one role, or cover the responsibilities of two or more roles at a smaller event.

Incident Commander

The Incident Commander (IC) is in charge at the scene and is responsible for the coordination of the overall incident response, including:

- initial assessment
- incident stabilization
- safety issues
- notifications
- perimeter control
- environmental protection activities
- cleanup action
- undertake notifications
- guide follow up actions
- recover costs
- conduct de-briefings & keeping the City informed

Information Officer

The Information Officer is the only person who speaks to the media and provincial and federal regulatory agencies. The information officer obtains information from the rest of the team and is the one member of the team providing information to the Incident Commander.

Safety Officer

The Safety Officer plays a critical role in determining up how the situation will be dealt with and keeping everyone's safety a priority. The Safety Officer develops written site safety plans to ensure the safety of both response personnel and the public.

Research

The Research person is responsible for researching the dangerous goods' properties once the dangerous good is identified. The research may involve obtaining relevant material safety data sheets or placing phone calls to CANUTEC or others.

Decon Team

The Decon Team is responsible for decontaminating the entry team personnel and equipment. The team will set up a primary decontamination area as well an emergency decontamination area to use should conditions change (e.g. winds change direction, a fire or explosion endangers the primary Decon point). The team will use a system of decontamination specific to the material(s) released, as identified by the Safety Officer.

Dangerous Goods Spill Response Plan

Entry Team

The Entry Team is the Incident Commander's eyes on the scene. Entry Teams consist of an officer and two firefighters. There will be a minimum of two personnel on standby should something happen to the initial entry team.

Entry Teams act in a purely defensive manner. Upon entry they conduct an initial reconnaissance of the site, remove any victims if safe to do so, and try to identify the material(s) involved. They may attempt to mitigate a spill only if it falls within their training and capacity to do so.

A preliminary site assessment is done when the entire team arrives at a dangerous goods incident. From this initial assessment the team will develop a safety and action plan. A Decon Area is set up and one Entry Team is sent to assess the situation further.

When the Entry Team returns, they brief the Safety Officer and review the original safety and action plan. If the materials involved are identified, the team creates a hot zone, warm zone and cold zone according to the hazards. If the materials cannot be identified the team sets a zone large enough to keep themselves safe. The clean up efforts cannot be started until the materials are identified.

4.6 Undertaking Initial Assessment and Actions

The Incident Commander will apply standard safety procedures as well as the following general guidelines in the assessment stage.

- Approach cautiously from upwind.
- Secure the scene.
- Identify the product involved:
 - use placards, container labels, shipping documents or knowledgeable persons on the scene,
 - contact CANUTEC for assistance if required,
 - if unable to identify product, call the on-call dangerous goods emergency response service contractor to undertake product identification.
- Assess the situation, i.e. weather conditions, potential impact to people, potential ignition sources, environmental pathways and receptors, etc.

- Establish action to be taken, including immediate actions such as removing ignition sources, shutting down pump stations to reduce flow of product to river sources, etc.
- Stop the flow of product as quickly as possible.
- Contain the spill by blocking off drains and surrounding the product with absorbent materials.
- Determine who the responsible party is.

4.7 Notifying Appropriate Parties

Once the situation is stabilized and secure, the Incident Commander will:

- ❑ Undertake appropriate notifications as outlined in the following table.
- ❑ Ensure that the responsible party is made aware of their accountability for all costs associated with the clean-up.
- ❑ Provide the responsible party with the opportunity to undertake the cleanup.

The Incident Commander is responsible for identifying and undertaking the necessary notifications. The following table identifies the potential individuals or agencies that it may be necessary to notify of the spill incident, depending on the specific circumstances involved.

Dangerous Goods Spill Response Plan

Table 5 - Spill Incident Notification

Agency/Individual	Conditions for Notification
BC Transit	If spill could impact transit routes.
Canadian Coast Guard	If assistance is or may be required for spills to in the Fraser River, excluding those areas covered by the local port authorities.
CANUTEC	For assistance in product identification and advice concerning response strategy.
Department of Fisheries and Oceans	For spills which have the potential to impact the marine environment.
GVRD Source Control	Immediate. For spills to the sanitary sewer or if it is proposed to discharge dangerous goods products to the sanitary sewer.
Manager of Administration in the Community Safety Division	If cost recovery is required.
Manager of Emergency Programs	If evacuation has occurred or has the potential to occur. If the situation is potentially significant and notifications to senior staff and Council may be necessary.
Manager of Environmental Programs	Potential significant threat to the environment. Immediate if assistance is required. Subsequent to event if no assistance is required.
North Fraser River Port Authority	If spill is in or affects South Arm of the Fraser River (see Appendix 3 – Risk Assessment Maps)
North Fraser River Port Authority	If spill is in or affects North Arm of the Fraser River (see Appendix 3)
PEP Reporting Line	Immediate. If spilled product type and/or quantity qualify as a reportable spill (see Appendix 1 – Transportation of Dangerous Goods Regulation Reportable Quantities).
Property Owner	Immediate. To be notified in all situations.
Public Relations Officer	If situation is of media or potential public interest.
Responsible Party	Immediate. To be notified in all situations.
Richmond Health Services	Immediate. Potential impact to public health or when persons are evacuated.
Steveston Harbour Authority	If spill is in or affects Steveston Harbour (see Appendix 3)
WCB	If someone was injured as a result of the spill or during the response.
Works Yard Dispatch	If Public Works operational support is required or if activation of the City EOC is required.
YVR – Airport Operations Centre	Incidents at the airport or that may impact airport operations.

The contact numbers for the above are included in Appendix 4 – Emergency Communications Directory.

4.8 Cleanup and Monitoring

The Incident Commander will determine, in accordance with the Pollution Prevention & Cleanup Regulation Bylaw 7435, the necessary steps to undertake, facilitate and/or monitor the cleanup activities.

Actions may include any one or a combination of the following:

- ❑ Provide advice to the responsible party on potential cleanup contractors or companies (see information below and full contact list in Appendix 4).
- ❑ Oversee and monitor the clean-up activities.
- ❑ Provide support for activities such as traffic control, fire fighting services and so on.
- ❑ Coordinate the cleanup on behalf of the responsible party.
- ❑ Undertake the cleanup using City and/or contracted resources in the event that the responsible party cannot be located, refuses or is otherwise incapable of performing an effective response, or in situations where, in the opinion of the Incident Commander, the environmental or safety conditions warrant an immediate response.

To support the City's efforts in spill response, on-call contractors have been retained:

- To provide dangerous goods spill supplies. Rocky Mountain Environmental (604.275.1346) will provide spill response equipment and supplies, as required, on a 24-hour basis.
- To collect and dispose of dangerous goods that may accumulate through regular operations or be considered abandoned materials, Hazco Environmental (604.214.7000) has been retained.
- To provide a dangerous goods emergency response service. Ceda Reactor Ltd. (604.540.4100) will provide emergency spill response to the City, assisting with product identification, mitigation, cleanup and disposal.

These on-call contractors and other potential resource suppliers are shown in Appendix 4. This appendix also includes a list of mutual aid agreements that can be used to support emergency spill response.

It is important that follow up activities be identified at this point in the spill response, to ensure proper disposal of dangerous goods and cleanup materials, as well as ensuring that necessary remediation activities are carried out.

4.9 Recovering Costs

In keeping with the principal that those responsible for a spill are responsible for its cleanup, the Incident Commander will ensure steps are taken to recover the cost of mitigation and cleanup activities incurred by the City as a result of a dangerous goods spill.

4.10 Roles and Responsibilities

4.10.1 Contracted Support

The City has entered into agreements with suppliers to ensure access to key potential services are available. The following companies have been engaged (contact information is available in Appendix 4 – Emergency Communications Directory).

- Rocky Mountain Environmental – to provide 24 hour access to dangerous goods response supplies.
- Hazco Environmental – to transport and process collected spill materials and undertake remediation, as required.
- CEDA-REACTOR Ltd.- to provide technical advice, spill response and clean-up services.

4.10.2 Richmond Agencies

Richmond agencies such as Fire Rescue and Public Works, and other agencies such as Environment Canada and the Coast Guard share the roles and responsibilities for dangerous goods spill response. An overview of those roles and responsibilities follows:

Richmond Fire Rescue

- Respond to emergency spill incidents where there is a potential threat to life and property.
- Respond to any spill incidents where the dangerous goods material involved has not been identified .
- Ensure the protection of life, property and the environment.
- Maintain inventory of spill equipment and supplies as identified in (Section 5.5 Dangerous Goods Supplies)
- Coordinate training for Fire Rescue staff as identified in (Section 5.4 Training)

Richmond Fire Rescue Dispatch

- Activate the Richmond Fire Rescue response.
- Provide support services to the Fire Incident Commander, including contacting contractors, other City staff, and the responsible party/property owner; undertaking required notifications; and so on.

Public Works Dispatch

- Activate the response plan.
- Direct and ensure contact with appropriate departments within Public Works Operations, for example the Roads Foreman, Storm or Sanitary Sewer Foreman and so on.

Dangerous Goods Spill Response Plan

- Provide support services to the Public Works staff on-scene, including contacting contractors, other City staff, and the responsible party/property owner, undertaking required notifications, and so on.
- Initiate the activation of the Emergency Operations Centre, if requested by authorized personnel.
- Maintain a ready supply of spill equipment in Works Yard Dangerous Goods storage unit (see Section 5.5).
- Coordinate the collection of abandoned dangerous goods.
- Coordinate training for staff involved in spill response and cleanup activities (see Section 5.4 Training).



Public Works Dispatch at the City Works Yard

Public Works Operations

- Respond to pollution or other spill incidents that impact the City infrastructure and have the potential to impact the environment, but pose no immediate threat to life.
- Identify and secure potential pathways and receptors including disengaging pump stations and blocking storm drainage systems.
- Provide requested support for materials such as barricades, sand and traffic control, etc.
- Coordinate the disposal of dangerous goods items and cleanup materials.

Richmond RCMP

- Provide perimeter control and traffic control, and facilitate the movement of emergency vehicles.
- Initiate evacuations at the request of the RFR Incident Commander or on-scene controller.
- Alert persons endangered by the emergency and coordinate evacuation procedures.
- Carry out investigations of suspicious hazardous material releases.
- Provide police service in evacuee centres, morgues, and other facilities.
- Provide RCMP Victim Services support.

Environmental Programs Manager

- Maintain the Dangerous Goods Spill Response Plan.
- Provide technical support and advice to the Incident Commander, as requested, concerning environmental impact.
- Authorize the expenditure of funds in situations where the City assumes associated costs.

- Undertake follow-up and investigation relating to the prevention of pollution incidents.
- Develop appropriate City policies to minimize and control pollution or spill incidents.
- Liaise with the Ministry of Water, Land and Air Protection concerning the environmental impact of spills or pollution incidents.

Emergency Programs Manager

- Provide and coordinate emergency social services to assist any evacuated persons.
- Notify senior staff and member of Council when an incident has potential political implications.
- Advise senior staff and members of Council on the need and process for declaring a state of local emergency.
- Coordinate the set up of the Emergency Operations Centre when activated.

Manager of Communications

- Manage media at the incident site.
- Coordinate press releases.
- Prepare correspondence to members of Council relating to spill incidents.

Richmond Health Services

- Provide advice concerning public health impacts of a dangerous goods spill incident.
- Provide advice concerning the need for evacuation.
- Provide authoritative instructions on health and safety matters to the public.
- Assist in the provision of emergency medications for displaced persons.
- Assist in the provision of counseling services for affected persons.

4.10.3 Other Agencies

Environment Canada

- Provide up-to-date information and technical advice to response personnel on environmentally sensitive areas or shoreline resources that may be threatened by a spill incident.
- Provide weather and tide information, and current data.
- Provide wildlife (e.g., birds, marine mammals and wildlife) rescue and rehabilitation.
- Dispatch a qualified representative to the scene of a hazardous material release at Vancouver Airport, if deemed necessary.
- Coordinate response to incidents where insufficient action is being taken.

Transport Canada – CANUTEC



**Transport
Canada**

- Provide technical information and emergency response advice following a hazardous material release.
- Provide critical physical, chemical, and toxicological information.
- Provide advice on remedial actions and countermeasures, safety, personal protective equipment and first aid measures.
- Contact the manufacturer of the material spilled, or put the responder in touch with the manufacturer, to obtain additional information.

Canadian Coast Guard (CCG)



- Provide access to federal government response equipment and personnel as required by the situation.

Provincial Emergency Program

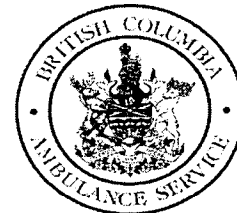


- Notify BC Environment of any environmental emergency that is received on the PEP 24-hour emergency line.
- Liaise with all pertinent provincial government departments impacted by the emergency.

Ministry of Water, Land and Air Protection

- Administer and enforce the pollution regulations of the Waste Management Act.
- Monitor the responsible party's ability to respond effectively to a spill, and take over command of the response on behalf of the province if it is deemed that the responsible party is incapable of properly protecting the environment.
- Assemble and co-chair the Regional Environmental Emergencies Team in cooperation with Environment Canada.
- Provide specialized expertise and advice on local environmental conditions and resources.
- Provide access to provincial government response resources, including equipment, supplies and personnel, as required by the circumstance of the incident.

BC Ambulance



Ministry of Health

- Provide on-site first aid treatment to the injured and transport to health care facilities.
- Maintain and replace first aid equipment and supplies.

4.11 Additional Information

Other information provided with this plan which may be pertinent to developing and coordinating a response to spill events can be found in the appendices. These include:

- Appendix 5
Drainage Infrastructure and Pump Station Locations
- Appendix 6
Sanitary Sewer Infrastructure and Pump Station Locations

Managing and Maintaining the Plan

5.1 Updates

The General Manager of Community Safety shall update, as necessary, the following items to reflect changes in titles, phone numbers, reporting structure, current information and other similar changes of an administrative nature:

- Sections 3 & 4
- All diagrams
- All tables
- All maps

5.2 Additions and Modifications

In addition, the General Manager of Community Safety may:

- Modify the appendices as necessary.
- Establish supporting documents or annexes, such as a notification procedures or an operations manual, as necessary.

5.3 General Maintenance

To facilitate the updates discussed in section 5.1, the General Manager – Community Safety will undertake the following specific activities:

- Review the Dangerous Goods Spill Response Plan every six months to update information.
- Review the Dangerous Goods Spill Response Plan following the activation of any part of the plan to incorporate recommendations.
- Continue to coordinate and facilitate training and exercises for staff identified in this plan.
- Review information on facilities and resources annually to ensure information is current.
- Maintain equipment to be used in the response.
- Renew supplier agreements and contracts as required.

5.4 Training

Training will be a vital part of managing and maintaining staff capable of carrying out their roles and responsibilities during a response.

Fire department staff are required to be trained to the operational level. Public Works staff will be trained in overall awareness as well as receiving specific operational training relative to their response roles and responsibilities.

The training that is required and recommended for all staff involved in a dangerous goods spill response is listed in the following table.

Dangerous Goods Spill Response Plan

Table 6 - Dangerous Goods Spill Response Training Matrix

★ required ☆ recommended

Course	Richmond Fire Rescue	RCMP	Dispatchers	Public Works Crews	Emergency/ Environmental Staff
Introduction to Emergency Management Introduces the basic concepts of emergency management including: BCERMS, PEP and ESS	★	★	★	★	★
Incident Command System Orientation (100) Introduces the twelve principles of ICS, its organization, basic terminology and an overview of common responsibilities	★	★		★	★
Incident Command System Intermediate Level (200) Provides practice to manage medium sized emergency incidents using ICS and to participate as a supervisor during an incident	★	☆		☆	★
Dangerous Goods Spill Response Plan – Awareness Provides a general overview of the City’s spill response plan, including a risk assessment, roles and responsibilities, and concept of operations.	★	★	★	★	★
HAZMAT Emergency Response – Spill Control Provides basic skills to respond safely, identify the hazard and perform spill control techniques	★	★	★	★	★
HAZMAT Emergency Response – Awareness Provides skills for practical, defensive HAZMAT response and covers personal safety, hazard assessment and notification	★	★		★	★
HAZMAT Emergency Response – Operations Provides practice for response to HAZMAT incidents with personal protective equipment and utilization of ICS during the response	★				
HAZMAT Emergency Response – Technical* Provides practice for scene management, ICS and advance scenario training with the maximum personal protective equipment	☆				

* CERIS – Community Emergency Resource Information System contains details regarding the training sources, length of courses and attendance records.

5.5 Dangerous Goods Supplies

Minimal dangerous goods supplies which are required to contain spills and to do minimal clean up are available at the following two locations:

- Public Works Yard Spill Trailer
- Richmond Fire Rescue Trucks/Trailer

Dangerous Goods Spill Response Plan

Table 7 - Dangerous Goods Spill Response Supplies Inventory Form – Public Works

Supplies			
Location:	Public Works Yard, 5599 Lynas Lane Spill Trailer		
Maintenance:	Public Works, Storm Sewer Foreman is responsible for maintenance of these supplies		
Inventory of Supplies			
Qty	Description	Qty	Description
12	oil pads meltblown	2	utility knives
2	Hazmat sheets	6	chemical splash goggles
3	boom non-shed	4	barrier tape
1	white oil sock 4' x 3'	2	safety flashlights
1	white oil sock 8' x 3'	2	pop up pool
2	Neoprene drain cover	2	disposal bags
2	Plug N Dyke Granular (10 lb – 1 gallon bottle)	4	poly coated Tyvek coveralls
1	Plug N Dyke Pre-Mix 4 lb container	10	disposable respirators
8	nitrile gloves	1	broom
4	rubber boots	1	steel rake
	alkali and acid neutralizer	1	steel shovel
	Oil Gator	1	squeegee
3	bags Oil Boom		

Dangerous Goods Spill Response Plan

Table 8 - Dangerous Goods Spill Response Supplies Inventory Form – Richmond Fire Rescue

Supplies			
Location:	Richmond Fire Rescue		
Maintenance:	Richmond Fire Rescue is responsible for maintenance of these supplies		
Inventory of Supplies			
Qty	Description	Qty	Description
1	box (20) dust respirators	6	tie down straps
2	boxes chix towels	2	A.I.M 350 gas detectors
2	hose couplers	4	blue poly 11' x 15' tarps
3	plastic hose connectors		lifeline 100 ft. nylond c/w hook
3	size 14 Bata Hazmat boots	1	12' x 12' closed cell foam
3	size 15 Bata Hazmat boots	2	water thief manifold
1	box soft foam ear plugs	4	garden hose with quick connects
2	signal horns	2	pistol group garden nozzles
1	small white garbage bag	2	bags of garden hose washers
4	water repair connectors	1	gated wye
3	brass hose connectors	12	pylon bags
4	tap connectors	12	colored duct tape
2	aspirators for A.I.M	6	Hazmat barrier tape
	detectors c/w extensions	11	pink fluorescent survey tape
18	4.5 Scott Air Bottles	1	container of Ajax
1	Akron Pry Bar	1	container of grease cleaner
	proximity or entry suit c/w	5	bars of soap
	boots	1	baggie powdered soap
	gloves	2	containers of liquid soap
	pants	1	jug bleach
	coat	1	2.5 kg of Tide detergent
	hood	1	dust pan
1	large garbage bag		

Distribution

6.1 Distribution List

Copy 1 (Master)	Manager, Emergency and Environmental Programs
Copy 2	Foreman, Storm Sewer
Copy 3	Foreman, Sanitary Sewer
Copy 4	Manager, Sewer
Copy 5	Director, Public Works Operations
Copy 6	Coordinator, Environmental Programs
Copy 7	Public Works Dispatch
Copy 8	Fire Dispatch
Copy 9	Emergency Operations Centre
Copy 10	Richmond Health Services
Copy 11	Richmond Fire Rescue, Fire Chief
Copy 12	Richmond Fire Rescue, Deputy Chief
Copy 13	Richmond Fire Rescue, Deputy Chief
Copy 14	Richmond Fire Rescue, Deputy Chief
Copy 15	Emergency Programs Office
Copy 16-24	Mayor & Council

6.2 Revision History

Date	Pages	Description

Glossary

Term	Abbreviation	Definition
British Columbia Emergency Response Management System	BCERMS	management scheme that ensures a coordinated and organized provincial response and recovery to any and all emergency incidents.
Canadian Transport Emergency Centre	CANUTEC	Canadian Transport Emergency Centre operated by Transport Canada to assist emergency response personnel in handling dangerous goods emergencies. This national bilingual advisory centre has scientific data banks on chemicals manufacture, stored and transported in Canada.
Chlorine Emergency Plan	CHLOREP	an industry-wide program formalized by the Chlorine Institute in 1972 to improve the speed and effectiveness of response to chlorine emergencies in the United States and Canada.
Council		is at all times responsible for the general direction and control of the emergency response of the City and in particular to declare a State of Local Emergency, delegate powers available under the Emergency Program Act, as appropriate, and establish any emergency policy or legislation necessary to facilitate the response to an emergency (Commonly referred to as the Policy Group during an emergency.)
Emergency Control Group	ECG	is chaired by the General Manager, Community Safety and comprises the following: General Manager, Engineering & Public Works; General Manager, Finance & Corporate Services; Fire Chief; Police Chief; Medical Health Officer; Emergency Social Services Coordinator and other as appointed by the General Manager, Community Safety. The ECG is responsible for providing the essential services necessary to minimize the effects of an emergency or disaster on the City.

Dangerous Goods Spill Response Plan

Term	Abbreviation	Definition
Emergency Operations Centre	EOC	an EOC is where department heads, government officers, and officials, and volunteer agencies gather to coordinate the response to an emergency event.
Emergency Planning Committee	EPC	is chaired by the Emergency Program Manager and comprises of staff from each of the following areas: operations, logistics, planning and finance & administration and is responsible for the development and maintenance of an emergency management program.
British Columbia Emergency Response Management System	BCERMS	is a comprehensive management system based upon the Incident Command System (ICS) that ensures a coordinated and organized response and recovery to all emergency incidents and disasters. IT provides the framework for a standardized emergency response in British Columbia.
Emergency Response Plan	ERP	an action plan to be followed in the event of an emergency.
Emergency Social Services	ESS	are those basic services provided to preserve the emotional and physical well-being of evacuees and response workers in emergency situations.
Environmentally Sensitive Areas	ESA	an area that is particularly sensitive to disruption or an area set aside to be protected from development of any kind.
Greater Vancouver Regional District	GVRD	
Incident Command System	ICS	is a standardized organizational structure used to command, control, and coordinate the use of resources and personnel that have responded to the scene of an emergency. The concepts and principles for ICS include common terminology, modular organization, integrated communication, unified command structure, consolidated action plan to manageable span of control, designated incident facilities, and comprehensive resource management* from FEMA Independent Study Course check JI Binders.
Incident Commander	IC	the person in charge at the incident site.

Dangerous Goods Spill Response Plan

Term	Abbreviation	Definition
International Air Transport Association	IATA	The International Air Transport Association (IATA) is the world organization of scheduled airlines. Its over 200 members carry the bulk of the world's scheduled international and domestic air traffic under the flags of approximately 200 nations. IATA's work embraces virtually every aspect of the air transport industry including technical, operational, legal and security matters as well as facilitation (cutting red tape and streamlining procedures at airports), statistics and industry finance.
Personal Protective Equipment	PPE	personal protective equipment is a broad term that is used to cover both protective equipment and clothing. The purpose the equipment is to protect personnel from the dangers of hazardous materials, whether they are chemical, physical or biological threats.
Policy Action Group		the group, chaired by the Chief Administrative Officer and comprises of the General Managers of Community Safety; Engineering & Public Works; Finance & Corporate Services; Parks, Recreation & Cultural Services; and Urban Development, reports directly to the Council and is responsible for ensuring that the emergency policy direction of Council is applied by the Emergency Control Group.
Provincial Emergency Program	PEP	is a part of the Ministry of Public Safety and Solicitor General, of the Government of British Columbia and maintains provincial awareness, preparedness, response and recovery programs to reduce the human and financial costs of actual or imminent emergencies and disasters.
Regional Emergency Coordination Centre	RECC	located at the E-Comm building in Vancouver, member agencies will attend this centre if an emergency affects a number of agencies and a regional coordination to respond to the emergency is required.

Dangerous Goods Spill Response Plan

Term	Abbreviation	Definition
Regional Environmental Emergencies Team	REET	in 1973, Environment Canada set up national and regional committees to give advice on how to prevent, plan for and respond to environmental emergencies. These committees, or "teams", are made up of representatives from federal and provincial government agencies responsible for environmental protection, and from private industry. Each regional committee is referred to as the Regional Environmental Emergency Team, or REET.
Richmond Fire Rescue	RFR	
Richmond Health Services	RHS	
Transportation Emergency Assistance Plan	TEAP	
Vancouver International Airport Authority	YVR	
Air Emission Permittee	AP	GVRD
Sewer Permittee	SP	GVRD
National Pollution Release Inventory	NPRI	The National Pollutant Release Inventory (NPRI) of Environment Canada is the only legislated, nation-wide, publicly-accessible inventory of its type in Canada. The NPRI provides Canadians with access to pollutant release information for facilities located in their communities. In addition, the NPRI supports a number of environmental initiatives by providing information that assists governments and others in identifying priorities for action, encourages industry to take voluntary measures to reduce releases, allows for tracking of progress in the reduction of releases, and supports a number of regulatory initiatives across Canada.

Appendix 1 – Regulatory Framework

The following discussion of the regulatory framework surrounding emergency response is by no means exhaustive. Please consult the relevant provincial or federal statutes or regulations for official legislative provisions.

Municipal emergency response planning requirements are regulated under the Emergency Program Act, described below.

Generally, the following regulations apply to the City in the event that the City is deemed to be responsible for the release of a regulated product be it a special waste or dangerous good.

Federal Regulatory Framework

Transportation of Dangerous Goods Act & Reportable Quantities

The Transportation of Dangerous Goods Act and Regulations provide complex and detailed provisions for the handling, offering for transport and transport of dangerous goods. Transport Canada provides comprehensive information packages that should be utilized by companies handling and transporting dangerous goods.

The Act states that carriers of dangerous goods may be required to develop emergency response plans. If there is an accidental release of dangerous goods, the release must be reported and actions must be taken to reduce or eliminate any danger to public safety.

If there is a release of dangerous goods, the responsible party at the time of the release must notify the provincial authorities; appropriate federal authorities; the owner of the vehicle; the employer; and the owner or consignor of the consignment. A Dangerous Goods Occurrence Report must be submitted to Transport Canada within 30 days of the accident.

Dangerous Goods Spill Response Plan

Table 9 - Transportation of Dangerous Goods Regulation Reportable Quantities

Class/ Division	Substance	Reportable Quantity
1	Explosives	All
2.1	Flammable gas	100L
2.2	Non-flammable, non-poisonous, non-corrosive gas	100 L
2.3	Poisonous gas	All
2.4	Corrosive gas	All
3	Flammable liquids	200 L
4	Flammable solids	25 kg
5.1	Oxidizing substances	50 kg or 50 L
5.2	Organic peroxides	1 kg or 1 L
6.1	Poisonous (toxic)	5 kg or 5 L
6.2	Poisonous (infectious)	All
7	Radioactive	Discharge greater than 10 mSv/h
8	Corrosive	5 kg or 5 L
9	Miscellaneous Products substances or organisms	50 kg

Canadian Environmental Protection Act (CEPA)

According to the CEPA, if there is a release or the likelihood of a release of a toxic substance that contravenes a regulation or an order made under CEPA, the party responsible must:

- report to an inspector
- take reasonable emergency measures to prevent the release or remedy any danger to the environment or human health
- notify anyone who may be affected by the release

Under CEPA, anyone who owns or is in charge of the toxic substance and anyone who causes or contributes to the initial release or increases the likelihood of the release is responsible.

Fisheries Act

The Fisheries Act, administered by Fisheries and Oceans Canada, is designed to regulate the harvesting of fish, to protect fish habitat, to prevent pollution of fishery

waters, and to ensure safe human use of fish. The Minister of the Environment administers the pollution prevention provisions of the Fisheries Act.

According to the Act, if a deposit of a deleterious substance into waters frequented by fish occurs, or if there is any damage or danger to fish or fish habitat, the responsible party must report the occurrence to an inspector. The “responsible party” includes any person who owns or has control over the deleterious substance or any person who caused or contributed to the deposit.

The responsible party must also take measures to remedy any adverse effects that result from the deposit.

Migratory Birds Convention Act

The Migratory Birds Convention Act is administered and enforced by Environment Canada. It prohibits the accidental or intentional discharge of oil, oily waste or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds. The requirement to notify regulators of a discharge of concern is met by advising Environment Canada (see Section 4.7 Notifying Appropriate Parties, page 68 of this plan for general notification procedures).

The Migratory Birds Convention Act is especially relevant to the City of Richmond as the Fraser River estuary is a key feeding and resting stop for migratory waterfowl and shorebirds on the Pacific Flyway.

Canada Shipping Act

Releases from ships are regulated by the Canada Shipping Act. The Pollutant Substances Regulations present a list of over 400 regulated substances as well as reporting and cleanup requirements.

Provincial Regulatory Framework

Emergency Program Act

The Emergency Program Act, administered by the Attorney General, was promulgated in 1996. The Act:

- clarifies the roles and responsibilities of local government if required
- provides extraordinary power to local government if required
- requires municipal government to create and maintain an emergency preparedness organization
- provides exemption of civil liability to all emergency service workers

The Emergency Program Management Regulation details the relative responsibilities of different levels of government, outlines the government's concept of operations and confirms the functional tasks of provincial ministries, crown corporations and agencies in major emergencies.

Waste Management Act & Reporting Regulation

Under the Waste Management Act, administered by the Ministry of Water, Land and Air Protection, the Minister may order a person having charge of a polluting substance to prepare a contingency plan in accordance with the Minister's directions.

The Spill Reporting Regulation requires that, in the event of a spill, the person who had possession, charge or control of the substance must immediately report the spill to the Provincial Emergency Program (PEP). Where it is not practical to report a spill to PEP within a reasonable time, the responsible party may make the report to the local police or nearest detachment of the RCMP.

Further, the person who immediately before the spill had possession, charge or control of the spilled substance must take all reasonable and practical steps to stop, contain and minimize the effects of the spill. This person must act with due regard for the safety of the public and of himself or herself.

Schedule 1 of the Spill Reporting Regulation lists all substances and quantities of substances covered by the regulation.

Dangerous Goods Spill Response Plan

BC's Contaminated Sites Regulation, under the Waste Management Act, includes a screening mechanism and outlines requirements for the remediation of sites which have been contaminated.

Table 10 - BC Waste Management Act Special Waste Spill Reporting Regulation

Class/ Division	Substance	Reportable Quantity
1	Explosives	All
2.1	Flammable gas	10 kg
2.2	Non-flammable, non-poisonous, non-corrosive gas	10 kg
2.3	Poisonous gas	5 kg
2.4	Corrosive gas	5 kg
3	Flammable liquids	100 L
4	Flammable solids	25 kg
5.1	Oxidizing substances	50 kg
5.2	Organic peroxides	1 kg
6.1	Poisonous (toxic)	5 kg
6.2	Poisonous (infectious)	All
7	Radioactive	Discharge greater than 10 mSv/h
8	Corrosive	5 kg
9.0	Miscellaneous products, substances or organisms	50 kg

Municipal By-laws

GVRD

Sanitary Sewer Spill - Bylaw 64, Section 4.4.

This bylaw requires that all spills or releases into the sanitary sewer system be reported to the GVRD at the first opportunity. It states that the responsible party will make a verbal report to a Manager or other officer and then take all possible actions to minimize, counteract, mitigate and remedy the effect of the spill or release.

City of Richmond

Bylaw 7091 --Emergency Management Organization Establishment

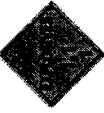




This bylaw identifies the Emergency Management Organization composition, including the roles and responsibilities of the Emergency Control Group and the Emergency Planning Committee, in accordance with the provisions of the Emergency Program Act.

Bylaw 7435 – Pollution Prevention & Cleanup Regulation






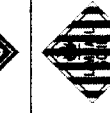
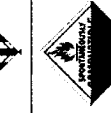

This bylaw prohibits the discharge of contaminants and dangerous products in to storm sewers, open ditches watercourses and soil. General containment and remedial measures are stipulated under the bylaw, though no reporting requirements are specified. A copy of this bylaw is included on the following page.

Appendix 2 – Transportation of Dangerous Goods Classes & Divisions







Table 11 - Summary of Transportation of Dangerous Goods Regulation-TGDR Hazard Classes and Divisions

No.	Class		Division	Description
	Type			
1	Mass Explosion Hazard		1.1 	A substance or article with a mass explosion hazard.
	Projection Hazard		1.2 	A substance with a fragment projection hazard, but not a mass explosion hazard.
	Fire Hazard		1.3 	A substance with either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.
	Insignificant Hazard		1.4 	A substance or article which presents no significant hazard. Explosion effects are largely confined to the package in the event of ignition or initiation during transport. No fragment projections of an appreciable size or range are to be expected.
	Very Insensitive Explosives		1.5 	A very insensitive substance, although it has a mass explosion hazard as in 1.1.


Dangerous Goods Spill Response Plan

Class		Division	Description
No.	Type		
2	Extremely Insensitive Explosives	1.6 	Extremely insensitive articles with low mass explosion hazard.
	Flammable Gases	2.1 	Flammable gases with an absolute pressure of 101.3kPa at 20 degrees Celsius that are ignitable when in a mixture of 13% or less by volume with air or have a flammability range with air of at least 12 percentage points determined in accordance with tests or calculations in ISO 10156.
	Non-Flammable, Non-Toxic Gases	2.2 	Non-Flammable Gases, Non-Toxic Gases consist of gases transported at an absolute pressure greater than or equal to 280 kPa at 20 degrees Celsius, or as refrigerated gases, and that are not included in Class 2.1 or 2.3.
	Toxic Gases	2.3 	Toxic Gases consist of gases that are known to be toxic or corrosive to humans according to CGA P-20, ISO Standard 10298 or other documentary evidence published in technical journals or government publications or that have an LC50 value less than or equal to 5000mL/cubic metre.
3	Flammable Liquids	3 	Class 3 liquids have a flashpoint less than or equal to 60.5 degrees Celsius using the closed cup test.
4	Flammable Solids	4.1 	A solid which under normal circumstances is readily ignitable and burns persistently; or, which causes or contributes to fire, through friction or from heat retained from manufacturing or processing.
	Spontaneously Combustible Materials	4.2 	A substance liable to spontaneous combustion under normal conditions of transport; or, when in contact with air, liable to spontaneous heating to the point where it ignites.
	Dangerous When Wet	4.3 	A substance which, on contact with water, emits dangerous quantities of flammable gases (greater than 1 L/Kg of substance per hour) or becomes spontaneously combustible on contact with water or water vapour.

Dangerous Goods Spill Response Plan

Class		Division	Description
No.	Type		
5	Oxidizing Substances	5.1 	Substances that yield oxygen thereby causing or contributing to the combustion of other material, as determined in accordance section 2.5.2 of Chapter 2.5 of the UN Recommendations.
	Organic Peroxides	5.2 	Substances that are thermally unstable organic compounds that contain oxygen in the bivalent "-O-O-" structure as determined by 2.5.3 of Chapter 2 of the UN Recommendations. These substances are liable to undergo exothermic self-accelerating decomposition. There are six types A-liable to explosive decomposition, B-burn rapidly, C-sensitive to impact or friction, D-react dangerously with other substances, E-they cause damage to the eyes or they are in the list of currently assigned organic peroxides in section 2.5.3.2.4 of the UN Recommendations.
6	Toxic Materials	6.1 	Toxic substances which consist of substances that are liable to cause death or serious injury or to harm human health if swallowed or inhaled or if they come in contact with human skin.
	Infectious Materials	6.2 	Infectious substances which consist of infectious substances. There are four Risk Groups: Group 1, Group 2, Group 3 & Group 4
7	Radioactive Substances	7 	Radioactive materials with activity greater than 74 kBq/kg, within the meaning of the Atomic Energy Control Act. There is a placard for each of the three categories.
8	Corrosive Substances	8 	Substances that are known to cause full thickness destruction of human skin, that is, skin lesions that are permanent and destroy all layers of the outer skin through to the internal tissues. Substances the cause full thickness destruction, as determined in accordance with OECD Guidelines. Substances that do not cause full thickness destruction of skin but exhibit a corrosion rate that exceeds 6.25 mm per year at a test temperature of 55 degrees Celsius, as determined in accordance with the ASTM Corrosion Test.

Dangerous Goods Spill Response Plan

Class		Division	Description
No.	Type		
9	Miscellaneous Products, Substances or Organisms	9 	These materials are listed in Schedule I. They do not meet the criteria for Class 1-8 but are one of the following; marine pollutants, have toxic leachate, are environmentally hazardous, are elevated temperature materials, are genetically modified micro-organisms dangerous to public health.

Appendix 3 – Risk Assessment Maps included here

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Appendix 4 – Emergency Communications Directory

Name	Business Phone	Emergency Phone
Emergency Agencies		
RCMP – Richmond Detachment		
Richmond Fire-Rescue		
BC Ambulance – Station 250		
BC Ambulance – Station 269		
BC Ambulance – Station 270		
BC Ambulance – Station 280		
Vancouver Hazardous Materials Team – Vancouver Fire Prevention		
Richmond Hospital – Emergency		
Poison Control Centre (St. Paul’s Hospital)		
City of Richmond		
Manager, Emergency & Environmental Programs		
Environmental Health		
Engineering & Public Works Dispatch		
City of Richmond, Contracted Response Companies		
Emergency Spill Response		
CEDA Reactor Ltd. (Primary)		
Hazco Environmental Services (Secondary)		
Spill Equipment and Supplies		
Rocky Mountain Environmental		
Hazardous Waste Disposal/Site Remediation		
Hazco Environmental Services		
Regulatory Agencies		
Fisheries & Oceans Canada – Canadian Coast Guard		
Environment Canada		
Fraser River Port Authority (only spills to south arm of Fraser River)		
GVRD – Air Quality		
GVRD – Corporate Security and Regional Emergencies		
GVRD – Sanitary Sewer		
Transport Canada – CANUTEC		
Provincial Emergency Program		

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Emergency Contacts

Name	Business Phone	Emergency Phone
Continued...Regulatory Agencies		
Provincial Radiation Protection Service		
Canadian Nuclear Safety Commission		
North Fraser River Port Authority (only spills to north arm of Fraser River)		
Steveston Harbour Authority – Paramount Site (only spills in Steveston Harbour)		
Steveston Harbour Authority – Gulf Site (only spills in Steveston Harbour)		
Workers' Compensation Board		
Other Emergency Contacts		
YVR Emergency Operations Centre		
BC Rail		
CN Rail		
CP Rail		
BC Hydro (PCB related incidents)		
BC Gas		
Translink		
Coast Mountain Bus Company - Emergencies Only		
Duty Manager		
Richard Brown – Manager, Transit Communications		
TEAP		
Chlorep		
Western Canada Marine Response Corporation		
Trans Mountain Pipe Line		
Fire Mutual Aid		
City of Burnaby Fire Department		
City of Coquitlam Fire Department		
Corporation of Delta Fire Services		
City of Langley Fire-Rescue Services		
Township of Langley Fire Department		
City of New Westminster Fire Services		
City of North Vancouver Fire and Rescue		
District of North Vancouver Fire Services		
City of Port Coquitlam Fire-Rescue Department		
City of Port Moody Fire and Rescue		
City of Surrey Fire Service		

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Dangerous Goods Spill Response Plan

Industrial Support
Inside Richmond

Name	Business Phone	Emergency Phone
Absorbent Materials		
3M Canada		
Cranes		
Ski Crane Service		
Diving		
Fraser Burrard Diving Ltd.		
Excavation		
McAulay Trucking		
Equipment Rentals		
United Rentals (Richmond)		
Pikes Tool Rentals (Richmond) or Richmond Rentals (Richmond)		
Heavy Towing		
Rusty's or Boyce Towing (Richmond)		
Industrial Hygienist/ Environmental Consultant		
Dillon Consulting - Tim Faveri		
Laboratories - Testing		
Levelton Associates - Tom Cotton		
Spill Response Cleanup/ Disposal/ Vacuum Trucks		
Hazco Environmental Services		
A&A Anderson		
Tank Cleaning Services		
A&A Anderson		

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Dangerous Goods Spill Response Plan

**Industrial Support
Outside Richmond**

Name	Business Phone	Emergency Phone
Absorbent Materials		
Fleck Bros.		
Western Canada Marine Response Corporation		
Brenntag Canada Inc. (Vancouver)		
Hazmasters Environmental Controls		
Pigmalion Environmental Products inc.		
Cranes		
Mega Cranes (Surrey) – 125 T		
GWIL Crane		
Diving		
Canpac Divers (North Vancouver)		
Van-Dive Marine Eng.		
Blackwater Marine International		
Emergency Response		
TEAP – Shell Canada Shellburne Distribution Terminal		
Chlorep		
Heavy Towing		
Rusty's or Boyce Towing (Richmond)		
Industrial Hygienist		
BC Research Inc. – Robert Lockhart		
BC Research Inc. – Fabian Paul (Maint.)		
Spill Response Cleanup/ Disposal/ Vacuum Trucks		
CEDA Reactor Ltd. Emergency Response Team		
Philip Services		
Advanced Hydro Tech		
Safety-Kleen		
Western Canada Marine Response Corporation		
Sprayaway Marine Services Ltd.		
Trucking (low beds, trucks with lifts)		
Arrow Trucking – Bruce Charles		

CONFIDENTIAL

Industrial Support Outside Richmond

Name	Business Phone	Emergency Phone
Laboratories – Testing		
ALS (on-site capability) – Scott Hannan (when you know what you want to test for)		
Can Test Ltd.		
Power Tech Labs (PCBs)		
Marine Salvage		
Seaspan International Ltd.		
Petroleum Equipment Services		
Key Marine Industries Ltd.		
Western Oil Services		
Pumps		
Canadian Dewatering Ltd. – Peter Smith		
Harrigan Rentals and Equipment Ltd.		
Tank Trucks		
Wheeler Transport (Port Moody)		
Trimac Transportation (Langley)		
Towboats		
Rivtow		
Seaspan		
North Arm Transportation		
Westminster Tugboats		
Compass Navigation Ltd.		

CONTROLLED DOCUMENT

Appendix 5 - Drainage Pump Stations listed here

Appendix 6 - Sanitary Pump Stations listed here

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POLLUTION PREVENTION AND CLEAN-UP REGULATION BYLAW NO. 7435

The Council of the City of Richmond enacts as follows:

PART ONE: POLLUTION PROHIBITION & PREVENTION

1.1 Prohibition Against Discharge of Polluting Substance

1.1.1 A person must not discharge any **polluting substance** into any storm sewer, ditch, water course or onto the soil, other than as authorized under the *Waste Management Act and Regulations*.

1.2 Obligations Regarding the Storage and Handling of a Polluting Substance

1.2.1 Every person storing or handling any **polluting substance** must ensure that such **polluting substance** is properly stored.

1.3 Obligations Regarding the Storage and Handling of Dangerous Goods

1.3.1 In addition to complying with the provisions of sections 1.1 and 1.2, any person storing or handling **dangerous goods** must ensure that such **dangerous goods** are properly stored in an impervious containment system which is of sufficient capacity to hold the larger of:

- (a) 110% of the largest volume of free liquid **dangerous goods** in any given container or tank, or
- (b) 25% of the total volume of free liquid **dangerous goods** in storage.

1.4 Failure to Properly Store Polluting Substance

1.4.1 Where in the opinion of the **General Manager, Community Safety**, a **polluting substance** has not been properly stored, the owner of the property on which the **polluting substance** is located must immediately either:

- (a) properly store the **polluting substance** to the satisfaction of the **General Manager, Community Safety**; or
- (b) dispose of the **polluting substance** in accordance with the *Waste Management Act and Regulations*.

PART TWO: SPILL RESPONSE AND CLEAN-UP REQUIREMENTS

2.1 Obligation to Clean-Up Spill

2.1.1 Where a **spill** has occurred, the **person responsible** must:

- (a) immediately contain such **spill** and clean-up:
 - (i) any residue of the **polluting substance**;
 - (ii) any absorbent materials which have come into contact with, and have, in the opinion of the **General Manager, Community Safety**, become contaminated by such **polluting substance**; and
 - (iii) any areas impacted by the **spill**, including storm sewers, ditches, water courses or any soil, to the satisfaction of the **General Manager, Community Safety**; and
- (b) where required by the **General Manager, Community Safety**, complete any necessary remediation to the satisfaction of the **General Manager, Community Safety** or to the applicable standards set out in the *Waste Management Act and Regulations*.

2.1.2 The owner of property on which a **spill** has occurred is deemed to be the **person responsible** unless the owner of such property can establish that the **spill** was caused by an act or omission by a third party who is not:

- (a) an employee of the owner;
- (b) an agent of the owner; or
- (c) a party with whom the owner has a contractual relationship.

PART THREE: ORDER TO COMPLY

3.1 Serving an Order to Comply

3.1.1 Subject to the provisions of section 4.1, where a person fails to comply with the requirements of subsection 2.1.1 or section 1.4, whichever is applicable, the **City** may, in accordance with subsection 3.1.3, serve an **Order to Comply** on the person, requiring such person to remedy the situation within 14 days of service of such **Order to Comply**.

3.1.2 The **General Manager, Community Safety** may require a person to remedy the situation under an **Order to Comply**, within a shorter period of time where the **General Manager, Community Safety** considers a shorter period of time is necessary to prevent adverse impacts on the environment.

3.1.3 The **Order to Comply** must be served on the **person responsible** in the case of a **spill**, or on the owner of the property in the case of a **polluting substance** which has not been **properly stored**:

- (a) by personal service;
- (b) by registered mail with acknowledgement of receipt to the address of the owner shown on the last real property assessment rolls; or
- (c) in the case of a company, according to the provisions of the *Company Act*.

3.2 Authority to Enter Property

- 3.2.1 The **General Manager, Community Safety** may enter at all reasonable times, on to any real property to determine whether the provisions of this bylaw or the directions of an **Order to Comply** are being met.

3.3 Appeal Against an Order to Comply

- 3.3.1 A person upon whom an **Order to Comply** has been served may appeal to **Council** against such **Order to Comply** by giving notice in writing to the **City Clerk** at least 72 hours prior to the expiration of the time given in the **Order to Comply**.
- 3.3.2 Upon hearing the appeal against an **Order to Comply**, **Council** must either uphold, amend, or cancel the **Order to Comply**.

PART FOUR: CLEAN-UP BY THE CITY

4.1 Clean-Up By City

4.1.1 If,

- (a) the **person responsible** in the case of a **spill**; or
- (b) the owner of the property in the case of a **polluting substance** which has not been **properly stored**,

cannot be located or fails to remedy the situation as directed in an **Order to Comply**, the **General Manager, Community Safety** or a contractor engaged by the **General Manager, Community Safety**, may enter on the real property, at reasonable times and in a reasonable manner, to remedy the situation at the expense of the **person responsible** in the case of the **spill**, or the owner of the property in the case of a **polluting substance** which has not been **properly stored**.

4.2 Emergency Spill Situations

- 4.2.1 Where the **General Manager, Community Safety** has determined that a **spill** has occurred which poses an imminent threat to the environment and immediate action is required to remedy the situation, the provisions of section 3.1 regarding serving an **Order to Comply**, do not apply and the **General Manager, Community Safety** may immediately take whatever action is considered necessary to remedy the situation at the expense of the **person responsible**.

PART FIVE: CLEAN-UP COSTS

5.1 City to be Reimbursed for Clean-Up Costs

- 5.1.1 Where the **City** has taken action to remedy the situation in the case of either:

- (a) a **spill**; or
- (b) a **polluting substance** which has not been **properly stored**,

the **person responsible** in the case of the **spill** or the owner of the property in the case of a **polluting substance** which has not been **properly stored**, is required to reimburse the **City** for the costs incurred to remedy the situation, including costs incurred to engage a hazardous material response team, if applicable.

- 5.1.2 The responsibility for paying costs referred to in subsection 5.1.1 applies whether or not the **spill**, or the failure to **properly store** a **polluting substance**, occurred partially or in whole, on **City** property or private property.

- 5.1.3 Where:

- (a) a **polluting substance** which has not been **properly stored** on a property; or
- (b) the **person responsible** in the case of a **spill** is the owner of the property on which such **spill** took place,

and the situation has been remedied by the **City** pursuant to subsection 4.1.1, the charges for undertaking the clean-up, if unpaid on or before December 31st in the year in which the charges are incurred, form part of the taxes payable on such property, as taxes in arrears.

PART SIX: INTERPRETATION

6.1 In this bylaw, unless the context otherwise requires:

CITY	means the City of Richmond.
CITY CLERK	means the Municipal Officer appointed by Council and assigned responsibility for corporate administration for the City under section 198 of the <i>Local Government Act</i> .
COUNCIL	means the Council of the City .
DANGEROUS GOODS	means dangerous goods as defined in the <i>Transportation of Dangerous Goods Act</i> .
GENERAL MANAGER, COMMUNITY SAFETY	means the person appointed by Council to the position of General Manager of Community Safety and includes a person designated as an alternate.
ORDER TO COMPLY	means an order, which is substantially in the form of Schedule A attached to and forming a part of this bylaw, signed by the General Manager, Community Safety .
PERSON RESPONSIBLE	means the person who had possession, charge or control of a polluting substance at the time a spill occurs.
POLLUTING SUBSTANCE	means any substance, whether liquid or solid, that damages or is capable of damaging the environment and includes dangerous goods .
PROPERLY STORE/STORED	means stored and identified so as to prevent the overflow, release, or leakage of a polluting substance or dangerous goods , whichever is applicable, into a storm sewer, ditch, water course, or any soil.
SPILL	means the introduction of a polluting substance into the environment, either intentionally or unintentionally, other than as authorized under the <i>Waste Management Act and Regulations</i> .

PART SEVEN: OFFENCES AND PENALTIES

7.1 Any person who:

- (a) violates or who causes or allows any of the provisions of this bylaw to be violated; or
- (b) fails to comply with any of the provisions of this or any other bylaw or applicable statute; or
- (c) neglects or refrains from doing anything required under the provisions of this bylaw,

is deemed to have committed an infraction of, or an offence against this bylaw is liable on summary conviction, to the penalties provided for in the *Offence Act*, and each day that such violation is caused, or allowed to continue, constitutes a separate offence.

PART EIGHT: PREVIOUS BYLAW REPEAL

8.1 Contaminant Prohibition Discharge Bylaw No. 4476 (adopted September 23rd, 1985) is repealed.

PART NINE: SEVERABILITY & CITATION

9.1 If any part, section, sub-section, clause, or sub-clause of this bylaw is, for any reason, held to be invalid by the decision of a Court of competent jurisdiction, such decision does not affect the validity of the remaining portions of this bylaw.

9.2 This bylaw is cited as “Pollution Prevention and Cleanup Regulation Bylaw No. 7435”.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

CITY OF RICHMOND
APPROVED for content by originating dept.
APPROVED for legality by Solicitor

MAYOR

CITY CLERK

SCHEDULE A to BYLAW NO. 7435

Date:

ORDER TO COMPLY

Pursuant to Pollution Prevention and Clean-Up Regulation Bylaw No. 7435

Person Responsible ✪ <name/company>**Civic Address** ✪ <civic>, Richmond, BC

Legal Description Lot ✪ Block ✪ Section ✪ Block ✪ North Range ✪ West
 New Westminster District Plan ✪
 <include where **person responsible** is owner of property on which **spill**
 occurred>

Pursuant to the Pollution Prevention & Clean-Up Regulation Bylaw No. 7435, you are hereby ordered to contain, remove, and clean-up the spill of ✪<substance> located at or in the vicinity of ✪<description of location> by ✪<date>, including:

- (a) ✪ <actions required>;
- (b) ✪;
- (c) ✪; and
- (d) ✪.

See the attached letter for information regarding the Order to Comply process, including the right to appeal.