



CITY OF RICHMOND

REPORT TO COMMITTEE

TO: Community Safety Committee
FROM: Jim Hancock
Fire Chief
RE: Water-Rescue

To Community Safety June 12/01
DATE: May 24, 2001
FILE: ~~0070-04~~
5140 - 01

STAFF RECOMMENDATION

1. That Option 3, as described in Table 1 in the Fire Chief's report on Water-Rescue, dated May 24, 2001 be endorsed for implementation in *2001*.
2. That the funding request to support Option 3 (\$30,000 minor capital and \$3,200 additional level request), be included in the 2002 budget submission for consideration by General Purposes Committee for implementation in 2002.
3. That a subsequent report be written addressing the issues surrounding emergency sub-surface response after the official review of the Canadian Coast Guard diving program.

J Hancock
Jim Hancock
Fire Chief
Att. 6

FOR ORIGINATING DIVISION USE ONLY		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
R.C.M.P.	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	<i>[Signature]</i>

STAFF REPORT

ORIGIN

In 1993 and 1994 three separate drowning incidents in the North and South Arms of the Fraser River lead to a 1995 report to Council (Attachment 1). Since that time, we have been delivering water rescue services consistent with Council's direction. A number of issues have caused us to bring this report forward at this time:

- A Fire-Rescue internal review completed in January 2001 which revealed budget concerns and service level deficiencies.
- The recent high profile disbanding of the Canadian Coast Guard Rescue Dive Team.
- The newly created division of Community Safety brings Fire and Police under one roof, opening an opportunity for closer collaboration with Police Dive resources.

BACKGROUND

The Fire-Rescue Department is requested to provide a full range of fire suppression and rescue services. These include responses to hazardous materials incidents, confined space rescues, shipboard fires, elevated rescues, and water rescues. The Department has always provided a service at these incidents with the resources available. Over the years various standards have been established regulating fire departments' operations in these technical rescues (sample of WCB and NFPA – Attachment 2).

In 1995, two tragic incidents occurred on the Fraser River subsequently triggering a request of RFR to provide a report addressing concerns surrounding these issues. Equipment was purchased within the newly approved budget of \$17,280.00. Council passed the following resolution:

- (1) *That authorization be given to the Richmond Fire-Rescue Department to train two department members to Rescue 3 Canada, Swift Water Rescue Technician Instructor, Level 1 status, to become in-house training instructors.*
- (2) *That authorization be given for initially forty department members, (ten members per shift), to be trained to the Swift Water Technician, Level 1 status, to form the basis of a water rescue team on each shift.*
- (3) *That the source of initial funding for the Swift Water Rescue program be the Council Contingency Account.*

ANALYSIS

Two fire fighters were certified by Rescue Canada (accreditation – Attachment 3) as in-house training instructors who then trained forty fire fighters to the *Rescue Canada Swift Water Technician Level 1*. This standard trains our first responders in hazard awareness and avoidance, operational safety, self rescue and rescue of teammates and third parties. Although the operating budget has never been increased for this program, we have managed to increase the number of in-house instructors to four and trained an additional fifty personnel. RFR currently dispatches a total of thirteen fire fighters on two Engine companies, one Rescue company and a Battalion Chief to water rescue emergencies. However, due to holidays, staff rotations etc. not all of the responding personnel are trained as water rescue technicians.

In 1996 \$50,000.00 was approved through the Capital Budget Process (Attachment 4) to

"replace our existing aluminium skiff with a water vessel to accommodate minor fire fighting and water rescue capabilities for the island of Richmond".

The aluminium skiff is an old herring boat that is used exclusively for transporting fire fighters and equipment to Shady Island for brush fires. In July of 1996 a report on *Aquatic Rescue/Response Vehicles* (Attachment 5) was prepared by the water-rescue coordinator, Fire Fighter (now Captain) Roy Fox. As a result of this report it was decided to purchase two Aquatic Rescue Response Vehicles. An Aquatic Rescue Response Vehicle is a modified version of a personal water craft or jet ski, these craft provide enhanced safety for rescue personnel as well as an additional dimension to water related rescues and fires on or around the river.

As a result of the new Fire Chief conducting staff meetings an internal review of the RFR water rescue program (Attachment 6) was initiated in June of 2000. This review revealed that although the department has managed to increase the number of trained personnel from forty to ninety, distribution on each shift is not equal. In some water rescue incidents the first arriving company has not been staffed with trained personnel (RFR employs the First Responder Model that ensures that the closest available fire company will respond to an emergency). Fortunately all of these incidents were mitigated without the need to enter the water. The committee recommended that the best way of ensuring trained personnel would arrive with the first responding unit was to train all fire suppression members consistent with the First Responder Model.

Since 1995 RFR has responded to 22 incidents involving water rescue. On February 18, 2001 a motor vehicle accident occurred on River Road in which a vehicle was catapulted into the middle arm of the Fraser River resulting in one fatality. RFR responded to discover that the Coast Guard dive team was no longer in service, this incident received extensive media attention. Federal Oceans and Fisheries Minister Herb Dhaliwal has ordered a review of the Coast Guard dive program with a report due this June.

A number of options have been considered for the purpose of this report. They are summarized in Table 1.

Table 1

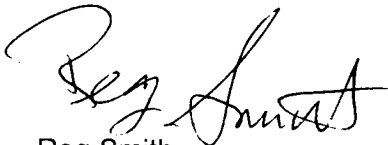
Option	Pros	Cons
1. SERVICE ELIMINATION	<ul style="list-style-type: none"> a) cost savings b) financial gain on proceeds of sale of equipment c) risk reduction to fire fighters 	<ul style="list-style-type: none"> a) potential for loss of life in water related emergencies b) not able to meet public expectations c) increased risk to the public
2. CURRENT SERVICE LEVEL	<ul style="list-style-type: none"> a) no additional training or equipment 	<ul style="list-style-type: none"> a) difficult to maintain a full complement of trained staff on duty b) cannot ensure that qualified personnel will arrive with first crews on the scene c) increase to annual training budget of \$1,200.00 for re-certification training
3. FULL SERVICE LEVEL (train all)	<ul style="list-style-type: none"> a) Able to dispatch the closest available fire company resulting in quicker response times (first responder model). b) Able to more efficiently schedule practice training sessions. 	<ul style="list-style-type: none"> a) One time training costs for remaining 134 members of \$8250.00, this cost represents \$75.00 for each of the 110 training kits (we currently have 24 kits on hand) from Rescue Canada. b) Additional protective equipment costs of \$29,900.00. (23 dry suits at \$1300 each) c) annual operating costs of \$3,200.00
4. FULL SERVICE LEVEL (train all)	<ul style="list-style-type: none"> a) savings of \$8250.00 by re using training kits. 	<ul style="list-style-type: none"> a) fire fighters would not receive certification
4. EXPANDED SERVICE LEVEL (reserved for subsequent report)	<ul style="list-style-type: none"> a) ability to make sub-surface rescues. 	<ul style="list-style-type: none"> a) Initial start up costs of about \$50,000.00 b) Annual operating costs of about \$30,000.00

FINANCIAL IMPLICATIONS

The full service level Option 3 will incur a one time training cost of \$8250.00 for training materials and certifications for the remaining 134 members of the department who are not now trained as Swift Water Rescue Technicians. Option 4 would save the \$8250.00 expense by reusing training materials and not providing certification. Both of the full service options would require the purchase of additional personal protective equipment (dry suits) in the amount of \$29,900.00 from the 2002 minor capital budget. Swift Water Rescue Technicians are required to re-certify every three years, this will add \$3,200.00 annually to the training budget.

CONCLUSION

The Richmond Fire-Rescue Department will continue to be called on to respond to water related emergencies. The department has managed to train an additional fifty members within existing budget for a total of ninety members. The Fire Chief recommends training the remaining 134 fire suppression members to Swift Water Rescue Technician Level 1 (option 3) which would provide staffing of all fire companies with trained personnel. This option is consistent with the First Responder Model which ensures that the closest available fire company will be dispatched to the scene of a water rescue incident with trained personnel.



Reg Smith
Deputy Chief



Cj Attachment 1
Water-Rescue Report

MINUTES

REGULAR COUNCIL MEETING

MONDAY, OCTOBER 23RD, 1995

RES. NO. ITEM

11.

COMMUNITY SAFETY COMMITTEE

- R95/19-19 15. Councillors Vaupotic and Sandberg
RESOLVED
That the Minutes of the Community Safety Committee meeting held on Tuesday, October 17th, 1995, be received for information.
CARRIED

16. SWIFT WATER RESCUE TRAINING AND EQUIPMENT
(Report: Sept. 27/95; File No.: 1860-01)

- R95/19-20 Councillors Percival-Smith and Sandberg
RESOLVED
- (1) *That authorization be given to the Richmond Fire-Rescue Department to train two department members to Rescue 3 Canada, Swift Water Rescue Technician Instructor, Level 1 status, to become in-house training instructors.*
 - (2) *That authorization be given for initially forty department members, (ten members per shift), to be trained to the Swift Water Rescue Technician, Level I status, to form the basis of a water rescue team on each shift.*
 - (3) *That the source of initial funding for the Swift Water Rescue Program be the Council Contingency Account.*

CARRIED

17. AMENDMENT TO AMUSEMENT CENTRES BYLAW NO. 4187
(Report: Sept. 5/95; File No.: B/L 6540)

- R95/19-21 Councillors Vaupotic and Sandberg
RESOLVED
That Bylaw No. 6540, which amends Amusement Centres Bylaw No. 4187 to extend the permitted hours of operation, be introduced and given first, second and third readings.

CARRIED



CITY OF RICHMOND

REPORT TO COMMITTEE

CSA - Oct 17/95

Council - Oct 23/95

TO: Community Safety Committee

DATE: September 27, 1995

FROM: John Tribbeck
Fire Chief

FILE: ~~14577~~ ~~855~~ ~~89~~
1855 - 01

RE: SWIFT WATER RESCUE TRAINING AND EQUIPMENT

STAFF RECOMMENDATION

1. That authorization be granted to the Richmond Fire-Rescue Department to train two Department members to Rescue 3 Canada, Swift Water Rescue Technician Instructor, Level I, to become in-house training instructors.
2. That initially forty Department members, (ten members per shift), be trained to the Swift Water Rescue Technician, Level I status, to form the basis of a water rescue team on each shift.
3. That funding for the Swift Water Rescue Program be included in the 1996 annual budget as an additional service level item.

John Tribbeck
John Tribbeck
Fire Chief

ENDORSED BY:
COMMUNITY SAFETY
COMMITTEE
ON <u>OCT. 17/95</u>
OPPOSED: <u>NONE</u>

FOR ORIGINATING DIVISION USE ONLY		
ROUTED TO:	CONCURRENCE	SIGNATURE OF DIVISION ADMINISTRATOR <i>[Signature]</i>
Budget	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

September 27, 1995

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STAFF REPORTORIGIN

Over the past two years Richmond has had the misfortune of experiencing three separate drowning incidents in waters of the North and South Arms of the Fraser River which surrounds the City. The Richmond Fire-Rescue Department was requested and responded to these three specific incidents and to numerous other water related incidents over the years. The Department's responses have been timely; however, once on the scene, its capability of carrying out an effective rescue or rescue attempt has been limited because of the lack of proper resources such as water rescue training and equipment. In fact, there have been times when Department members have placed themselves at personal risk during rescue attempts.

ANALYSIS

The Fire-Rescue Department is requested to attend water related incidents because of the varied services it provides to the community, and once on the scene is expected to provide a service. The Department has always provided a service at these incidents with the resources available. With the proper water rescue training and appropriate equipment the Department could provide a much improved service to the general public, and at the same time make emergency operations at water related incidents safer for the Department members who have responded to the scene.

This service can be improved by training Department members in water rescue and by purchasing water rescue equipment. The training portion of the program can be accomplished in two ways: by having approximately forty members trained, (ten members per shift), by an outside agency; or by having two Department members trained as Swift Water Rescue Technician Instructors, Level I. The latter is the most economical method as the training can be done in-house and the program could eventually be expanded to have all members trained. A summary of training costs for forty members is as follows:

1. By an Outside Agency - Rescue 3 Canada

40 members x \$280. per member	<u>\$11,200.</u>
(Swift Water Rescue Technician, Level I)	

2. By Training the Trainer - In-house Program

Train two members as Instructors	\$2,030.
(Swift Water Rescue Instructor, Level I)	
Training package for 40 members x \$55.	\$2,200.
(Swift Water Rescue Technician, Level I)	
Rescue 3 Canada - Supervision of Department Trainers	
(A one time cost)	<u>\$2,100.</u>
Total:	<u>\$ 6,330.00</u>

September 27, 1995

- 3 -

The next item to be considered is the purchase of swift water rescue personal equipment. It is proposed to initially equip fire apparatus stationed at No. 2 and No. 3 Fire Halls and the Rescue and Safety truck stationed at No. 1 Fire Hall; each piece of apparatus would be equipped with two sets of personal equipment packages. Fire Halls 2 and 3 are those located nearest to the North and South Arms of the Fraser River. This is not to say however, that they would not be dispatched to a water incident at other locations. The Rescue and Safety truck would be dispatched to all water related incidents. The cost to equip these vehicles with water rescue equipment is as follows:

Personal Equipment Packages: 6 x \$1,825. = \$10,950.

A combined comparison of training and equipment costs are:

1. By an Outside Agency - Rescue 3 Canada

Training (40 members)	\$11,200.
Equipment (6 personal equipment packages)	<u>10,950.</u>
Total:	<u>\$22,150.</u>

2. By Training the Trainer - In-house Program

Training (2 members)	\$ 6,330.
Equipment (6 personal equipment packages)	<u>10,950.</u>
Total:	<u>\$17,280.</u>

FINANCIAL IMPACT

The cost to train forty-two Department members and to purchase six personal equipment packages is estimated at \$17,280.00. Funding for this program would be included in the 1996 budget submission as an additional level of service item.

CONCLUSION

The Richmond Fire-Rescue Department has responded to numerous water related incidents over the years and will be expected to continue supplying this service in the future. At the present time Department members have received no formal training in water rescue, nor does the Department have the proper equipment to carry out water rescues in a safe manner. If the Department is to continue this service, Department members should receive formal training and the Department could purchase proper water rescue equipment.


John Tribbeck
Fire Chief

JFT:drm

FL05.9515

PART 31: FIREFIGHTING

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NFPA 1670**Standard on****Operations and Training for Technical Rescue Incidents****1999 Edition**

This edition of NFPA 1670, *Standard on Operations and Training for Technical Rescue Incidents*, was prepared by the Technical Committee on Technical Rescue and acted on by the National Fire Protection Association, Inc., at its Fall Meeting held November 16–18, 1998, in Atlanta, GA. It was issued by the Standards Council on January 15, 1999, with an effective date of February 4, 1999.

This edition of NFPA 1670 was approved as an American National Standard on February 4, 1999.

Origin and Development of NFPA 1670

This is the first edition of this document. The responsibility for NFPA 1470, *Standard on Search and Rescue Training for Structural Collapse Incidents*, 1994 edition, was transferred to the Technical Committee on Technical Rescue, which has prepared a proposed new NFPA 1670, *Standard on Operations and Training for Technical Rescue Incidents*. This document incorporates the scope of NFPA 1470, which has been expanded to include identifying and establishing levels of functional capability for safety and effectively conducting operations at technical rescue incidents.

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NFPA 1670

Standard on

Operations and Training for Technical Rescue Incidents

1999 Edition

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ACCREDITATION

The Certification Process:

Certification is simply meeting a recognised standard and having the results recorded. In life at risk activities it is important that you know, for sure, what you can do and maybe more importantly, what you can't do. It is a process of qualification and this process is ongoing.

The Certification Body:

The International Rescue Instructors Alliance (IRIA www.iria.org), is the certification body for *Rescue Canada* and other service providers around the world. The IRIA is a non-profit professional organisation which determines, sets, manages and supports 1) certification levels, 2) course content and delivery, 3) instructor standards, 4) operational standards, 5) and applied technical (product) standards. The IRIA also completes professional, third party risk assessments and certifies operational standards, procedures and guidelines.

Structure:

The IRIA is an International organization and is registered in British Columbia and Oregon with head offices in North Carolina. The IRIA is managed by an executive committee and is supported by an independent Professional Accreditation Committee (education) and a Technical Advisory Committee (techniques and products).

Mandate:

IRIA mandate is to support and compliment the policy and procedure based regional/national government certification and the product based manufacturing certification with applied, experienced, performance based certification. IRIA certification is based on the experience, credibility and peer recognition of rescue professionals who have a proven record of performance in their chosen fields and in court.

Levels Of Certification:

The certification courses are delivered on five levels. All levels are based on clear, linked, progressive **objectives** that are evaluated, validated, recorded and tracked. The certification levels are 1) **Basic Survival**, 2) **Safety: Operations**, 3) **Technical: Rescue**, 4) **Specialist: Advanced** and 5) **Instructor**. Level 3 or the Rescue Technician level is the top of the non professional level and the beginning of the professional level.

Re-certification Standards:

basically no cost each year, re-certification costs are approximately 2/3 full cost and take approx. 2/3 the time of the full course.


IRIA Qualifications:

IRIA members act as court recognised subject matter experts in jurisdictions around the world. The court system is the final regulator and is ultimately responsible for validating standards. The **IRIA** membership includes 450 rescue professionals and instructors from around the world.

In Canada, **RC** and its instructors have served and assisted the Department of Fisheries and Ocean, Parks Canada, RCMP, Ministry of Environment, the BC Provincial Emergency Program, University Colleges, BC Registrar of Commercial River Rafting, America Outdoors and many response agencies, among others.

Internationally, **IRIA** members have and/or do act as advisors to FEMA, USAR Task Forces, OES, CDF, CHP, BLM, National Parks, Coast Guard, US Military, and British and Australian Military and Fire services, among many others.

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Attachment 4
Water-Rescue Report

1996 CAPITAL BUDGET PROCESS

ADMINISTRATION AREA: FIRE-RESCUE DEPARTMENT

PROJECT: REPLACE UNIT 452 - FIRE BOAT

OBJECTIVE:

To replace our existing aluminum skiff with a water vessel to accommodate minor fire fighting and water rescue capabilities for the Island of Richmond.

CURRENT SITUATION:

Presently our "fire boat" is limited to transporting fire department personnel from Britannia to Shady Island in the event of a fire on that island. This unit has no fire fighting or special rescue capabilities to address the needs not only of the Steveston waterfront but Lulu and Sea Island as a whole. This unit is powered by a 35 horsepower outboard motor. This power is insufficient in respect to rapid response. The main restriction to this vessel is that for any emergency response on water should have a contingent power supply. This unit was also recently given a warning by RCMP as to violations of competency for marine equipment. We are working with the Canada Coast Guard to identify insufficiencies. Community Services also uses this water craft for Public Relations and Business Tours of the Steveston Harbour.

IDENTIFY ALTERNATIVES:

We must address violations expected from the Coast Guard in order to function as we do now. Should we retain this vessel, we anticipate an approximate \$25,000 retrofit to repower, fire pump and water rescue capabilities.

FINANCIAL ANALYSIS:

A new fire boat to serve the needs of Lulu and Sea Island would cost approximately \$300,000. We will endeavour to negotiate with the Fraser River Harbour Commission, Delta, Surrey and New Westminster to provide water fire/rescue protection on the Fraser River and its estuaries. Until this time a mobile unit is the interim solution. Funds have not been allocated in our vehicle reserve for this vehicle, however, allocation should be made to accommodate future purchases.

NON-FINANCIAL ANALYSIS:

Presently, this unit is nothing more than a water taxi for crew transportation. With the increased growth in the Steveston Water Front and expected growth along our foreshore we do not have any fire fighting capabilities or the waterfront other than landside access.

RECOMMENDATIONS/CONCLUSION:

Purchase a mobile dual powered Zodiac, to provide water fire/rescue protection.

**RICHMOND FIRE-RESCUE DEPARTMENT
1996 - 2000 CAPITAL PROGRAM
VEHICLE ACQUISITION/REPLACEMENT**

45513

REPLACE VEHICLE #	1996	1997	1998	1999	2000
Pumper #229	\$ 550,000				
Pumper #112	550,000				
Fire Boat #412	50,000				
Acadian #535	16,000				
Pumper #271		\$ 550,000			
Shadow #605		16,000			
Shadow #659		16,000			
Shadow #604		16,000			
Aerial #189			\$ 750,000		
Bog Truck #489			50,000		
Pumper #115				\$ 550,000	
Canteen #615				45,000	
Training Van #561				30,000	
Pumper #121					\$ 550,000
Pub. Ed. Van #676					30,000
Oper. Sup. Van #677					30,000
TOTAL	\$ 1,166,000	\$ 598,000	\$ 800,000	\$ 625,000	\$ 610,000

RICHMOND FIRE/RESCUE.

WATER RESCUE / RECOVERY.

AQUATIC

RESCUE / RESPONSE

VEHICLES.

July/96

WATER RESCUE / RECOVERY.

A.R.V.

The first thing that any one is going to ask themselves is; what is an A.R.V.? A.R.V. stands for AQUATIC RESCUE / RESPONSE VEHICLE, this is a professional term for the civilian Personal Water Craft.

These vehicles have been used extensively throughout the world in the water rescue environment for many years. They have proven themselves in the big surf of Hawaii to the concrete water diversion systems of Los Angeles.

These craft, like most things where developed for the civilian market. The Rescue community took a look at these vehicles and have without any trouble at all, adapted them to the Emergency Response Field. This has become one more useful tool that trained professionals can call upon in their day to day work in the Emergency business.

With the amount of water in Richmond's jurisdiction and the implementation of the Water Rescue / Recovery Team; I think that it is time that Richmond Fire/Rescue look to the future and once again become a leader in their field. This leadership would be in the form of Richmond Fire/Rescue taking a serious look at A.R.V.s and how they can be used in Richmond. If Richmond Fire/Rescue, was at the end of this study to acquire a number of A.R.V.s it would be the first Fire Department in B.C., if not Canada to take this progressive leap forward.

In the following pages I will attempt to explain the areas in which A.R.V.s have been used in the past; from rescue, to projecting water for fire fighting. I will also lay out lists of agencies who are successfully using these vehicles in their every day operations, as well as some of the projected costs.

WATER RESCUE / RECOVERY.

A.R.V.

A.R.V.s are and have been used in the Rescue field for many years. Police departments use them for enforcement and patrolling; it has been said that the A.R.V. has done for patrolling the water ways, what the motorcycle did for the streets and highways. The enforcement people that use these vehicles are extremely happy with them and are finding new roles for them everyday. The law enforcement community have whole heartedly excepted the A.R.V. as a viable new tool, thus in the U.S. there appears to be more police departments using A.R.V.s than Fire departments.

It is my opinion that this will change with time, I feel that the Fire Service, by its very nature will find far more uses for the A.R.V. than the police, given the proper exposure. Fire departments have always been in the RESCUE business, this fact will only grow in the future. It is up to the Fire service to take advantage of every new tool that comes on the market that will make their job, easier and safer.

What makes the A.R.V. so desirable for Rescue work is that they are small and powerful. The three person size, are best suited for rescue work, because of their stability and their weight is about 550 pounds, which means that three or four men should be able to pick up the vehicle and deploy it into the water. The power plants on the three person size range from 65 H.P. to 110 H.P., this is not just speed but pushing and pulling power.

WATER RESCUE / RECOVERY.**A.R.V.**

DEPLOYMENT: These vehicles can and have been deployed the conventional way, from a trailer and/or the back of a truck, to being carried into the water by hand. They have also been deployed in a more unconventional way, by throwing them out of a helicopter. Because of their rugged construction and internal technology they survive the harshness of conditions. They are the only surface water vehicle, apart from the U.S. Coast Guard cutters on the Oregon coast that can be completely submerged or turned upside down in the water and still work.

The safety aspect of the A.R.V. is one of its best features, it is low to the water so the operator is close to his/her victim as well as his controls, thus the operator can make physical contact with the victim and still have full control at his/her fingertips. There is no propeller in the water to cause further hazard to the victim as well as the rescuers, A.R.V.s are "Jet Drive". They are also highly maneuverable, this means that they can get into and maneuver in areas that even the smallest of conventional craft may have difficulty.

Their small size hides the fact that they are very powerful. A three person A.R.V., as its name suggests can carry three persons at the same time and push or pull an A.R.P. (AQUATIC RESCUE / RESPONSE PLATFORM - [JETMATE]) containing at least four or more persons.

Techniques have been developed to rescue a person in the water using an A.R.V., a stokes stretcher, and two rescuers. One person is the Primary Operator, and does not leave the vehicle. The second person is the Primary Rescuer. The stokes stretcher is towed on a short lead from behind the A.R.V. When the A.R.V. gets close to the victim, the Primary Rescuer leaves the A.R.V. and makes contact with the victim. While this contact is made, the Primary Rescuer, using the buoyancy of the water protects the victims "C" spine, if necessary.

WATER RESCUE / RECOVERY.**A.R.V.**

Mean while the Primary Operator has taken the A.R.V. past the victim and turned around and heads back in a straight line. As the A.R.V. slowly comes along side, the two people in the water; the Primary Rescuer, quickly and carefully floats the victim into the stokes stretcher on his/her back. Once this maneuver has been completed the Primary Rescuer gives a signal to the Primary Operator, who increases speed, which causes the stokes stretcher with victim and rescuer on top, to get up and plane with no stress on the victim. This operation is completed quickly and safely with the least amount of additional trauma to the victim and their "C" spine. This insures that when they get to shore the patient is already on a firm support and no further transfer is necessary.

In conjunction with an A.R.P. (AQUATIC RESCUE / RESPONSE PLATFORM), maneuvers such as Y.V.R. deployment of large canister life rafts, can be done. Once deployed, the A.R.P. can also be set loose as an extra life raft, leaving the A.R.V. free to round up victims as well as other rafts and bring them to other craft in deeper water or a safer area.

FIRE FIGHTING - There is at least one company in the U.S. that is manufacturing fire fighting systems for A.R.V.s. This company is Archerfish Fire Boats of Evansville, Indiana. They have equiped a Yamaha Waverunner III (small A.R.V., 50 H.P.) with a system. They have sold most of their systems to small Fire Departments, but currently Fort Lauderdale Fire Department is looking at one of their systems, because their larger fire boat can not get into some of their smaller areas. It also produces a large wake which has caused damage to other moored boats.

WATER RESCUE / RECOVERY.

A.R.V.

The Archerfish system can produce 190 G.P.M.; it also has a 3.8 U.S. Gal. foam tank and can project a stream of water or foam approx. 60 ft. It can supply shore based operations with 300 G.P.M. @ 34 P.S.I. through 250 ft. of 2 1/2 inch hose up a 30 degree grade. If the fire system was to be incorporated into a larger vehicle, these figures would obviously be greater.

This type of fire system is currently being developed in the Lower Mainland, by FIREJET SYSTEMS of Port Coquitlam. This would negate the need to go to the U.S. for such a system and pay U.S. dollars.

Some people have suggested that it is unsafe to fight fires in this manner, because the operator does not have an air pack on. My answer to this is that this form of fire fighting is an exterior attack. In Richmond Fire/Rescue we do not always put an air pack on our personal who man 2 1/2 inch hose lines for exterior attack. It has also been said that this form of fire fighting is doing away with our buddy system. We in Richmond Fire/Rescue have always been manpower poor, and our past operations have not always followed the safest of rules. Having said this and knowing this as fact, does not make it right. If we were to upgrade our present fire boat, with fire fighting capability, I doubt that we would put four people on this craft in order to make a full engine company. This craft at best would have two nozzles onboard, and a primary operator; I am sure the fourth person would be commandeered for other duties. Because if the primary operator was controlling the craft and two other members were manning the nozzles there would be nothing left for the fourth person to do.

WATER RESCUE / RECOVERY.

A.R.V.

Using the A.R.V.s, you treat them just like 2 1/2 inch attack lines and if possible place them on multiple sides of the fire, instead of two nozzles on one side of the fire. Your personel would be protected by wearing dry suits for thermal protection or Gortex Fire Fighting dry suits (fire resistant), Rescuers P.F.D.s for added floatation, water rescue helmets for head protection. They also carry strobe lights for safety and can be equipped with radios, just like any other fire fighter.

Richmond Fire/Rescue can also use the A.R.V.s as part of a public relations program. I envision this program to take the form of having qualified operators, patrol the river. Their task would be to check for hazards from the water side. Also to show a Richmond Fire/Rescue presence on the water, by stopping to talk to the public at large as well as boaters. While doing this they could also check to see if the boaters had their safety equipment and let everyone know that Richmond Fire/Rescue is a 24 hour Rescue and Fire Fighting service, even on the water.

COSTS - It has been rumored that the Richmond Fire/Rescue has \$ 50,000.00 available to upgrade our present fireboat. With this amount of money we will only attain certain goals. These goals being, one craft in one place, which will probably have no more than two nozzles and be able to generate approx. 500 G.P.M. also the length of it's engine shafts will limit it to certain depths of water in which it could travel. It would also be restricted by it's length and width to certain sized operaring areas. This craft still has a function in the larger picture. I feel that it would not be wise to put any further money into our Herring Skiff. Leave it as is and use it as a supporting craft to the A.R.V.s; looking to the distant future to replace this vessel with a better craft of equivalent size or larger.

WATER RESCUE / RECOVERY.

A.R.V.

The reason that I suggest that we keep our skiff is because in the event of a larger disaster we will need all the craft we can get our hands on, and qualified people to run them. When this craft has finally worn out and the Department is in better economic times, it can be replaced.

With the same \$ 50,000.00, Richmond fire/Rescue could purchase four A.R.V.s and at least one A.R.P. (costs not final). This would give the Department the ability to have a craft in four different areas of the city. These craft could be transported to one location quickly by trucks or under their own power. Once at a fire scene they could give four areas of attack with the combined minimum of 760 G.P.M. They can also travel fully loaded over as little as six inches of water. These craft are not hindered by bad weather conditions, because as previously stated they can be turned upside down and still operate with no ill effects. As well in rough water they can run in the trough of the waves and not be bothered by them.

RICHMOND CASE STUDY:

On July 8,1996 on the south arm of the Fraser River, there was a serious accident at the construction site of the approach ramps to the Alex Fraser Bridge. The construction crews were attempting to raise a coffer dam frame out of the river and from around a concrete piling which they had poured. they were doing this with aid of two cranes on barges; shortly after they started the lift, the projecting arm on one of the cranes collapsed. This caused the coffer dam frame and crane arm to plunge into the river. Part of the frame was held out of the river, because it got caught on the concrete pillar.

WATER RESCUE / RECOVERY.**A.R.V.**

Fortunately no one was hurt in this incident, but the potential was very great. We could have had workers knocked off their platforms by the force of the falling debris. Worse yet we could have had workers who were pinned in the water by the debris. Another possibility is that workers could have gone into the water on their own, thinking that they would stand a better chance of survival in the water.

Capt. Dutt and myself toured the site on July 9, 1996. The site supervisor allowed us to view the area. We were both very concerned with what we saw. Some of the coffer dam frame was still hanging, but secured with cables to the concrete piling. Work was progressing in the form of removing this frame work. We witnessed many workers in the area, all those close to the water were wearing P.F.D.s. Most of these were soaked with oil and well used, also the majority of the workers who were wearing P.F.D.s did not have them zippered up. I am not a W.C.B. inspector and it is not my job to deal with these matters. I only bring this up from a Water Rescue point of view. Their old P.F.D.s have probably lost a great deal of their flotation, and the workers with them not zippered up, would have probably lost them in short order after entering the fast moving water. On the day of our visit the river was running about a ten knot current. This is a substantial flow of water for anyone who is caught in it as a free swimmer. Even our members who are trained to deal with the water and know how it works would have a great deal of difficulty in these conditions. There were about three small work boats at the site, each with an outboard engine. With the debris and cables and rope in the water and also the possibility of victims, these craft would have posed more of a danger than a help. The same would have been true if we would have deployed our Herring Skiff.

WATER RESCUE / RECOVERY.**A.R.V.**

With the small restricted channel and the twisted metal and cables present there would have been no room for our Herring skiff to maneuver. This situation is a prime example where an A.R.V. would have been the best and safest tool to use. The A.R.V. would have enabled the rescuers to maintain station in the rapid current, as well as being able to maneuver in the restricted, debris littered channel. They would not have been affected by the ropes and cables because of their "JET DRIVE". They would also have been easily and quickly deployed by a fire crew on the way to the scene. ie: In this incident, if number five station had an A.R.V. prior to this event, they could have arrived at the scene from the west and launched their craft from the Steveston Packers ramp on Dyke Road just west of the accident. By the time the pump and remaining crew arrived on the scene the rescuer on the A.R.V. would have been there and made an assessment of the situation from the water and possible a rescue.

More water incidents are happening in Richmond everyday, it is up to the members of Richmond Fire/Rescue to make themselves the best equipped and trained fire fighters in B.C., so that they can deal with these situations in the most professional manner possible and to help reduce the loss of life where ever they can.

WATER RESCUE / RECOVERY.

A.R.V.

A.R.V. USES:

Rescue - singulary.

Rescue - with two Rescuers.

**Rescue - with stokes stretcher and/or spine board (C.P.R. , medical,
and airway assessment on route).**

Rescue - rapid search.

Rescue - tow other rescue equipment.

Rescue - tow or transport victims to safe areas.

Fire Fighting - project water and/or foam.

Fire Fighting - warfs, boats, structures.

Fire Fighting - remote pumping stations.

A.R.V. ADVANTAGES:

Powerful - speed, towing, pushing.

Compact - can get into tight areas.

Deployment - can be easily deployed, by vehicle or manually.

**Durable - can be turned upside down in the water and it will still run;
hull design and construction makes them very strong, can
take a lot of punishment.**

**Safe - Jet Drive, no prop in the water, no exposed moving parts, to
harm victims or rescuers.**

Cost effective - records show that they have low maintenance costs.

WATER RESCUE / RECOVERY.

A.R.V.

A.R.P. (JETMATE) USES:

Stable rescue platform.

More room for victims, equipment, rescuers.

Conduct C.P.R. front and back while under way.

Transport rescuers.

Deploy large canister rafts.

Deploy fencing.

Extra free floating platform.

AGENCIES CURRENTLY USING A.R.V.s

R.C.M.P. - Cultis Lake, B.C.

Hawaii Life Guards.

Indiana River Rescue.

Los Angeles City Fire Department.

Los Angeles County Fire Department.

San Diego Fire Department.

Fressno Fire Department.

WATER RESCUE / RECOVERY.

A.R.V.

AGENCIES IN WASHINGTON STATE USING A.R.V.s

City of Bremerton Police.
Callam County Sheriff.
Everett Police.
Snohomish County Sheriff.
Lake Stevens Police Department.
Pierce County Sheriff.
Whitman County Sheriff.
Kitsap County Search and Rescue.
Whatcom County Fire Department.
Lewis County Sheriff.
Douglas County Sheriff.
Columbia Basin Dive Rescue.
Mt. Vernon Fire Department.
Skagit County Sheriff.
Spokane Emergency Services.
Clark County Sheriff.
Chelan County Sheriff.
Yakima County Sheriff.
Asotin County Sheriff.
Island County Sheriff.

WATER RESCUE / RECOVERY.

A.R.V.

In the U.S. there are nearly 1,200 A.R.V.s in use by Fire Departments and Law Enforcement agencies, Search and Rescue units, Wildlife Conservation agencies, and Emergency Services teams. A.R.V.s are truly a "Jack of all Trades" for these agencies.

The foregoing report was compiled as an information base. It is designed to stimulate thought and discussion on the subject of A.R.V.s and their role with Richmond Fire/Rescue, with the hope that the Department will place them into service, for the betterment of the department.

Any feedback and/or comments concerning this report would be greatly appreciated.

F/F. Roy Fox

A handwritten signature in black ink that reads "R. Fox". The signature is written in a cursive style with a large, looped initial "R" and a smaller "F" and "X" following.

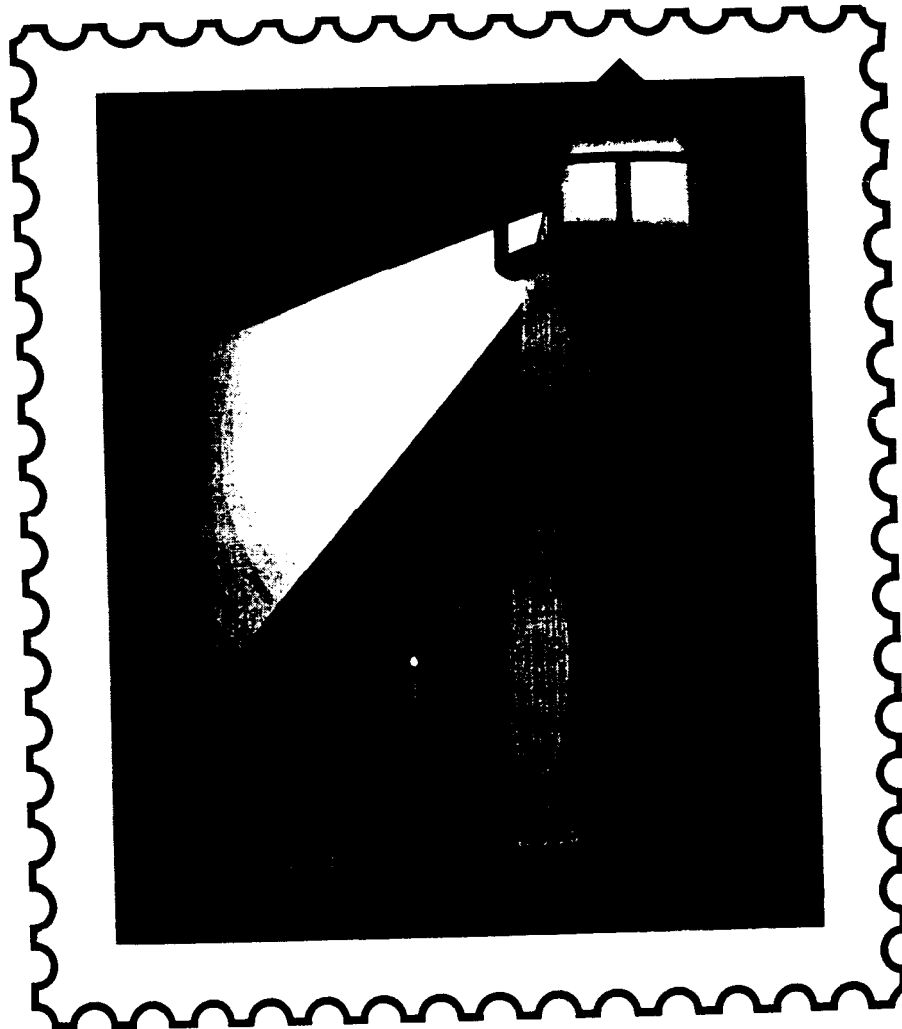
**Coordinator
Water Rescue / Recovery Operations
Richmond Fire/Rescue.**

Richmond Fire Department

Attachment 6
Water-Rescue Report

Water Rescue Report

January 15, 2001



Committee Members: Chaired by Ron Beaman I.A.F.F. Local 1286, Chief Jim Hancock,
Deputy Chief Reg Smith, Capt. Alec Dutt (retired), Capt. Roy Fox

6. Continue to maintain and operate the Personal Watercraft (Jet Mates) that we presently have and ensure that a training module for care and control of these boats is included in the Swift Water Rescue Training Program.
7. Develop a Training Program for boat operators, i.e. Power Squadron which includes the deployment policies and procedures for the use of the Rigid Hull Inflatable Boats (RHIB's) that the Department acquired in the YVR contract.
8. Develop Policies and Procedures to ensure that all boats can be deployed within prescribed time frames that will ensure the Safety of Water Rescue personnel when they are required to be in or on the water.
9. Seek secure mooring sites on or near the water in strategically located facilities that will ensure the quickest possible access by shore crews for deployment of boats.
10. Explore the future purchase and use of other types of boats, including boats capable of carrying a crew of 4 to 5 members for the purpose of Rescue and Extinguishment.
11. Set policies and procedures in the area of joint responses with other agencies with the RFR taking a first responder role. See attached #4.
12. Conduct annual reviews to ensure we are keeping up to required levels.

BACKGROUND

In October of 1995 Council sent a letter of Authorization to Fire Chief John Tribbeck. Authorization was given to train two members to Rescue Canada, Swift Water Rescue Technician Instructor Level 1 status with the understanding that these Instructors would provide in-house training of 40 members as Swift Water Rescue Technician Level 1 see attached #1. The department proceeded as per Council's request.

In 1996 the Department made the decision to purchase two Jet Ski (PWC's) Personal Water Craft complete with Jet Mates that allowed these units to act as boats to haul equipment, personnel, etc. Training was limited to a select group of members at first (Water Rescue Instructor's) and then was expanded to Water Rescue Technicians. During this expanded training the Jet Mates sustained damage and were taken out of service until repairs could be made. It was at this time that the future of this program was brought into question. There was a division among the members of the department pertaining to the effectiveness of this type of craft. The cost of repairs and maintenance of the equipment was also a concern. It was at this point that Fire Chief Jim Hancock called for a review of the entire Program and he struck a Committee.

In November of 1997 Fire Chief John Lysholm distributed a memorandum outlining the department's mandate regarding training in Technical Rescue Disciplines. See attached #2. This memo outlined that all personnel would be trained in both Water Rescue and High Angle. This decision was met with opposition by some of the members and the Union expressed concern regarding Safety Issues. An agreement to proceed to certain operation levels was reached. The issue of the maintenance of current levels prior to proceeding to the entire department was to be tested.

RICHMOND FIRE-RESCUE DEPARTMENT

WATER RESCUE COMMITTEE – SECOND DRAFT

January 8, 2001

INTRODUCTION

As a result of a recommendation from an operations meeting, a Committee was struck by the Fire Chief to review the delivery of service for Swift Water Rescue and determine if there was a use for boats owned and/or operated by the Richmond Fire-Rescue Department.

In October of 2000 he appointed Capt. Roy Fox, Capt. Alec Dutt, Deputy Fire Chief Reg Smith and himself to the Committee. He approached the Union and requested Union representation on this Committee in the position of Chair. President Geoff Lake appointed Secretary Ron Beaman to sit on the Committee to act as Chair. The Committee was to meet once a week from October 23, 2000 until December 18, 2000.

PURPOSE

The purpose of the Committee was:

1. To determine the direction the Department would take in the area of Swift Water Rescue.
2. To determine if the department will continue using boats in the delivery of Rescue and Fire Extinguishment.

SUMMARY OF REPORT RECOMMENDATIONS

The recommendations of the Committee are as follows:

The Richmond Fire-Rescue Department should:

1. Develop a Business Case Study and assign a budget to sustain the levels as outlined by these recommendations.
2. Develop a Cost Recovery System in the event the department is required to respond to incidents under Mutual Aid Agreements, YVR, Provincial Emergency Program (PEP) or other applicable incidents where a Cost Recovery System would come into effect.
3. Train and maintain certifications for all suppression personnel to Rescue Canada, Swift Water Rescue Technician Level 1 or equivalent.
4. Schedule Training and Maintenance Drills on the Training Calendar with the goal that all suppression personnel training is completed by the end 2001.
5. Purchase and maintain Swift Water Rescue equipment to the levels as outlined in this report or as designated by the department in the future.

1.5 **Purchase and Maintaining Swift Water Rescue Gear**

The Committee discussed the present levels and the need for more gear to fit the diverse shapes and sizes within the department. It was determined that adjustments would be made to the equipment inventory. The gear would be monitored by the Training Division for replacement or repair. Capt. Fox submitted a report on the cost of this equipment as attached #3.

Equipment levels on first line apparatus and spare trucks will be identified.

1.6 **Maintain and operate the PWC Personal Water Craft**

The Committee spent a number of meetings dealing with this issue. Although we felt it would be easy as this issue was mainly in the realm of the Fire Chief. It would have taken a lot of pressure off the Committee if he had just made an arbitrary decision to discontinue this program and stay with just Swift Water Rescue. To his credit he made the Committee work to ensure the recommendation that came forth had been well investigated, discussed and debated. The Committee investigated by:

- Sending out a review questionnaire to a number of other agencies to see what duties they perform, equipment they can deploy, service they can supply, time frames for response and what levels of training their members have.
- Contacting a number of Fire Departments to see what equipment and duties they perform.
- Checking WCB, NFPA Standards Rescue Canada, Swift Water Rescue requirements.
- Considered the pros and cons associated with various types of boats.

After all this investigation it was deemed by the Committee that the department has the responsibility to ensure the safety of its members when they are in the water. It was recommended that the department maintains and operates the existing PWC's. The department will review and monitor their effectiveness in the job they perform for the department. If they are not effective then the department will review and replace as required. The Fire Chief supported this recommendation.

1.7 **Develop a Training Program for Operating Department Boats**

The Committee discussed the development of a Program that was a module added to Swift Water Rescue. This module on boat operation would be delivered at the same time as the Swift Water Rescue. It would have to cover all boats presently owned and operated by the Department. If it were a requirement to take a Power Squadron Course then this would be identified in this module. This module would be reviewed every time a new boat was put in service. This training module would include the PWC's, Strawberry, Rigid Hull Inflatable Boats and YVR Life raft deployment. This module would add an extra week to the present Swift Water Rescue Course.

ISSUES

1.1 Business Case Study and Budget Assignment

The Committee discussed the need for additional funds to continue or expand this program. It was clear that in order to receive additional funding from the city to a level above what was already budgeted it would be necessary to do a Business Case Study and present this to Council. This task would be assigned to the Fire Chief and the administrative staff of the department.

1.2 Cost Recovery System

It was discussed that if during the process of the Business Case Study the Department could show that there was a built in Cost Recovery Program, it would greatly assist the department in getting the funds needed. The Committee discussed areas where the possibility of cost recovery would exist.

- Mutual Aid to bordering and outlying areas.
- Include some of the costs for service toward the YVR contract as part of the Rescue services provided to them.
- ICBC – vehicle recovery
- Provincial Emergency Program – PEP

1.3 Train and Maintain Certification for all Fire Suppression Personnel

The Committee discussed this issue at length. It was understood that the mandate of the Richmond Fire-Rescue Department is Rescue and Council has mandated the department to provide Swift Water Rescue Services. The Committee recommended that because we are mandated to provide this Rescue service we should provide the service in the best way possible. The majority of the Committee felt that it would be safer for the public and the members of the Department if every member was trained to the Swift Water Technician Level 1 and was capable of performing the technical skills needed to work within the rescue team. It was also discussed in Committee that if every member were certified then the need for specialized hall assignments would be eliminated. Each member would be capable of performing this discipline and eliminate the time needed to assemble a team.

The Fire Chief backed the decision to train all suppression members to Swift Water Rescue Technician Level 1.

This recommendation brought up the issue of Instructors and it was deemed that the department would have to review and identify a number of instructors that would be capable of servicing the training requirements within the scheduling time frames.

1.4 Scheduling and Training Calendar

The scheduling of training for the members was discussed and will be incorporated into the Training Calendar with the completion of training the entire department by the end of 2001.

1.8 **Develop Policy and Procedures for Deployment of Boats**

The development of policy and procedures for deployment would have to be defined. They should include:

- Minimum/Maximum number of personnel for deployment
- Response procedures
- Communication requirements
- Emergency and backup procedures
- Time frame requirements
- Deployment area familiarization/monitoring
- Putting equipment back into operation readiness
- Security

1.9 **Secure Mooring Sites**

The Committee recommends that the Department seek out strategically located, secure moorage sites preferably with the ability to house the equipment undercover and out of the water, possibly in a cradle or ramp device. This would allow a crew to quickly and easily deploy the craft once they respond to the site. We have tried trailering these units but we find it impossible to ensure that a vehicle will be available to tow them to a ramp to deploy. The Committee felt that by responding the first-in rig to the incident site, the second-in rig can be dispatched to the most advantageous moorage site and prepares to deploy. This would be defined in new Standard Operating Guidelines. The Committee found that the only agency we could be sure of to provide assistance 24 hours a day, seven days a week is the Richmond Fire-Rescue Department.

1.10 **Explore the Future**

The Committee recommends that the department continue to explore different methods, equipment and boats. While investigating other departments it became quite evident that Richmond is unique. We have many diverse areas to cover and no one piece of equipment will have the ability to span the range of diverse conditions. Areas of concern are the tidal flats where the ever-changing water level can make the use of heavy powerful prop bcats useless. Yet these same boats could be the only answer in the middle of the channel in performing Fire-Rescue operations. The equipment we have at this time must be tested to find it's limitations and it's advantages. The only way to find out is to train with it, use it and report our findings. The Committee did not want to throw the "baby out with the bath water". These recommendations would allow this department to be a leader in the area of surface rescue.

The Committee felt that the department should continue to explore the ever-changing rescue requirements with the possibility of looking at subsurface capabilities in the future.

Future issues discussed at Committee level:

- Boats capable of carrying and functioning with a crew of 4 to five members performing Fire Extinguishment and Rescue Operations.
- Testing of Rescue Kayaks as an adjunct to our present Rescue Boogie Boards, light weight and quickly deployed from first in apparatus.

CONCLUSION

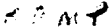
Richmond Fire-Rescue Department is one of a handful of departments that provide this service. Given our geographical locale and the potential for responding to water related rescue situations it is imperative that we take the lead in supplying this service. The department must provide this service to the public in the safest possible way while ensuring that its members are also working under the safest conditions possible.

I would like to thank the members that sat on the Committee for their efforts and input into this report. It is hopeful that this report will guide the department for the future in the area of surface rescue and marine extinguishment.

Thanks to the Committee:

- Chief Jim Hancock
- Deputy Chief Reg Smith
- Captain Alec Dutt (retired)
- Captain Roy Fox
- Chair Ron Beaman Secretary I.A.F.F. Local 1286

The Department would also like to thank the following agencies for responding to our survey:

- Canadian Coast Guard – Hovercraft Unit
- Canadian Coast Guard Auxiliary – North Arm
- Canadian Coast Guard Auxiliary Unit #7 South Arm
- HMCS Discovery
- Vancouver Fire/Rescue Services
- Canadian Lifeboat Institution – Steveston Station
- Delta Police
- Delta Fire
- Lafarge Canada
- Burrard Towing
- Rivtow Marine Inc.
- B.C. Ambulance – Station #269
- B.C. Log Spill
- Steveston Harbour Authority
- 

PART 17: TRANSPORTATION OF WORKERS

		<ul style="list-style-type: none"> (d) have rear or side doors with latches operable from inside and outside, with side doors on the right side of the vehicle. (e) be fitted with at least one emergency exit, on the left side or rear of the vehicle, operable from both inside and outside, and unlocked while the vehicle is in use. (f) have safe means of entry and exit with non-slip steps and handholds. (g) be fitted with adequate service brakes and a mechanical parking brake, and (h) be equipped with first aid equipment as required by Part 33 (Occupational First Aid), and with appropriate fire extinguishers in good working order.
		<ul style="list-style-type: none"> (2) A vehicle used to transport workers off road must have <ul style="list-style-type: none"> (a) service brakes capable of stopping and holding the fully loaded vehicle on the maximum slope the vehicle can climb or at the maximum specified operating slope. (b) a primary and secondary braking system with the secondary braking system having at least 50% of the braking capability of the primary braking system. (c) if components are shared between the primary and secondary braking systems, a design such that failure of any one component will not disable both brake systems. (d) if the service brake operates on the drive train, a design such that failure of any one component of the drive train will not reduce the braking capability to less than 50% of the primary brake system, and (e) a mechanical parking brake capable of holding the vehicle in place on a slope of at least 15%.
Operation and maintenance	17.11	<ul style="list-style-type: none"> (1) A worker transportation vehicle must be operated by a competent driver licensed under the provisions of the <i>Motor Vehicle Act</i>, and if required, the <i>Highway (Industrial) Act</i>. (2) All doors must be closed and latched while the vehicle is in motion. (3) Smoking must not be permitted in a worker transportation vehicle. (4) The parking brake must be engaged when the vehicle is left unattended and the wheels blocked or chocked if the circumstances require. (5) A worker transportation vehicle must be inspected before first use on a work shift, and properly maintained to ensure it is safe for use. (6) Any defect which might affect the safety of workers must be corrected before using the vehicle.
Seating design	17.12	<p>A worker transportation vehicle must be equipped with seats that</p> <ul style="list-style-type: none"> (a) are safely located and securely attached to the vehicle, with a width of at least 41 cm (16 in) for each passenger and an upholstered seat and seat back which provide normal and comfortable seating for passengers. (b) face to the front or rear of the vehicle, unless installed otherwise by the vehicle manufacturer, and (c) provide a spacing of at least 66 cm (26 in) measured between the face of the seat back at seat level and the back of the seat or other fixed object in front.
Seating capacity	17.13	<ul style="list-style-type: none"> (1) Seating capacity must be determined by the number of 41 cm (16 in) full seat widths available, provided the gross vehicle weight (GVW) is not exceeded. (2) Workers must not be transported in a vehicle if the weight of the passengers plus the weight of any tools, equipment and cargo being carried results in the allowable gross vehicle weight (GVW) for the vehicle being exceeded. <p>Note: For calculation purposes, each passenger is assumed to weigh 68 kg (150 lbs).</p>
Aisles	17.14	<p>If a worker transportation vehicle will carry 12 or more passengers, it must have an aisle at least 25 cm (10 in) wide providing access from each seat to a regular entry/exit door, and also to an alternate or emergency exit.</p>

MARINE CRAFT

Compliance with regulations	17.15	<p>Marine craft used for transporting workers must be constructed, equipped and operated as required by the <i>Canada Shipping Act</i> and regulations made under it.</p>
Load rating	17.16	<p>If a boat or other vessel is used for transporting workers the employer must</p> <ul style="list-style-type: none"> (a) conspicuously post on it the details of the safe maximum load, and if it is powered by an outboard motor of 10 or more horsepower, the maximum horsepower for safe operation, and (b) have a water line (weight line) marked on the vessel to make overloading apparent.

PART 17: TRANSPORTATION OF WORKERS

Seaworthiness	17.17	A boat or other vessel used for transporting workers must (a) be seaworthy, (b) be properly maintained to the manufacturer's specifications, and (c) meet safety standards applicable to the size and carrying capacity of the vessel.
Operation	17.18	An operator of a boat or other vessel must (a) be familiar with and have proven ability in operating marine craft in the geographical area of operation, and (b) not operate marine craft in excess of the posted load and, where applicable, the posted power limits.
Adverse weather	17.19	If adverse weather, water or other conditions that may endanger workers prevail or are anticipated, precautionary measures must be taken by delaying departure, decreasing speed, adjusting load or by other appropriate means. Note: —A worker has the obligation to comply with the requirements for refusal of unsafe work in Part 3 (Rights and Responsibilities) if the worker feels it is unsafe to travel by water for reasons of weather or seaworthiness.
Life jackets	17.20	Life jackets meeting the requirements of Part 8 (Personal Protective Clothing and Equipment) must be (a) readily available for each worker transported by boat or other vessel, and (b) worn when adverse weather, water or other conditions could create a hazardous situation, or if workers are being transported in open boats, rafts, barges or similar craft.
Fire extinguishers	17.21	(1) Power driven marine craft used for transporting workers must be provided with and have readily available for use, fire extinguishers of the foam, carbon dioxide or dry chemical type. (2) Fire extinguishers must meet the requirements of the <i>Canada Shipping Act</i> and the regulations made under it.
Communication	17.22	(1) A vessel must have a radio or other means of communication with a camp or land base station. (2) A vessel more than 5.5 m (18 ft) in length must be equipped with an EPIRB (Emergency Position Indicating Radio Beacon) for locating the vessel in the event of an accident.
Vessel stability	17.23	(1) Cargo carried on a boat or other vessel must be distributed and secured to ensure the stability of the vessel during the journey. (2) A vessel must be secured or otherwise controlled to permit workers to get on and off safely. (3) A vessel less than 5.5 m (18 ft) in length must be equipped with sufficient flotation ballast to offset the weight of passengers.
Maintenance and inspection	17.24	(1) Marine craft must be inspected daily before initial operation, and thereafter as required. (2) Defects must be reported immediately, in writing, to the supervisor and those defects which affect the safe operation of the craft must be remedied before the craft is put to use.
Anti-skid covering	17.25	A boat or other vessel used by workers wearing caulked boots must be fitted with deck matting or other covering which provides safe footing for workers, and the covering must be maintained in good condition.
Lighting	17.26	(1) A boat or other vessel operated in navigable waters during the period from sunset to sunrise, or in conditions of restricted visibility, must display navigation lights as required by the <i>Canada Shipping Act</i> and regulations under it. (2) Deck and cabin lighting must be provided and used if necessary to provide safe levels of illumination aboard the vessel. (3) Searchlights or floodlights must be provided and used if necessary to facilitate safe navigation and to illuminate working or boarding areas adjacent to the vessel.

AIRCRAFT

Compliance with regulations	17.27	Transportation of workers by aircraft must be done in accordance with the applicable regulations of the Department of Transport (Canada).
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5-1.7* Deploy a water rescue rope to a water-bound victim, given a coiled water rescue rope of 50 ft to 75 ft (15.240 m to 22.800 m) in length and personal protective equipment, so that the deployed rope lands in the victim's hands, the rope does not slip through the rescuer's hands, the victim is moved to the rescuer's shoreline, the victim is not pulled beneath the surface by rescuer efforts, the rescuer is not pulled into the water by the victim, and neither the rescuer nor the victim is tied to or entangled in the throw line.

(a) *Requisite Knowledge:* Types and capabilities of personal protective equipment, effects of hydrodynamic forces on rescuers and victims, hydrology and characteristics of water, behaviors of water-bound victims, safe water rescue rope-handling techniques, incident-specific hazard identification, criteria for selecting victim retrieval locations based on water environment and conditions, hazards and limitations of shore-based rescue, local policies/procedures for rescue team activation, and information on local water environments.

(b) *Requisite Skills:* The ability to select personal protective equipment specific to the water environment, don personal protective equipment, identify water hazards (i.e., upstream or downstream, current or tides), identify hazards directly related to the specific rescue, demonstrate proficiency in deploying water rescue rope from throw bags, and demonstrate appropriate shore-based victim removal techniques.

5-1.8 Deploy watercraft, given watercraft; support vehicles; watercraft conveyances; launch and recovery sites, docks, marinas or moorings; support personnel; and operational protocols; so that the watercraft is launched and recovered without damage or injury; trailers, conveyances, and support vehicles are utilized within the scope of their designed specifications; and the rescue effort is not delayed.

(a) *Requisite Knowledge:* Motor vehicle laws and operational protocols for support vehicles with watercraft conveyances, designed applications and limitations for support vehicles with watercraft conveyances during launch and recovery operations, location and routes of access to and egress from watercraft launch/recovery sites, support of vehicle operations, and launch/recovery protocols.

(b) *Requisite Skills:* The ability to support vehicle operations with and without trailers/conveyances, procedures for launching/recovering watercraft from the water, and operation of watercraft conveyances.

5-1.9* Negotiate a designated water course in a watercraft, given a watercraft that is available to the team, a course that is representative of the bodies of water existing or anticipated within the geographic confines of the authority having jurisdiction, a range of assignments and water rescue personal protective equipment, so that the specified objectives are attained, all performance parameters are achieved, movement is controlled, hazards are continually assessed, launch does not proceed if the watercraft is not adequate for the conditions, distress signals are communicated, and rapid intervention for the watercraft crew has been staged for deployment.

(a) *Requisite Knowledge:* Limitations and uses of available watercraft, dynamics of moving water and its effects on watercraft handling, launch and docking procedures, conditional requirements for personal protective equipment, applications for motorized and nonmotorized craft, operating hazards as related to conditions, and crew assignments and duties.

(b) *Requisite Skills:* The ability to navigate watercraft with and without primary means of propulsion, evaluate conditions

for launch, don water rescue personal protective equipment, utilize communications systems, apply procedures for broaching and righting watercraft, and apply procedures for casing and recovering personnel from watercraft.

5-1.10 As a member of a team, use a parbuckling technique to extricate an incapacitated water-bound victim from the water to a watercraft, given a water hazard that is representative of the bodies of water existing or anticipated within the geographic confines of the authority having jurisdiction, a watercraft that is available to the team, nets, webbing, blankets, tarpaulins or ropes, a means of securement, and water rescue personal protective equipment, so that the watercraft is not broached, control of the watercraft is maintained, risks to victim and rescuers is minimized, and the victim is removed from the hazard.

(a) *Requisite Knowledge:* Limitations and uses of available watercraft, parbuckling (rollup) techniques, dynamics of moving water and its effects on watercraft handling, conditional requirements for personal protective equipment, and effects of extrication on watercraft handling and stability.

(b) *Requisite Skills:* The ability to construct a simple mechanical advantage system, anchor mechanical advantage systems in watercraft, and demonstrate proper lifting techniques.

5-1.11 Extricate an incapacitated water-bound victim from the water to the shore as a member of a team, given spinal stabilization devices, patient transfer devices, a water hazard that is representative of the bodies of water existing or anticipated within the geographic confines of the authority having jurisdiction, and water rescue personal protective equipment, so that positive buoyancy for the victim and the rescuers is maintained, the victim's airway, respiratory efforts, and ventilatory support are not compromised, the victim's cervical spine is maintained in alignment, risks to victim and rescuers is minimized, and the victim is removed from the hazard.

(a) *Requisite Knowledge:* Effects of environmental conditions on spinal stabilization and transfer devices, emergency medical care, packaging equipment and methods, ways to minimize additional injuries, immobilization techniques, hydrology and specific hazards anticipated for specific water rescue environment, and selection procedures for water rescue personal protective equipment.

(b) *Requisite Skills:* The ability to secure a victim to spinal stabilization and transfer devices, stabilize a victim's spine manually while in the water, don and doff personal protective equipment, roll a victim from face-down to face-up position, and evaluate water conditions to select exit points and identify hazards.

5-1.12* Perform a swimming surface water rescue, given water rescue personal protective equipment, swim aids as required, flotation aids for victims, and reach/extension devices, so that victim contact is maintained, the rescuer maintains control of the victim, the rescuer and the victim reach safety, and medical conditions and treatment options are considered.

(a) *Requisite Knowledge:* Hydrology and specific hazards anticipated for representative water rescue environment (shoreline, in-water, and climatic), victim behavior patterns, emergency countermeasures for combative victims, selection criteria for water rescue personal protective equipment, swim aids and flotation aids for anticipated water conditions, victim abilities and hazards, swimming techniques for representative

bodies of water, and signs, symptoms, and treatment of aquatic medical emergencies.

(b) *Requisite Skills:* The ability to swim and float in different water conditions with and without flotation aids or swimming aids; apply water survival skills; manage combative water-bound victims; don and doff personal protective equipment; select and use personal protective equipment, flotation aids, and swim aids; utilize communications systems; select equipment and techniques for treatment of aquatic medical emergencies; and evaluate water conditions to identify entry points and hazards.

5-1.13 Extricate an incapacitated water-bound victim from the water to the shore as a member of a team, given spinal stabilization devices, patient transfer devices, a water hazard that is representative of the bodies of water existing or anticipated within the geographic confines of the authority having jurisdiction, and water rescue personal protective equipment, so that positive buoyancy for the victim and the rescuers is maintained, the victim's airway, respiratory efforts, and ventilatory support are not compromised, the victim's cervical spine is maintained in alignment, risks to the victim and rescuers are minimized, and the victim is removed from the hazard.

(a) *Requisite Knowledge:* Effects of environmental conditions on spinal stabilization and transfer devices, emergency medical care, packaging equipment and methods, ways to minimize additional injuries, immobilization techniques, hydrology and hazards anticipated for the specific water-rescue environment, and selection procedures for water rescue personal protective equipment.

(b) *Requisite Skills:* The ability to secure the victim to spinal stabilization and transfer devices, stabilize the victim's spine manually while in the water, don and doff personal protective equipment, roll the victim from face-down to face-up position, and evaluate water conditions to select exit points and identify hazards.

5-1.14 Direct a team in the operation of a highline system as a member of a team, given rescue personnel, an established highline system, a load to be moved, and personal protective equipment, so that the movement is controlled, the load is held in place when needed, operating methods do not stress the system to the point of failure, personnel assignments are made and tasks are clearly communicated, operational commands are distinctly communicated to personnel, and potential problems are readily identified, communicated, and managed.

(a) *Requisite Knowledge:* Ways to determine incident needs as related to the operation of highline systems, capabilities and limitations of various highline systems, incident site evaluation as related to interference concerns and obstacle negotiation, system safety check protocol, procedures to evaluate system components for compromised integrity, common personnel assignments and duties, assignment considerations, common and critical operational commands, common highline problems and ways to minimize or manage them, and ways to increase the efficiency of load movement.

(b) *Requisite Skills:* The ability to determine incident needs, complete a system safety check, evaluate system components for compromised integrity, select personnel, communicate with personnel effectively, manage movement of the load, and evaluate for potential problems.

5-1.15* Define applications for helicopter aquatic rescue operations within the area of responsibility for the authority

having jurisdiction, given a helicopter service, operational protocols, helicopter capabilities and limitations, rescue procedures, and risk factors influencing helicopter operations, so that air-to-ground communications are established and maintained. Applications are within the capabilities and skill levels of the helicopter service, the applications facilitate safe victim(s) extrication from water hazards that are representative of the bodies of water existing or anticipated within the geographic confines of the authority having jurisdiction, air crew and ground personnel safety are not compromised, landing zones are designated and secured, and fire suppression resources are available at the landing zone.

(a) *Requisite Knowledge:* Local aircraft capabilities and limitations, landing zone requirements, hazards to aircraft, local protocols, procedures for operating around aircraft, dynamics of rescue options, crash survival principles, personal protective equipment limitations and selection criteria, and ancillary helicopter rescue equipment.

(b) *Requisite Skills:* The ability to determine applicability of air operations, establish and control landing zones, assess fire protection needs, communicate with air crews, identify hazards, rig aircraft for anticipated rescue procedures, apply crash survival procedures, and select and use personal protective equipment.

Chapter 6 Vehicle and Machinery Rescue

6-1 General Requirements. The job performance requirements defined in 6-1.1 through 6-1.8 shall be met prior to certification in vehicle and machinery rescue.

6-1.1* Establish "scene" safety zones, given scene security barriers, incident location, incident information, and personal protective equipment, so that action hot, warm, and cold safety zones are designated, zone perimeters are consistent with incident requirements, perimeter markings can be recognized and understood by others, zone boundaries are communicated to incident command, and only authorized personnel are allowed access to the rescue scene.

(a) *Requisite Knowledge:* Use and selection of personal protective equipment, traffic control flow and concepts, types of control devices and tools, types of existing and potential hazards, methods of hazard mitigation, organizational standard operating procedure, and types of zones and staffing requirements.

(b) *Requisite Skills:* Selection and use of personal protective equipment, application of traffic control concepts, positioning of traffic control devices, identification and mitigation of existing or potential hazards, application of zone identification, and personnel safety techniques.

6-1.2* Stabilize a vehicle or machine, given a basic extrication tool kit and personal protective equipment, so that the vehicle or machinery is prevented from moving during the rescue operations; entry, exit, and tool placement points are not compromised; anticipated rescue activities will not compromise vehicle or machinery stability; selected stabilization points are structurally sound; stabilization equipment can be monitored; and the risk to rescuers is minimized.

(a) *Requisite Knowledge:* Types of stabilization devices, mechanism of vehicle and machinery movement, types of stabilization points, types of stabilization surfaces, authority having jurisdiction policies and procedures, and types of vehicle

influencing access and egress routes; behavioral patterns of victims; and environmental conditions that influence victim location.

(b) *Requisite Skills:* The ability to interpret reference materials, evaluate site conditions, complete risk-benefit analysis, select and use necessary personal protective equipment for performing site inspections, anticipate rescue-specific personal protective equipment and specialized equipment needs, and predict victim behavior and movement.

5-1.2* Select proper water rescue personal protective equipment, given a surface water rescue assignment and assorted items of water rescue personal protective equipment, so that the rescuer will be protected from temperature extremes and blunt trauma; the rescuer will have adequate flotation for tasks to be performed, swimming ability will be maximized during rescue activities, self-rescue needs have been evaluated and provided for, and a means of summoning help has been provided.

(a) *Requisite Knowledge:* Classes of personal flotation devices; selection criteria for in-water insulation garments, personal flotation devices, and water rescue helmets; personal escape techniques; applications for and capabilities of personal escape equipment; and equipment and procedures for signaling distress.

(b) *Requisite Skills:* Selection of personal flotation devices, donning and doffing personal flotation devices, selection of water rescue helmets, donning and doffing water rescue helmets, selection of in-water insulating garments, donning and doffing of in-water insulating garments, proficiency in emergency escape procedures, and proficiency in communicating distress signals.

5-1.3* Swim a designated water course, given a course that is representative of the bodies of water existing or anticipated within the geographic confines of the authority having jurisdiction, water rescue personal protective equipment, and swimming aids as required, so that the specified objective is reached, all performance parameters are achieved, movement is controlled, hazards are continually assessed, distress signals are communicated and rapid intervention for the rescuer has been staged for deployment.

(a) *Requisite Knowledge:* Hydrology and specific hazards anticipated for representative water rescue environments (shoreline, in-water, and climatic), selection criteria for water rescue personal protective equipment and swim aids for anticipated water conditions and hazards, and swimming techniques for representative body of water.

(b) *Requisite Skills:* The ability to swim and float in different water conditions with and without flotation aids or swimming aids (as required), apply water survival skills, don and doff personal protective equipment, select and use swim aids, utilize communications systems, and evaluate water conditions to identify entry points and hazards.

5-1.4* Define search parameters for a water rescue incident given topographical maps of a search area, descriptions of all missing persons and incident history, hydrologic data including speed and direction of current or tides, so that areas with high probability of detection are differentiated from other areas, witnesses are interviewed, critical interview information recorded, passive and active search tactics are implemented, personnel resources are considered, and search parameters are communicated.

(a) *Requisite Knowledge:* Topographical map components, hydrologic factors, methods to determine high probability of detection areas, critical interview questions and practices, methods to identify track traps, ways to identify spotter areas and purposes for spotters, personnel available and effects on parameters definition, the effect of search strategy defining the parameter, communication methods, and reporting requirements.

(b) *Requisite Skills:* Read topographic maps, determine hydrology, conduct interviews, read and mark track traps, and correlate personnel availability, search strategy, and conditions to the parameter definition.

5-1.5* Develop an action plan for a shore-based rescue of a single, water-bound victim, given an operational plan where available, an incident, size-up information, protocols, rescue personnel, resource information, and a water rescue tool kit, so that all available information is factored, risk-benefit analysis is conducted, protocols are followed, hazards are identified and minimized, personnel and equipment resources will not be exceeded, assignments are defined, consideration is given for changing conditions, and the selected strategy and tactics fit the conditions.

(a) *Requisite Knowledge:* Elements of an action plan; types of and information provided by reference materials and size-up; hydrology; types of hazards associated with water rescue practices, risk-benefit analysis, identification of hazard-specific personal protective equipment, factors influencing access and egress routes; behavioral patterns of victims; environmental conditions that influence victim location; safety, communications, and operational protocols; and resource capability and availability.

(b) *Requisite Skills:* The ability to interpret and correlate reference and size-up information; evaluate site conditions; complete risk-benefit analysis; apply safety, communications, and operational protocols; specify personal protective equipment requirements; and determine rescue personnel requirements.

5-1.6* Deploy a water rescue rope to a water-bound victim, given a water rescue rope in a throw bag and personal protective equipment, so that the deployed rope lands in the victim's hands, the rescue rope does not slip through the rescuer's hands, the victim is moved to the rescuer's shoreline, the victim is not pulled beneath the surface by rescuer efforts, the rescuer is not pulled into the water by the victim, and neither the rescuer nor the victim is tied to or entangled in the throw line.

(a) *Requisite Knowledge:* Types and capabilities of personal protective equipment, effects of hydrodynamic forces on rescuers and victims, hydrology and characteristics of water, behaviors of water-bound victims, safe water rescue rope-handling techniques, incident-specific hazard identification, criteria for selecting victim retrieval locations based on water environment and conditions, hazards and limitations of shore-based rescue, local policies/procedures for rescue team activation, and information on local water environments.

(b) *Requisite Skills:* The ability to select personal protective equipment specific to the water environment, don personal protective equipment, identify water hazards (i.e., upstream or downstream, current or tides), identify hazards directly related to the specific rescue, demonstrate proficiency in deploying water rescue rope from throw bags, and demonstrate appropriate shore-based victim removal techniques.

the system is efficient, and loads can be held in place or moved with minimal effort over the desired distance.

(a) *Requisite Knowledge:* Determination of incident needs as related to operation of highline systems, capabilities and limitations of various highline systems (including capacity ratings), incident site evaluation as related to interference concerns and obstacle negotiation, safe rigging principles, system safety check protocol, common personnel assignments and duties, common and critical operational commands, and common highline problems and ways to minimize these problems during construction.

(b) *Requisite Skills:* The ability to determine incident needs as related to construction of highline systems, evaluate an incident site as related to interference concerns and setup, identify the obstacles or voids to be negotiated with the highline, select an appropriate highline system for defined task, perform system safety checks, use safe rigging principles, and communicate with personnel effectively.

4-1.8 Direct a team in the operation of a highline system, given rescue personnel, an established highline system, a load to be moved, and personal protective equipment, so that the movement is controlled, the load is held in place when needed, operating methods do not stress the system to the point of failure, personnel assignments are made and tasks are clearly communicated, operational commands are distinctly communicated to personnel, and potential problems are readily identified, communicated, and managed.

(a) *Requisite Knowledge:* Ways to determine incident needs as related to the operation of highline systems, capabilities and limitations of various highline systems, incident site evaluation as related to interference concerns and obstacle negotiation, system safety check protocol, procedures to evaluate system components for compromised integrity, common personnel assignments and duties, assignment considerations, common and critical operational commands, common highline problems and ways to minimize or manage, and ways to increase the efficiency of load movement.

(b) *Requisite Skills:* The ability to determine incident needs, complete a system safety check, evaluate system components for compromised integrity, select personnel, communicate with personnel effectively, manage movement of the load, and evaluate for potential problems.

4-1.9 Ascend a fixed rope, given a properly anchored fixed rope system, a system to allow ascent of a fixed rope, a structure, a belay system, a life safety harness worn by the person ascending, and personal protective equipment, so that the person ascending is secured to the fixed rope in a manner that will not allow him or her to fall, the person ascending is secured to the rope by means of ascent control device(s) with at least two points of contact, injury to the person ascending is minimized, the person ascending can stop at any point on the fixed rope and rest suspended by his or her harness, the system will not be stressed to the point of failure, the person ascending can convert their ascending system to a descending system, and the system is suitable for the site and will facilitate reaching the desired objective.

(a) *Requisite Knowledge:* Task-specific selection criteria for life-safety harnesses and systems for ascending a fixed rope, personal protective equipment selection criteria, design and intended purpose of ascent control devices utilized, rigging principles, considerations and practices for high-angle environments, converting ascending systems to descending systems,

and common hazards posed by improper maneuvering and harnessing.

(b) *Requisite Skills:* The ability to select and use proper rescuer harness, a system for ascending a fixed rope, and personal protective equipment for common environments; attach the life safety harness to the rope rescue system; configure ascent control devices to form a system for ascending a fixed rope; make connections to the ascending system; maneuver around existing environment and system-specific obstacles; convert the ascending system to a descending system while suspended from the fixed rope; and evaluate surroundings for potential hazards.

4-1.10 Descend a fixed rope, given a properly anchored fixed-rope system, a system to allow descent of a fixed rope, a belay system, a life safety harness worn by the person descending, and personal protective equipment, so that the person descending is secured to the fixed rope in a manner that will not allow him or her to fall, the person descending is secured to the rope by means of a descent control device, the speed of descent is controlled, injury to the person descending is minimized, the person descending can stop at any point on the fixed rope and rest suspended by his or her harness, the system will not be stressed to the point of failure, and the system is suitable for the site and will facilitate reaching the desired objective.

(a) *Requisite Knowledge:* Task-specific selection criteria for life safety harnesses and systems for descending a fixed rope; personal protective equipment selection criteria; design, intended purpose, and proper operation of descent control devices utilized; safe rigging principles; considerations and practices for high-angle environments; and common hazards posed by improper maneuvering and harnessing.

(b) *Requisite Skills:* The ability to select and use proper rescuer harness, a system for descending a fixed rope, and personal protective equipment for common environments; attach the life safety harness to the rope rescue system; make proper attachment of the descent control device to the rope and life safety harness; operate the descent control device; maneuver around existing environment and system-specific obstacles; and evaluate surroundings for potential hazards.

Chapter 5 Surface Water Rescue

5-1 General Requirements. The job performance requirements defined in 5-1.1 through 5-1.15 shall be met prior to certification in surface water rescue.

5-1.1* Develop a site survey for an existing water hazard, given historical data, specific personal protective equipment for conducting site inspections, flood insurance rate maps if applicable, tide tables if applicable, and meteorological projections, so that life safety hazards are anticipated, risk-benefit analysis is included, site inspections are completed, water conditions are projected, site-specific hazards are identified, routes of access and egress are identified, boat ramps (put-in and take-out points) are identified, and areas with high probability for victim location are determined.

(a) *Requisite Knowledge:* Requisite contents of a site survey; types, sources, and information provided by reference materials; hydrology and influence of hydrology on rescues; types of hazards associated with water rescue practices, inspection practices, and considerations; risk-benefit analysis; identification of hazard-specific personal protective equipment; factors

RICHMOND FIRE-RESCUE**Water-Related Emergency Response Survey**

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services. (ie: Dive, Firefighting, Rescue Swimmers, etc.)

Yes the Canadian Coast Guards Hovercraft Unit - Stationed in Richmond at Sea Island - responds to water related emergencies.

The Station is one of two in Canada that is staffed 7x24 year round. The primary role of the station is to provide Search & Rescue services to mariners and aviators in the Straits of Georgia, and the Fraser River. (Subject to the demands placed upon the Federal SAR system, coverage is provided to all the river waters surrounding Lulu Island.)

RESPONSE: Includes marine firefighting (limited); maritime damage control; sea-going and coastal medical evacuation(s); search & rescue of lost or stricken boaters/swimmers/ etc.; Search & Rescue Diving (pilot project in 6th year of operation);

2. What are your resources (equipment, personnel, and vessels)?

PRIMARY VESSEL:

The Sea Island Station is equipped with one 33 year old SRN-6 hovercraft: Fully amphibious, Gas-turbine powered, 50 ft. in length, victim capacity approx. 25 (ambulatory), Top speed 90kph, The craft is variously equipped with:

- ◆ 60 million candle-power searchlights
- ◆ Light amplifying night vision goggles
- ◆ X-band maritime search radar
- ◆ Differential Global Positioning Satellite receiver
- ◆ Electronic Chart / Navigation utilities
- ◆ Forward Looking Infra-red Camera
- ◆ Wide-band VHF-FM and VHF-AM radios (not ECOM compliant)
- ◆ Motorola 800MHZ YVR trunked radio
- ◆ Cellular telephone
- ◆ Wide-band Radio Detection Finding array (LF - UHF)
- ◆ Medical Triage & Treatment equipment to advanced Marine level:
 1. Airway management, Oxygen therapy, Entonox
 2. Hypothermia treatment
 3. Trauma (various inc. Medical Anti-Shock Trousers)
 4. Burn treatment
 5. Automatic External Defibrillator
 6. Infant transport compatible (incubators)
 7. Obstetrics management
- ◆ 2 portable dewatering pumps

PRIMARY VESSEL:

The Sea Island station is also equipped with a 95ft long fully amphibious hovercraft: "Stiyay" This vessel went into operation in the spring of 1999. It is powered by four high-speed diesel engines developing approx. 4000 HP. The top speed of this craft is 110KPH.

The craft incorporates an open well-deck design with a bow ramp enabling vehicular loads to 25,000KG GVW. The well deck is 41ft long and 13 ft wide. When the craft is not being used for 'roll-on, roll-off' transport work, she can be deployed with a 5 tonne capacity crane for heavy lift work and construction. The well-deck may also be fully covered by a lift-on, lift-off sectional canopy.

Stiyay has the capacity to transport 150 ambulatory passengers (Airport disaster response) per trip. The craft is similarly equipped as the SRN-6 in terms of first-aid capacity, damage control, and search equipment. This craft has an 18 hour endurance at maximum continuous power (approx. 3 times that of the SRN-6). Stiyay has significantly greater firefighting potential than the SRN-6 (carriage of large pumps, foam, cannon, pumper-truck?, etc.)

SECONDARY VESSELS:

Sea Island Station is also equipped with four small fast rescue craft: (rigid hull and soft bottom houts of 4 - 6 person capacity with outboard motors. These vessels have minimal safety equipment onboard, and VHF-FM communications capability only.)

PERSONNEL:

The Station is manned by a four person crew 24 hours per day. Each crew is comprised of a Captain, a First Officer, and two Rescue Specialists. Of these four individuals, two will be trained Rescue Divers. The two specialists will be qualified CCG Medic-A's (advanced maritime first aid).

STATION EQUIPMENT:

The station has a SAR ready area that houses breathing cylinders for SCBA's, and SCUBA; various oxygen cylinders; medical supplies; damage control pumps; compressors; Four Inflatable life-rafts for Yellow Sea Island with a total 600 person capacity; Two inflatable life-ramps of 80ftL section; The primary hangar facility has a 10 Tonne capacity overhead gantry crane; There are 3 buildings of aircraft hangar style construction on site - with a combined total square footage of 14,000ft² of heated / covered work space (triage, staging, treatment, accident investigation, etc.)

3. If you do not respond to Water Rescue Related Emergencies who would you call?

Ans. While we do respond to these incidents, the Rescue Coordination Centre in Victoria B.C. remains the 'incident commander' and first point of contact for us should we require MORE assistance.

4. Do you have a Water Rescue related emergency mandate? If so, from whom (Federal, Provincial, Local)?

Ans. Yes. (All aspects of marine safety and rescue.) The mandate is by Federal authority, and is directed under the auspices of the Dept. of National Defense, and the Canadian Coast Guard.

10. How often do you do training drills?

Ans. Crews must exercise skill-sets on a monthly basis. There are five flight crews to man the station 24 hours per day: each crew must complete one major first aid exercise each month, one major dive exercise (Day) per month, one major dive exercise (night) per month, one radar guidance exercise per month, etc. etc. This is not a rigid process as regular SAR operations will often negate the exercise requirement(s) by virtue of a crew actually using the skill sets on operations.

Table-tops, and a 100 Q&A manual for YVR are run through by crews on a 6 monthly basis. (Crash on tidal mudflat scenarios).

11. Please describe your call out system?

Ans. The Federal SAR system relies upon a network of Coastal 'listening stations' that monitor all international distress frequencies for mariners and aviators. Radio calls received by these stations are relayed to the Rescue Coordination Center (RCC) that is closest to the distress. (There are 3 such centers in Canada, with 'RCC Victoria' being the relevant center for the City of Richmond.) RCC determines what resources are applicable to the distress, which ones are going to be able to respond the quickest, and in the case of Sea Island, telephones the Station on a dedicated 'Hot-line' for dispatch. These RCC's also receive distress traffic from sources such as SARSAT (remote Satellite detection of distress beacons); and from direct telephone alert of the public, or mutual-aid agencies searching for civilian assistance: ie: police/fire/ambulance.

12. What is the average turn out of personnel to a call?

Ans. This is not really applicable to Sea Island Stations operating scenario: Every call will be answered by a crew of four. The vast majority of the Stations 300+ distress calls will be managed solely by the responding hovercraft.

However, in a major disaster, it is possible that a primary crew of four could be 'split' in order to pilot two hovercraft simultaneously. This scenario would only be contemplated for major aircraft crash scenarios where the crew was able to 'conscript' some able-bodied help from mutual-aid agencies prior to departure.

13. What is the minimum amount of personnel that you require in order to respond?

Ans. Four. (Except as described in #12.)

5. Who dispatches your Agency?

Ans. The Rescue Coordination Center in Victoria B.C. (1-877-567-5112)

6. Do you patrol on a regular basis? If so, when and where?

Ans. Yes. As operations permit, and/or dictate hovercraft will routinely circumnavigate Lulu Island.

7. What is your response time from the time of call to deployment?

Ans. The federal SAR system 'standard' is 30 minutes from alert to launch for distress anywhere in Canada. However, as Sea Island is one of only two stations in Canada that is manned 24 hours per day, the standard response time from alert to launch is 3 minutes.

8. Once assembled, what is your response speed (ie: knots, MPH, etc)

Ans. The maximum speed for the SRN-6 is 90 kilometers per hour. The maximum speed for the Siyay is 110 kilometers per hour. HOWEVER, these speeds are 'fair-weather' estimates. Gale force winds from the Southeast will slow either Hovercraft by 20 to 30% for calls to 'east' Richmond.

9. What training and certification do your personnel have?

Ans. Captains & First Officers = ACV Master 'Unlimited'; Transport Canada Command Endorsement with High-Speed Craft Type Rating Certification; Pollution Prevention Officer designation; Various departmental ratings including standard first aid and CPR; Marine firefighting; Damage control for senior officers; Fundamental Marine Search & Rescue endorsement; maritime/air radio license; WHIMS; Transportation of Dangerous goods; etc. etc.

Ans. Rescue Specialists = Canadian Coast Guard MEDIC-A (Advanced Maritime First Aid; AED;); CCG RHOT Endorsement (Rigid Hull Inflatable Offshore Training); CCG Rescue Divers Endorsement; Ocean Rescue Swimmers Standard; Bridge Watchman's Certificate; Crane Operators endorsement; Basic Oil Spill Response Endorsement; Front-line navigational aids maintenance endorsement; Outboard motor maintenance endorsement; Class 3 drivers license; YVR AVOPS license; Marine Emergencies Survival Craft & Marine Firefighting.

HMCS DISCOVERYRichmond Fire Rescue Survey InputHMCS DISCOVERY

1. Not at this time unless tasked by RCC, however, if tasked can provide Diving, Rescue Swimmer and Search and Recovery services.
2. 2 - 3 ton Emergency Light equipped support trucks containing full equipment for a team of up to 10 divers including compressor for charging tanks. 2 dedicated zodiac inflatable boats (20kts) with outboard motors and access to a 24 foot rigid hull inflatable (30 kts). Various gear for search and recovery of objects weighing up to 2 tons. At this time we have 10 divers and 2 support personnel, half of which are usually available at short notice (2 hrs).
- ~~3. Coast Guard.~~
4. As a military unit we are only tasked through RCC. However as professional mariners, we would respond to a maritime emergency situation if in the area and able to assist.
5. RCC Victoria, LFWA Edmonton or CO HMCS Discovery
6. No
7. Minimum team could be assembled in 2-3 hours.
8. Response speed by truck is estimated at 60 km/h in the city and 90 km/h on highway (Vehicles are heavy). Speed by water would vary according the vessel (zodiac 20 kts, RHIB 30 kts).
9. Military dive training for all team members, many of whom hold civilian advanced, divemaster or instructor qualifications through PADI/NAUI/ACUC. Some team members are commercial divers in their civilian jobs.
10. Training is conducted at least bi-weekly, with actual in water time at least monthly. Regional exercises involving 20-30 people are held quarterly.
11. Call out is via pager, either individually or by a master recall number.
12. Average personnel turnout would be about 60-75%.
13. Minimum team size is 4 people (1 supervisor, 2 divers in the water and one standby diver - mandated by CF Diving Safety Orders).
14. No.
15. If tasked, budget is assigned.
16. Federally.
17. No.

AGENCY: HMCS DISCOVERY

TITLE: Regular Force Staff Officer

NAME: LCdr Phil Winch

CONTACT INFO: (604) 666-4318 after hours (604) 666-4068 (Commissionaire)

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

Ans. In all of Canada, the Rescue Dive capability is **UNIQUE** to Coast Guards Richmond Station. The capability was launched as a 2 year pilot project in 1995. April 2001 will mark the end of the 6th year of the pilot project. Both the Regional and National Headquarters for Coast Guard are currently 'evaluating' the pilot project. While I do not anticipate its dissolution, it is 'possible' by virtue of the fact that it remains simply a "pilot project"

As for the Primary Vessel described as a 33 year old SRN-6: This craft is well past its life-expectancy - Regional and National headquarters are studying the requirements for its replacement. Whatever decision is arrived at, it is **UNLIKELY** that the craft will remain airworthy beyond 2002.

In order to provide 7x24 service, the Station requires at least 2 Hovercraft.

15. How are you funded?

Ans. Through the Federal Department of Fisheries & Oceans. The Sea Island Station is part of the Canadian Coast Guards 'Operational Services' branch, and consequently gets its operating funds from the Pacific Regions 'Ops. Services Branch'.

AGENCY: Canadian Coast Guard Hovercraft Unit
TITLE: Commanding Officer
NAME: Brian Wootton
DATE: November 28, 2000

VANCOUVER
FIRE & RESCUE SERVICE

Nov. 21, 2000

RICHMOND FIRE - RESCUE
Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?

If yes, define response area and detail range of services.(ie: -Dive, Firefighting, Rescue Swimmers, etc.)

Firefighting only.

2. What are your resources (equipment, personnel, and vessels)?

Vancouver Fire / Rescue operates two (2) of five consortium Fireboats. All five (5) Fireboats are managed as one resource and are dispatched automatically to support one another or to support land based fire companies, on request from consortium member agencies.

3. If you do not respond to Water Rescue Related Emergencies who would you call?

We would call on Coast Guard and City of Vancouver Police Boats. We do how ever respond to all water related emergencies if, while under way, directed to do so by 'Vancouver Traffic', MAYDAY or at the request of an 'Incident Commander'

4. Do you have a Water Rescue Related Emergency mandate?

If so, from whom (Federal, Provincial, Local)?

Federal (Vancouver Port Corporation) and Municipal (Cities of Vancouver, Burnaby, Port Moody, North Vancouver and District of North Vancouver)

5. Who dispatches your Agency?

Each Fireboat is 'Self dispatched' by the agency to land based fire calls, through 9-1-1. Vancouver Fire Dispatch acts as the "Coordinating Dispatch Centre" - tracking all calls attended, and a central dispatch point for all calls for vessels that are under way or when jurisdiction is in question.

6. Do you patrol on a regular basis?

If so, when and where?

No

7. What is your response time from the time of call to deployment?

< 5 minutes, from the time land based companies are dispatched to the vessel leaving the dock.

8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?

Approximately 30 knots.

9. What training and certifications do your personnel have?

- *Small Vessel Operator and Navigational Certificate*
- *Restricted Radio Operator Certificate (VHF Radio)*

10. How often do you do training drills?

As needed to keep up the skill levels of the Fireboat Operators and to train new Operators.

11. Please describe your call out system?

Each agency uses their own dispatch system to alert their crew

12. What is the average turn out of personnel to a call?

< 2 minutes.

13. What is the minimum amount of personnel that you require in order to respond?

The entire crew of four (4) from the fire apparatus respond aboard the fireboat.

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

No.

15. What is your budget for Water Rescue related emergencies?

Approximately \$ 230,000.

16. How are you funded?

The Consortium has a 'cost sharing formula', of which City of Vancouver pays 52% of the annual operating budget

17. Do you know of any other agency that should be added to our distribution list?

No.

AGENCY: Vancouver Fire / Rescue Services.

TITLE: Manager - Special Teams

NAME: Barry MacKenzie

DATE: December 4th, 2000

Please respond by Dec. 4, 2000 (Fax -278-0547).

For further information or clarification contact Fire Chief James D. Hancock (903-2700) 2286027

**Canadian Lifeboat Institution
Steveston Station**

Attn: Chief Jim Hancock

Dear Jim

In response to your letter requesting information on water related emergency response I have provided the following point form information.

~~We extend an invitation to visit Steveston Station and the vessel at your~~
~~convenience or on our regular training evenings. And we welcome the~~
~~opportunity to work and train with other related SAR resources.~~

During our training and SAR responses the vessel is known as the Steveston Lifeboat.

The vessel is on constant standby and has trained & qualified crews on a 24-hour call out pager system.

Should you require any further information or wish to visit the Lifeboat please contact me at.

Home 303-9314

Work 273-8686 ex 222

Cell 512-2596

Email Stevestonlifeboat@home.com

Best Regards



Mike Bullock

Steveston Secretary / Coxswain

1. We respond to water related emergencies from our moorage at Steveston beside the Esso fuel float. The area of response is the southern Gulf of Georgia. Specifically the South Arm of the Fraser River up to New Westminster and out to the Tango Alpha buoy and beyond as necessary. We carry crewmembers trained and certified to CLI standards. We do not offer rescue swimmers, divers or fire fighting services. We do however have the capability of supporting and dispatching this personnel should they be assigned to the vessel.

2. Our resource is a 50-ft diesel vessel equipped for on the water SAR. The vessel is capable of handling the severe weather conditions. That may be found in the Gulf of Georgia. The vessel is fully equipped with a marine head and galley. As such it is capable of extended searches of up to 48 hrs. Survivor care faculties are on board and consist of bunks and seating for up to 15 survivors. The galley allows the survivors to be served warm soup etc.

Equipment carried on board:

- De-watering pump
- 500 Ft of 3/4 in tow line
- Forward and Aft tow points
- Mast mounted Recovery Boom
- Heaving Lines
- Heaving Line Gun (500 ft plus range)
- Medical Oxygen
- BC Ambulance Standardized Medical Kit
- Salvage Equipment
- Search Lights
- Aft swim grid for launching of divers etc.
- 2 Look Out Stations
- Survivor Retrieval Net
- 6-passenger life raft.
- 1, 10 ft soft bottom RIB
- Life Vests of various sizes.
- Loud hailer
- Fire Extinguishers
- Man overboard Markers
- Various man overboard and survivor recovery systems
- 3 Bunks for survivors and numerous seats
- Full marine head.
- Full heat and fresh water
- Full capability for providing hot meals to survivors
- 2 Radar Systems
- 4 VHF Radios
- 2 GPS Systems
- Radio Direction Finding Equipment
- 3 Calibrated Magnetic Compass Systems
- Ocean Vision Integrated Navigation System
- Depth Sounder
- Nav / Plot Station
- Cell Phone

3. We are dispatched via Rescue Center. The crew is on a 24 hr pager Dispatch system. The dispatch procedure is for the Station Secretary to receive the page and then contact Rescue Center and obtain a brief of the situation and weather conditions. The Station Secretary then makes the decision to authorize the dispatch of the lifeboat. He will then contact the lifeboat commander and authorize the dispatch. During the time the Station Secretary is contacting Rescue Center the duty crew is enroute to the lifeboat to make ready for immediate departure
4. We are a Federally incorporated agency and receive our dispatch Authority from the Rescue Co-ordination Center. We will also respond as a vessel of opportunity when at sea.
5. The Rescue Co-ordination Center. We will also respond as a vessel of Opportunity when at sea.
6. We do not patrol on a regular basis.
7. Response time from call out to deployment is typically 15 to 20 minutes
8. Our response speed is 12 knots. Endurance 48 hrs plus
9. All personal are trained and certified to CLI standards. The entire crew is then certified as a team by a CLI Training Officer. Many of our members hold CPR certificates and Level 1 first aid or higher, up to Para Medic level.
10. Regular training is held every Thursday evening from 7 PM to 9:30 PM. This is a combination of practical and theory. Special exercises are scheduled on an as required basis, which may involve weekend or 24 hr runs. These include search patterns, maneuvering with other SAR vessels, night training, towing, man over board drills, water recovery techniques, navigation, etc.
11. Our call out system is via dispatch from Rescue Center. The crew is on a 24 hr pager alert system. The dispatch procedure is for the Station Secretary to receive the page and then contact Rescue Center and obtain a brief of the situation and weather conditions. The Station Secretary then makes the decision to authorize the dispatch of the lifeboat. He will then contact the lifeboat commander and authorize the dispatch. During the time the Station Secretary is contacting Rescue Center the duty crew is enroute to the lifeboat to make ready for immediate departure. This allows for a quick response capability.

12. Average crew turn out is 5 people
13. Minimum crew to respond is 4 crew 5 is preferred.
14. Yes the agency is growing and we are currently in the process fund Raising to obtain new lifeboats.
15. We have a Station budget, which we operate with.
16. The Canadian Lifeboat Institution is entirely non government Funded. Head quarters supports each station although each station is expected and encouraged to run fund raising events through out the year.

Canadian Lifeboat Institution
Mike Bullock Steveston Station Secretary / Lifeboat Coxswain
Dec 3/00
Via Fax 278-0547

Nov. 21, 2000

RICHMOND FIRE - RESCUE

Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?

If yes, define response area and detail range of services. (ie: - Dive, Firefighting, Rescue Swimmers, etc.)

YES. IN THE EVENT THE SITUATION REQUIRES POLICE RESPONSE OR CRIMINAL INVESTIGATION. RANGE - INITIAL RESPONSE, FIRST AND CRIMINAL INVESTIGATIONS.

2. What are your resources (equipment, personnel, and vessels)?

~~PERSONNEL MAINLY - THROUGH BUSINESS PARTNERSHIPS MAY HAVE ACCESS TO REQUIRED EQUIPMENT NOT READILY AVAILABLE.~~

3. If you do not respond to Water Rescue Related Emergencies who would you call?

COAST GUARD, RCMP, PORT OF VANCOUVER, CIVIL SEARCH & RESCUE, VOLUNTEER ORGANIZATIONS.

4. Do you have a Water Rescue Related Emergency mandate?

If so, from whom (Federal, Provincial, Local)?

NOTHING SPECIFIC. AS THE LAW ENFORCEMENT AGENCY IN DELTA WOULD RESPOND AS A FIRST RESPONSE UNIT.

5. Who dispatches your Agency?

WE HAVE OUR OWN COMMUNICATIONS SYSTEM & DISPATCHERS.

6. Do you patrol on a regular basis?

If so, when and where?

YES - ALL OF DELTA

7. What is your response time from the time of call to deployment?

RESPONSE WILL VARY - DEPENDING ON CIRCUMSTANCES - EMERGENCY OR NORMAL - ~~EMERGENCY~~

8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?

N/A

9. What training and certifications do your personnel have?

FIRST AID - OTHER SPECIFIC POLICE COURSES & TRAINING - SAR - K-9

10. How often do you do training drills?

76

REGULAR TRAINING DAYS - YEARLY QUALIFICATIONS

11. Please describe your call out system?

LAI D OUT IN DEPT. EMERGENCY PLAN - INITIATED BY WATCH COMMANDER

12. What is the average turn out of personnel to a call?

NOVA EXERCISE IN 1999 REVEALED TO BE 20% RESPONSE.

13. What is the minimum amount of personnel that you require in order to respond?

DETERMINED BY SITUATION

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

NO

15. What is your budget for Water Rescue related emergencies?

N/A

16. How are you funded?

N/A

17. Do you know of any other agency that should be added to our distribution list?

NO

AGENCY: _____

TITLE _____

NAME: Sgt. D. Reitz 53790

DATE: 27 Nov. 2000.

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

DELTA FIRE

Nov. 21, 2000

RICHMOND FIRE - RESCUEWater-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?

If yes, define response area and detail range of services.(ie: - Dive, Firefighting, Rescue Swimmers, etc.)

YES - FRASER RIVER, BOUNDARY BAY, GEORGIA STRAIGHT-DELTA.

- FIRE FIGHTING / RESCUE.

2. What are your resources (equipment, personnel, and vessels)?

- SURVIVAL SUITS, LIFE JACKETS, POPS, PORTABLE PUMPS.

- ON DUTY CREW.

- NO VESSELS - USE PRIVATE VESSELS IF AVAILABLE.

3. If you do not respond to Water Rescue Related Emergencies who would you call?

COAST GUARD, FRASER PORT AUTHORITY.

4. Do you have a Water Rescue Related Emergency mandate?

If so, from whom (Federal, Provincial, Local)?

No

5. Who dispatches your Agency?

DELTA'S FIRE/POLICE DISPATCHER.

6. Do you patrol on a regular basis?

If so, when and where?

No

7. What is your response time from the time of call to deployment?

OUR USUAL RESPONSE TIME WITH EXISTING APPARATUS.

8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?

N/A

9. What training and certifications do your personnel have?

- SOME SHIPBOARD FIRE FIGHTING COURSE (JIBC), F.R. TRAINING

- NO WATER TRAINING COURSE.

10. How often do you do training drills?

WE DON'T DO WATER TRAINING DRILLS.

73

11. Please describe your call out system?

N/A - MAY BACKFILL ON DUTY CREW.

12. What is the average turn out of personnel to a call?

4-7

13. What is the minimum amount of personnel that you require in order to respond?

2

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

YES, PRESENTLY DOING BUSINESS CASE WITH DELTA FIRE, TO
LOOK INTO FEASIBILITY OF FIRE/POLICE RESCUE BOAT.

15. What is your budget for Water Rescue related emergencies?

COVERED IN ANNUAL OPERATING BUDGET - NOT WATER
RESCUE PACIFIC.

16. How are you funded?

TAX DRAW.

17. Do you know of any other agency that should be added to our distribution list?

SURREY FIRE DEPT, POINT ROBERTS FIRE DEPT.

AGENCY: DELTA FIRE AND EMERGENCY SERVICES

TITLE DEPUTY CHIEF

NAME: JIM BENKO

DATE: NOV. 28/00

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

NOV-22-00 07:36 From:LAFARGE-RICHMOND SALES

-6042701731

T-522 P.02/04 Job-849

LAFARGE CANADA

Nov. 21, 2000

RICHMOND FIRE - RESCUE

Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services. (ie: - Dive, Firefighting, Rescue Swimmers, etc.)

No.

2. What are your resources (equipment, personnel, and vessels)?

None

3. If you do not respond to Water Rescue Related Emergencies who would you call?

RCMP

4. Do you have a Water Rescue Related Emergency mandate?
If so, from whom (Federal, Provincial, Local)?

5. Who dispatches your Agency?

6. Do you patrol on a regular basis?
If so, when and where?

7. What is your response time from the time of call to deployment?

8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?

9. What training and certifications do your personnel have?

10. How often do you do training drills?

BURRARD TOWNSHIP

Nov. 21, 2000

RICHMOND FIRE - RESCUE**Water-Related Emergency Response Survey**

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services.(ie: - Dive, Firefighting, Rescue Swimmers, etc.)
ON OCCASSION - FIRE MONITOR
2. What are your resources (equipment, personnel, and vessels)?
ONE VESSEL EQUIPPED WITH FIRE MONITOR
3. If you do not respond to Water Rescue Related Emergencies who would you call?
COAST GUARD
4. Do you have a Water Rescue Related Emergency mandate?
If so, from whom (Federal, Provincial, Local)?
NO
5. Who dispatches your Agency?
N/A
6. Do you patrol on a regular basis?
If so, when and where?
NO
7. What is your response time from the time of call to deployment?
DEPENDS ON LOCATION OF VESSEL
8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?
9 KNOTS
9. What training and certifications do your personnel have?
COAST GUARD CERTIFICATES.
10. How often do you do training drills?
RANDOM

NOV-22-00 07:36 From: LAFARGE-RICHMOND SALES

+6042701731

T-522 F.03/04 Job-949

11. Please describe your call out system?

12. What is the average turn out of personnel to a call?

13. What is the minimum amount of personnel that you require in order to respond?

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

15. What is your budget for Water Rescue related emergencies?

16. How are you funded?

17. Do you know of any other agency that should be added to our distribution list?

Please note that we are the cement plant, our Marine Department moves the barges etc and provide etc tugs.

AGENCY: Lafarge Canada Inc Cement-Plant.

TITLE H. R. Coordinator

NAME: William Fijott

DATE: November 30, 2000

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

Please call me at 244-4357 if you require more information.

RIVTOW

Nov. 21, 2000

RICHMOND FIRE - RESCUE

Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services. (ie: - Dive, Firefighting, Rescue Swimmers, etc.)
OUR PRIMARY FOCUS IS TUG AND BARGE TOWING SERVICES. AS ANY MARINE COMPANY WOULD, WE WOULD RESPOND TO A MARINE EMERGENCY IF WE HAD EQUIPMENT IN THE AREA. OUR TUGS OPERATE ON THE FRASER RIVER INCLUDING THE NORTH ARM
2. What are your resources (equipment, personnel, and vessels)?
VARIOUS TUGS AND BARGES
3. If you do not respond to Water Rescue Related Emergencies who would you call?
CANADIAN COAST GUARD
4. Do you have a Water Rescue Related Emergency mandate?
If so, from whom (Federal, Provincial, Local)? *NO*
5. Who dispatches your Agency?
N/A
6. Do you patrol on a regular basis?
If so, when and where? *N/A*
7. What is your response time from the time of call to deployment?
SUBJECT TO LOCATION OF EQUIPMENT
8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?
8-10 KNOTS
9. What training and certifications do your personnel have?
MARINE SAFETY AS REQUIRED BY CANADA SHIPPING ACT
10. How often do you do training drills?

11. Please describe your call out system?

24 HR DISPATCH WITH 1-2 HR. CALL OUT

12. What is the average turn out of personnel to a call?

VESSEL REQUIRES 2

13. What is the minimum amount of personnel that you require in order to respond?

2

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

NO

15. What is your budget for Water Rescue related emergencies?

NONE

16. How are you funded?

COMMERCIAL TOWING

17. Do you know of any other agency that should be added to our distribution list?

N/A

AGENCY: BURRARD TOWING CO.

TITLE PRES.

NAME: J. WILLIAM PERRETT

DATE: NOV 28/00

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

11. Please describe your call out system? *ANY CALL RECEIVED BY OUR MARINE DISPATCH WOULD BE CONSIDERED IN TERMS OF OUR AVAILABLE EQUIPMENT LOCATED IN THE AREA.*

12. What is the average turn out of personnel to a call? *SUBJECT TO AVAILABILITY*

13. What is the minimum amount of personnel that you require in order to respond? *AS ABOVE #12*

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

15. What is your budget for Water Rescue related emergencies?

N/A

16. How are you funded?

17. Do you know of any other agency that should be added to our distribution list?

*BURRARD CLEAN OPERATIONS
P.O. BOX 82070
BURNABY, B.C.
V5C 5P2
(604) 294-6001 FAX. 294-6003*

AGENCY: *RIVTOW MARINE INC.*

TITLE *GENERAL MANAGER*

NAME: *WAYNE CANNELL*

DATE: *NOV. 28, 2000*

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

Nov. 21, 2000

B.C. AMBULANCE
STATION 269
3999 WILLIAMS RD.
RICHMOND, B.C.
V7E 1J5

RICHMOND FIRE - RESCUE

Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services. (ic: - Dive, Firefighting, Rescue Swimmers, etc.)
NO!
2. What are your resources (equipment, personnel, and vessels)?
AMBULANCES AND PARAMEDICS
3. If you do not respond to Water Rescue Related Emergencies who would you call?
R.C.C.
CANADIAN COAST GUARD
4. Do you have a Water Rescue Related Emergency mandate?
If so, from whom (Federal, Provincial, Local)?
OUR MANDATE IS TO TREAT AND TRANSPORT SICK AND INJURED WITHIN B.C. AIR, LAND, SEA
5. Who dispatches your Agency?
OUR OWN REGIONAL AND PROVINCIAL COMMUNICATION CENTRES
6. Do you patrol on a regular basis?
If so, when and where?
NO
7. What is your response time from the time of call to deployment?
IMMEDIATE
8. Once assembled, what is your response speed (ic: Knots, MPH, etc.)?
✓
9. What training and certifications do your personnel have?
PARAMEDICS P-1, P-2, -P-3
10. How often do you do training drills?
RE-LICENSE EVERY 5 YRS.
AND C.M.E. CONTINUING MEDICAL EDUCATION

11. Please describe your call out system?

911

12. What is the average turn out of personnel to a call?

WHAT EVER # OF AMBULANCE + CREW REQUIRED

13. What is the minimum amount of personnel that you require in order to respond?

2

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

YES - EXPANDING - IF VOLUME DICTATES

15. What is your budget for Water Rescue related emergencies?

0

16. How are you funded?

PROVINCIAL GOVT.

17. Do you know of any other agency that should be added to our distribution list?

1.) CITY OF RICHMOND EMERG - SOCIAL SERVICES

2.) 12TH SERVICE BATTALION
5500 # 4RD. RD. B.C. V6X 3L5 FAX 666-4040
PHONE 666-4086 LT. COL. MARK KENNEDY

AGENCY: B.C.A.S.

TITLE A-111 C. MCGUINE

NAME: CLARKE MCGUINE

DATE: DEC. 1/00

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

**B.C. AMBULANCE
STATION 269
3999 WILLIAMS RD.
RICHMOND, B.C.
V7E 1J5**

87

224421

PH 650-1292

PH 204-0236

FAX 204-0122

CAN. COAST GUARD AUX
UNIT #7 SOUTH ARM

RICHMOND FIRE - RESCUE

Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services. (ie: - Dive, Firefighting, Rescue Swimmers, etc.)
Yes, Strait of Georgia to Port Mann bridge. Surface water rescue and recovery.
2. What are your resources (equipment, personnel, and vessels)?
0.5 metre Rigid Hull Inflatable Boat (RHIB) with 2x 130hp outboard engines. Crew complement of 3. First Aid equipment, communications, radar, VHF radio's, firefighting/dewater pump, etc.
3. If you do not respond to Water Rescue Related Emergencies who would you call?
4. Do you have a Water Rescue Related Emergency mandate?
If so, from whom (Federal, Provincial, Local)?
Canadian Coast Guard Auxiliary, Federal.
5. Who dispatches your Agency?
Rescue Co-ordination Centre, Victoria.
6. Do you patrol on a regular basis?
If so, when and where?
Generally a training run Sundays (2 hours). In the main arm (South) of the Fraser River.
7. What is your response time from the time of call to deployment?
Average 20 minutes from page to departure.
8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?
Nominal speed between 35 to 40 knots. Limitations due to river debris and visibility. Generally weather not significant.
9. What training and certifications do your personnel have?
Mandatory Rigid Hull Inflatable Operator Training (RHOT) trained coxswain. First Aid, SAR level training, etc.

10. How often do you do training drills?
Tuesday evenings for classroom training. Sundays on water training.
11. Please describe your call out system?
Paged out from RCC.
12. What is the average turn out of personnel to a call?
3-5 (assigned crew). Pager response 7x24.
13. What is the minimum amount of personnel that you require in order to respond?
3. Occasionally 2 persons is adequate.
-
14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?
No.
15. What is your budget for Water Rescue related emergencies?
100% for Search and Rescue (SAR).
16. How are you funded?
Private and corporate donations, equipment and training from Canadian Coast Guard and Auxiliary.
17. Do you know of any other agency that should be added to our distribution list?
No.

Agency: Canadian Coast Guard Auxiliary Unit #7
(Steveston)
Title: Unit Leader.
Name: Michael Janicki.
Date: 28 November, 2000.

Nov. 21, 2000

RICHMOND FIRE - RESCUE

Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services. (ie: - Dive. Firefighting, Rescue Swimmers, etc.)
We to Log Spills

2. What are your resources (equipment, personnel, and vessels)?
Rely on contractors - log salvage boats
- tug boats

3. If you do not respond to Water Rescue Related Emergencies who would you call?
Canadian Coast Guard

4. Do you have a Water Rescue Related Emergency mandate?
If so, from whom (Federal, Provincial, Local)?
No.

5. Who dispatches your Agency?
- Vancouver Coast Guard Traffic
- Tug Boat Company Dispatchers

6. Do you patrol on a regular basis?
If so, when and where?
No

7. What is your response time from the time of call to deployment?
- Immediate to 1/2 hour

8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?
N/A

9. What training and certifications do your personnel have?
N/A

10. How often do you do training drills?
N/A

11. Please describe your call out system?

BC Log Spill Recovery has a person on 24 hour stand by to dispatch require resources in case of a log spill.

12. What is the average turn out of personnel to a call?

Depending on size of log spill - anywhere from 1 to 15 contractors

13. What is the minimum amount of personnel that you require in order to respond?

1

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

No

15. What is your budget for Water Rescue related emergencies?

0

16. How are you funded?

In Log Spills the owner of the logs is ultimately responsible for log spill recovery costs.

17. Do you know of any other agency that should be added to our distribution list?

Association
AGENCY: BC Log Spill Recovery Cooperative Association

TITLE Doug Cooper, General Manager

NAME: _____

DATE: _____

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

Nov. 21, 2000

STEVESTON HARBOUR
AUTHORITY

RICHMOND FIRE - RESCUE

Water-Related Emergency Response Survey

1. Do you respond to Water Rescue Related Emergencies?

If yes, define response area and detail range of services. (ie: - Dive, Firefighting, Rescue Swimmers, etc.)

Yes - if human resources allow we will respond to rescue in and around the Steveston Channel and fire fighting on Steveston Island.

2. What are your resources (equipment, personnel, and vessels)?

we have a 22' flat bottom Skiff, industrial 11 hp pump. Only

3 SHA Staff are Qualified vessel operators.

3. If you do not respond to Water Rescue Related Emergencies who would you call?

Canadian Coast Guard

4. Do you have a Water Rescue Related Emergency mandate?

If so, from whom (Federal, Provincial, Local)?

Overall the mandate of the SHA is to provide safety, service and security to all harbour users.

5. Who dispatches your Agency?

The General Manager or Operations Manager.

6. Do you patrol on a regular basis?

If so, when and where?

SHA is a 24 hour operation. It includes boat patrols of all harbour areas as well as security camera monitoring.

7. What is your response time from the time of call to deployment?

Vessel response is contingent upon availability of qualified operators. Could be up to 45 minutes. Land response is within 5 to 10 minutes.

8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?

30 MPH. / vessel approx 8 knots.

9. What training and certifications do your personnel have?

WITMIS / Priority approach first Aid / minimal fire fighting.

10. How often do you do training drills?

As required.

11. Please describe your call out system?

SHA has a Senior operations person who acts as a 24 hr emergency contact for ops emergencies. 7 days a week

12. What is the average turn out of personnel to a call?

depends on situation. Duty officer will attend if emergency can not be handled by on-site crew.

13. What is the minimum amount of personnel that you require in order to respond?

2 persons.

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years

don't anticipate changes but emergency procedures are constantly being reviewed.

15. What is your budget for Water Rescue related emergencies?

16. How are you funded?

SHA is funded by Services charged to harbour users. This includes moorage + Storage.

17. Do you know of any other agency that should be added to our distribution list?

~~Canadian Coast Guard Auxiliary. 24 hr page 450-6625~~

AGENCY: _____

TITLE _____

NAME: _____

DATE: _____

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)

RCMP

Nov. 21, 2000

RICHMOND FIRE - RESCUE**Water-Related Emergency Response Survey**

1. Do you respond to Water Rescue Related Emergencies?
If yes, define response area and detail range of services. (ie: - Dive, Firefighting, Rescue Swimmers, etc.)

Yes, Police First responder.

2. What are your resources (equipment, personnel, and vessels)?

Members, radios, vehicle.

3. If you do not respond to Water Rescue Related Emergencies who would you call?

4. Do you have a Water Rescue Related Emergency mandate?
If so, from whom (Federal, Provincial, Local)?

PEP

5. Who dispatches your Agency?

E-Comm, RCMP, Richmond

6. Do you patrol on a regular basis?
If so, when and where?

City of Richmond

7. What is your response time from the time of call to deployment?

5 min

8. Once assembled, what is your response speed (ie: Knots, MPH, etc.)?

50-80 kph

9. What training and certifications do your personnel have?

RCMP Depot Training

10. How often do you do training drills?

Nil

11. Please describe your call out system?

Dispatch - Payer

12. What is the average turn out of personnel to a call?

5 min → 30 min → 1 hour

13. What is the minimum amount of personnel that you require in order to respond?

1 member

14. Do you anticipate any changes to the above information about your agency in the next 5 years? 10 years?

no

15. What is your budget for Water Rescue related emergencies?

0

16. How are you funded?

City, Fed.

17. Do you know of any other agency that should be added to our distribution list?

AGENCY: RCMP

TITLE Cpl

NAME: Ron Casey

DATE: 2000-12-20

Please respond by Dec. 4, 2000 (Fax - 278-0547).

For further information or clarification contact Fire Chief James D. Hancock (303-2700)