

File No.: 04-1000-20-2024-344

July 18, 2024

s.22(1)

Dear s.22(1)

Re: **Request for Access to Records under the Freedom of Information and Protection of Privacy Act (the "Act")**

I am responding to your request of June 5, 2024 under the ***Freedom of Information and Protection of Privacy Act*** for:

Records regarding work done on the liner or dredging of a man-made pond named Shaughnessy Lake which is partially situated on the strata's property and within VanDusen Garden, including:

- 1. The proposal and authorization for the work;**
- 2. The date and scope of work;**
- 3. The materials used, including the type of liner product; and**
- 4. The cost.**

Date range: January 1, 1990 to December 31, 2015.

All responsive records are attached.

Under section 52 of the Act, and within 30 business days of receipt of this letter, you may ask the Information & Privacy Commissioner to review any matter related to the City's response to your FOI request by writing to: Office of the Information & Privacy Commissioner, info@oipc.bc.ca or by phoning 250-387-5629.

If you request a review, please provide the Commissioner's office with: 1) the request number (#04-1000-20-2024-344); 2) a copy of this letter; 3) a copy of your original request; and 4) detailed reasons why you are seeking the review.

Yours truly,

[Signed by Cobi Falconer]

Cobi Falconer, MAS, MLIS, CIPP/C
Director, Access to Information & Privacy

cobi.falconer@vancouver.ca

453 W. 12th Avenue Vancouver BC V5Y 1V4

If you have any questions, please email us at foi@vancouver.ca and we will respond to you as soon as possible. Alternatively, you can call the FOI Case Manager at 604-871-6584.

Encl. (Response Package)

:lg

1992-03-09

VanDusen Gardens - Upper Pond Bottom Treatment

The Chairperson informed the Board that this item is being postponed to the March 23, 1992, meeting of the Board at the request of the Shaughnessy Place delegation.

1992-03-23

PLANNING/ENVIRONMENT/OPERATIONS COMMITTEE

VanDusen Gardens - Pond Bottom Treatment

Board members received copies of a staff report dated March 4, 1992, recommending that the application of a herbicide, PRINCEP 9T (SIMAZINE) to the Shaughnessy Pond, followed by the application of a permanent weed control bottom barrier be considered.

Commissioner Ashford stated that he recognized the need to solve the problems at the Shaughnessy Pond, however we do have an Integrated Pest Management Program and we should eliminate the use of chemicals. An alternate method would be to do it manually, by digging out the entire pond.

Moved by Commissioner Ashford,

THAT the Board approve in principle a cost sharing arrangement with the residents to resolve the problems in the pond.

and,

THAT staff come back with a report detailing the cost of manually scraping the pond bottom as opposed to the use of pesticides and a recommendation on the cost sharing arrangement.

Dr. Caplan, Shaughnessy Place, appeared before the Board and stated that they had done a three-year study in order to solve the weed problem in the pond. The study involved cleaning the pond out manually to the cost of \$2000. After finishing a small area, it was found to be ineffective as the weeds came back much more profusely later. Following this they contacted several cities in North America, such as Northern New York, Northern Ontario, lakes of the Okanagan and the lakes in Alberta. The general principle used by them seemed useful. Mr. Truelson, who was the Minister of Environment of B.C., suggested that they use

Princep, an herbicide. Princep apparently has very low toxicity, not soluble in water. After the application of the herbicide the lake should be drained and then left for one month, after which a membrane could be applied. This would effectively solve the problem. The pond is part of their backyard, and they would like it to be cleaned up.

Board members discussed the matter and Commissioner Louis enquired whether the cleaning of the pond at VanDusen was a priority item. Bert Breakwell, Director of Environment and Operations advised the Board that it was not a priority item. Commissioner Louis stated that the Board has had to cut its budget and look at priorities, therefore, it does not justify the Board to spend funds on fresh items with no benefits to the Board. The motion is a good one from an environmental perspective. The Board should ask for a report on the cost of the proposal but not to approve it in any manner. Commissioner Ashford stated that the motion called for a cost sharing and the definite percentage of the sharing is yet to be determined by the Board.

The motion was put, and it was Carried Unanimously.

1992-04-27

VanDusen Gardens - Upper Pond Bottom Treatment

Board members received copies of a staff report dated April 23/ 1992 requesting that the Board consider the application of a herbicide/ Princep 9T (simazine) to the upper pond, followed by the application of a permanent weed control bottom barrier, at a total estimated cost of \$5,540; or excavation of the upper pond bottom followed by the application of a permanent weed control barrier, at a total estimated cost of \$30,350.

Moved by Commissioner Ashford,

THAT the application of a herbicide, PRINCEP 9T (SIMAZINE) to the upper pond, followed by the application of a permanent weed control bottom barrier be approved at a total estimated cost of \$5,450.

Commissioner Ashford stated that under the circumstances this recommendation has been found most suitable. This treatment can be isolated and the cost is reasonable.

Commissioner Foley stated that he did not agree with the motion and that there should be a more creative way to solve this problem.

Commissioner Louis stated that this matter would never have been discussed if the neighbours did not complain. The Board had more pressing issues to deal with that costs money therefore he does not support this motion.

After further discussion the General Manager advised the Board that there was an implied agreement when the garden was developed that the Board will maintain the pond. Commissioner Cowie requested staff to look into the possibility of developing the pond and the surrounding areas. Commissioner Chiavario advised the Board that the strategic planning process for VanDusen Gardens will be looking at all aspects of improvement.

THE MOTION WAS PUT AND IT WAS CARRIED.
(Commissioners Foley and Louis contrary)

1997-10-27

VanDusen Garden - Reallocation of NNR's

Board members received copies of a staff report dated October 16, 1997 recommending that the Board approve the reallocation of \$25,000 from the 1997 NNR for VanDusen Botanical Garden for Shaughnessy Lake to the glassed roof enclosure project at the Garden.

Moved by Commissioner Yong,

THAT the Board approve the reallocation of \$25,000 from the 1997 NNR for VanDusen Botanical Garden for Shaughnessy Lake to the glassed roof enclosure project at the Garden.

-Carried Unanimously.

R. Zoster

Board - Mar. 23/92
Board Mar 9/92

Date: March 4, 1992

SUBJECT: VanDusen Gardens - Upper Pond Bottom Treatment

CONSIDERATION

THAT the application of a herbicide, PRINCEP 9T (SIMAZINE) to the upper pond, followed by the application of a permanent weed control bottom barrier be considered.

BOARD POLICY

It is the policy of the Board to manage pest problems with an Integrated Pest Management approach (I.P.M.). An IPM approach for the prevention of aquatic weed problems is a combination of nutrient reduction, water manipulation and shading. These should be attempted before the use of aquatic herbicides.

BACKGROUND

The upper pond (Shaughnessy Pond) is named for its proximity to Shaughnessy Place Phase II. The lake is a water barrier in lieu of a fence between the condos and VanDusen Gardens. The lake has considerable aesthetic value to the residents of Shaughnessy Place but because of its location in the Garden, is not used by visitors to VanDusen. Most of the lake is on Park Board lands; a small portion is on Shaughnessy Place property.

For several years the residents have complained about the density of aquatic weeds that grow up during the summer months. Usually by midsummer, the surface of the lake is covered and no open water can be seen. They have approached staff and Park Board Commissioners on several occasions to have the weeds removed from the pond. The weed removal from this pond is not a high priority for the VanDusen Gardens.

The lake level is maintained by natural drainage and occasionally from the city water supply. The lake water is generally clear and there is no apparent health problem.

Before the implementation of the Board I.P.M. policy in 1987, the aquatic weeds were controlled by the defoliant herbicide Reglone. When applied twice during the growing season Reglone killed all the leafy growth, but not the roots. As a result, the effect was only temporary, not cost effective, and was abandoned. In a

BACKGROUND (cont'd)

different lake, a plastic membrane was next tried, with no herbicide. This was not effective because the rotting biomass generated gas which lifted the membrane to the surface. After the Park Board implemented the I.P.M. policy, mechanical control was attempted. The Strata Council, on its own initiative, removed weeds by cutting. After \$2,000 had been expended and less than one quarter of the lake cleared, the project was abandoned because of the high cost. Subsequent re-growth was rapid. Within two months the effect of the treatment could not be seen. In 1990, Aqua Research Ltd. of Kelowna was hired. A floating weed harvester machine was used, at a cost of \$6,000 shared 50/50 with the Strata Council. A large amount of biomass was removed from the lake. Within a period of four months the lake was again 80% infested with weeds. The treatment was judged ineffective.

DISCUSSION

Discussions have centered on what steps were needed to best prevent the growth of unwanted aquatic vegetation while satisfying B.C. Environment's guidelines and the Park Board's Integrated Pest Management Policy. Dr. R. Truelson, Water Quality Branch of the B.C. Environment, visited VanDusen Garden to inspect the pond and discuss the weed control options with staff and the Strata Council. His experience and advice in water management was taken into consideration within the context of the constraints and demands of the Park Board and Shaughnessy Place. Water shading was considered to be ineffective because of the shallow water in the pond.

It was agreed that the most environmentally and cost effective control methodology was to first treat the bottom with the registered herbicide PRINCEP 9T (90% SIMAZINE) on a once only basis. Approval for such an application was granted by B.C. Environment, Pesticide Control Branch (Special Permit #207-013-92). The level of the pond would be kept down for at least one month after the application to prevent water from flowing out. Simazine is commonly prescribed for aquatic weed control because of its non-solubility in water. The herbicide will stay on the bottom of the pond for a period of six months and then it will slowly bio-degrade.

A condition attached to the granting of the permit require that the application be published in a newspaper providing local distribution before March 14, 1992. A copy of the advertisement is attached.

DISCUSSION (cont'd)

Following this waiting period, during which existing vegetation will be allowed to decompose, the pond will be drained and pumped dry to allow the laying of a bottom barrier specially designed to suffocate existing plants and prevent the rooting of the colonizing plants while allowing the remaining decomposition gases to escape. Dr. Truelson recommends that use of the "Texel" bottom barrier as it has been effective in similar situations for at least ten years. Information on this product is enclosed. It is anticipated that there will be some trapped gas bubbles in the first year, VanDusen staff will release these by making small incisions in the textiles; it is not expected that the textiles will be visible after the first year. The Simazine treatment is expected to reduce this trapped gas bubbling to a manageable level while reducing the likelihood of unwanted plants invading any gaps or holes that might develop.

In addition to it being environmentally benign and having long term effectiveness, the bottom barrier is an attractive control methodology because pieces can be easily taken out to provide growing space for ornamental plants such as Nymphaea flowering hybrids.

Cost estimate:

Cost of PRINCEP 9T	\$ 50.00
Permit	100.00
Advertising	500.00
Labour to Apply Herbicide	200.00
Cost of Texel membrane	3,000.00
Labour to clear lake bottom and install Texel	<u>1,600.00</u>
	<u>\$5,450.00</u>

This cost will be shared equally between Shaughnessy Place and the Park Board.

CONCLUSIONS

The Shaughnessy Place pond has been densely covered with weeds for the past few years. All previous attempts to control the weeds have failed. The Shaughnessy Place Strata Council has been adamant about the need to remove the weeds from the pond.

CONCLUSIONS (cont'd)

One treatment of herbicide alone would not give 100% long-lasting control, but in combination with the membrane the long term (10 year) control should be effective. Use of the barrier alone would not guarantee effective weed control because of the presence of roots and live weeds in the lake bottom which could promote re-colonization and build-up of gases.

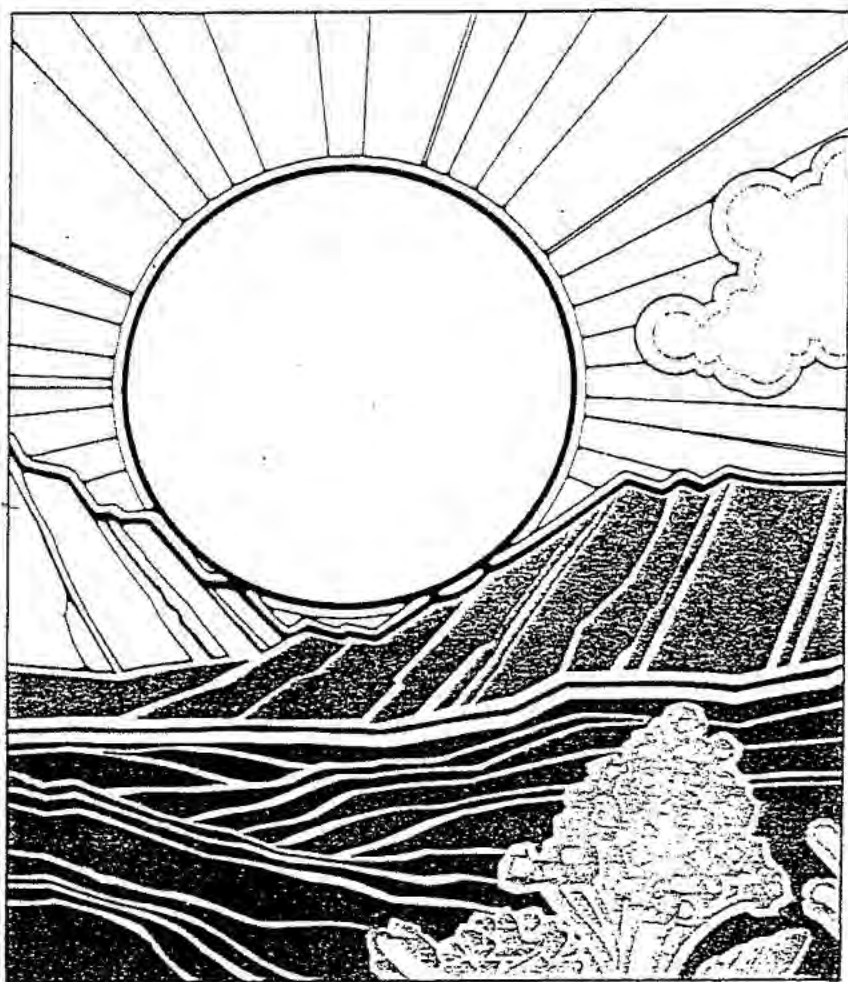
There may be some re-infestation of the lake margin, at the edge of the membrane, which will require manual removal, possibly one year after the initial treatment.

Prepared by:

Environment & Operations Division
Board of Parks & Recreation
City of Vancouver

Texel

AQUATIC
WEED
CONTROL



AQUATIC WEED CONTROL

Aquatic Weed Control

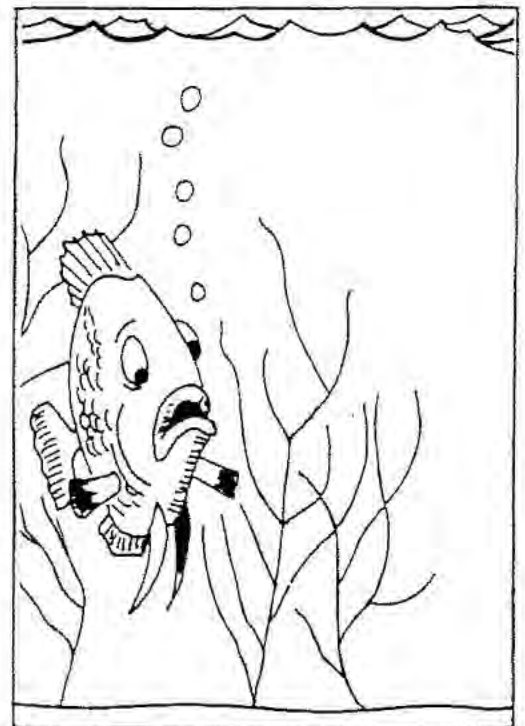
In certain regions, due to the explosive propagation potential of certain nuisance lake weeds, in particular Eurasian water milfoil, the need for control has become apparent for several reasons:

- loss of prime recreational beaches
- devaluation of waterfront properties
- increased danger of drowning when swimming in infested areas
- negative effects on sports fishing

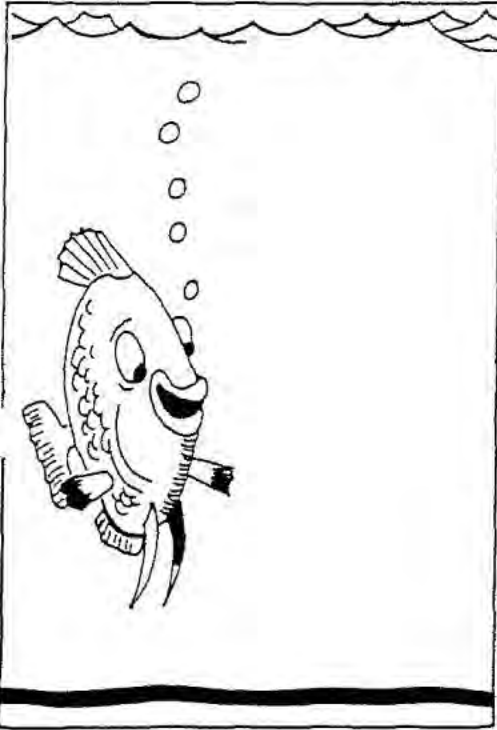
In an effort to reduce the nuisance impact of Eurasian water milfoil and to prevent spread to other lakes, several government agencies have reviewed and implemented numerous methods of nuisance weed control.

Bottom Barriers

One of the solutions that is being used more and more with successful results, is the installation of a bottom barrier. Placed on top of the weeds, a bottom barrier blocks photosynthesis thus killing the weeds. This eliminates the use of machinery and chemicals. Since 1983 Texel Aquatic Weed Control has been undergoing testing at Cultus Lake, B.C. and has been found to be a safe, low-cost and effective bottom barrier.



Texel Aquatic Weed Control



Now let's look at some of the characteristics of Texel Aquatic Weed Control that makes it so effective:

Chemical and biological resistance

The fibres utilized are non-biodegradable and resistant to the effects of acids and alcalis; they are polyester and polypropylene.

Tear, traction and puncture resistance

Texel Aquatic Weed Control is made to meet the same stiff requirements as our non-woven needlepunched geotextiles.

Gas evacuation

The high permeability of the fabric allows rapid evacuation of gases.

Installation

Because of a volumetric mass greater than that of water it sinks easily into position and maintains good bottom contact.

AQUATIC WEED CONTROL

A Long Term, Economical Solution.

For wherever bottom growing weeds are a problem, around diving platforms, swimming areas, docks or marinas, Texel Aquatic Weed Control is a proven long-term economical method for securing a clear and safe swimming and boating area.

Technical Specifications

Membrane	Tac 210	Tac 240
Fibre	Polyester and polypropylene.	Polyester and polypropylene.
Color	Grey	Grey
Volumetric Mass	>1.20 gr / cm ³	>1.20 gr / cm ³
Tension ASTM 1682 CGSB-Can 2-4.2 M77 Method 9.2	100 lbs 450 N	120 lbs 530 N
Tear ASTM D-1117 CGSB-Can 2-4.2 M77 Method 12.2	55 lbs 245 N	65 lbs 285 N
Bursting (Ball) ASTM D-751 CGSB 2-4.2 M77 Method 11.2	225 lbs 1000 N	260 lbs 1160 N
Permeability	3.1 X 10 ⁻¹ cm/sec.	3.1 X 10 ⁻¹ cm/sec.

Texel

HEAD OFFICE:

ARMTEC INC.
245-10451 SHELLBRIDGE WAY
AIRPORT EXECUTIVE PARK
RICHMOND, B.C.
V6X 2W8



VanDuzer Botanical Garden
Lake, North-West Quadrant

Pesticide Use Permit Application – Supporting Map

Bed: LAKE07

Date: 09/15/88

Scale: 1:50

x
(Irrigation Valve)

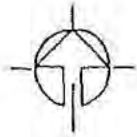
Area to be treated = 0.31 ha.

Island

Vacant building

Residential Condominium Development

OUTFLOW (Catch basin with stops)



INFLOW - graduated
flushed occasionally

HEALTH AND SAFETY DATA SHEET

Rev. No. 2

I PRODUCT IDENTIFICATION			
MANUFACTURER	CIBA-GEIGY CANADA LTD. Agricultural Division	EMERGENCY TELEPHONE	(416) 923-6533
		REGULAR TELEPHONE	(416) 821-4420
ADDRESS	6860 Century Ave., Mississauga, Ont. L5N 2W5		
TRADE NAME	PRINCEP® NINE-T™	PCP ACT NO.	16,370
SYNONYMS	IN 216 Simazine, Princep® Caliber™ 90 (U.S.)		PACKAGE SIZES 1.5 kg 4.5 kg 2.0 kg
DESCRIPTION	Granular triazine herbicide packaged in paper bags for agricultural use.		
	SEE ALSO SHIPPING LABEL IN PART X		

II HEALTH HAZARD INFORMATION FOR FORMULATED PRODUCT	
THRESHOLD LIMIT VALUE FOR WORK ENVIRONMENT	10 mg/m ³ of dust
NATURE OF HAZARD	
INHALATION	LC ₅₀ (4 h) rat exceeds 2.4 mg/L air; slightly toxic.
EYE CONTACT	Minimal irritation. Studies with rabbits showed redness and swelling of eyelids.
SKIN CONTACT	Mild irritation; studies with rabbits showed some swelling and redness after 24 h of contact.
SKIN ABSORPTION	Dermal LD ₅₀ rat exceeds 2,000 mg/kg; slightly toxic.
INGESTION	Oral LD ₅₀ rat, exceeds 5,000 mg/kg; slightly toxic. No animals died from a dose of 5,000 mg/kg.
THE DATA PRESENTED REFERS TO THE PRODUCT OF COMPOSITION AS REGISTERED UNDER THE PCP ACT. SOME PRODUCTS ARE DILUTED IN PREPARATION FOR USE.	

SYMPTOMS	Nausea or vomiting may occur if a large amount is swallowed. Irritation of skin or eyes can result from overexposure.
ACUTE	
CHRONIC	Long-term exposure to low levels of the material is not known to cause any ill effects in humans.

FIRST AID	SEE A DOCTOR if any symptoms are serious or if poisoning is suspected.
INHALATION	Move to fresh air, clean up, rest.
EYE CONTACT	Flush eyes with clean water for at least 15 minutes. Hold the eyelids apart. Obtain medical attention if irritation occurs.
SKIN CONTACT	Remove contaminated clothing. Wash skin thoroughly. If irritation occurs, obtain medical attention.
INGESTION	If swallowed, give large amounts of water to drink and induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or a poison control centre immediately.

NOTE TO PHYSICIAN	Princep Nine-T is a triazine herbicide. Because of its low oral toxicity, induce emesis or lavage stomach only if a large amount has been swallowed. After lavage, a slurry of 30 to 50 g of activated medicinal charcoal may be left in the stomach.
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III FIRE AND EXPLOSIVE HAZARD DATA

FLASH POINT (TEST PROCEDURE) Not applicable	AUTOIGNITION TEMP. Not applicable	FLAMMABLE LIMITS VOL % Lel Not applicable Uel	HAZARD LEVEL Non-combustible
EXTINGUISHING MEDIA All are compatible. Use fog nozzle with water.			
SPECIAL FIRE FIGHTING PROCEDURES Self-contained breathing apparatus and full protective clothing. Treat as a solid chemical-type fire where discharge to the environment is to be controlled as quickly as possible. Use of buildings, area and equipment should be prevented until they are properly decontaminated.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Fumes from decomposition of this product in a fire may be toxic.			

IV HAZARDOUS INGREDIENTS

INGREDIENT	CONTENT %	LD50	HAZARD	
			TWA	TLV STEL
Simazine [CA-122-34-9]	90.0	oral, rat > 5000 mg/kg		
Inert ingredients	10.0			

V REACTIVITY DATA

STABILITY Stable	
MATERIAL OR CONDITIONS TO AVOID None	HAZARDOUS DECOMPOSITION PRODUCTS

VI PHYSICAL PROPERTIES

MELTING POINT Active ingredient 225-227°C	SOLUBILITY IN WATER Dispersible active ingred. 3.5 ppm	PERCENTAGE VOLATILE BY VOLUME Not applicable
VAPOUR PRESSURE (TEMP.) 7 x 10 ⁻⁸ mm Hg @ 20°C	SPECIFIC GRAVITY BULK DENSITY Not available	EVAPORATION RATE (n-butylacetate = 1) Not applicable
VAPOUR DENSITY Not applicable	APPEARANCE AND ODOUR Odourless, tan granules	

VII SPILL OR LEAK PROCEDURES

CLEANUP PROCEDURE

Wear proper protective clothing. Sweep up spilled material and packages and collect in a disposable container. Wash area with detergent and water. On soils, skim off the upper layer of contamination for disposal, and spread the remainder out over a larger area.

WASTE AND CONTAINER DISPOSAL

Do not re-use container. Destroy and burn or bury in a safe place according to local regulations. Unwanted product or contaminated waste may be incinerated or buried in a non-crop, non-graze area away from any water supply, waterway or open water. Industrial/commercial waste may be disposed of by incineration or in an approved disposal site. This product is bio-degradable.

VIII PROTECTION EQUIPMENT

VENTILATION Work in a well ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

EYE Wear goggles in situations where product might get into eyes.

SKIN Wear full length work clothing and boots when handling this product. Use work gloves if direct contact with product is likely.

RESPIRATORY Not normally required. Use a respirator approved for pesticides if ventilation is inadequate.

OTHER

IX SPECIAL PRECAUTIONS

OPERATOR SAFETY

Do not smoke, eat or drink while working with this product and wash hands before doing so. Avoid contact with skin, eyes or clothing. Clean up spilled material immediately and clean clothes, equipment and work area after use.

STORAGE

Store in original container only in a well ventilated, cool, dry, secure area set aside for herbicides. Keep separate from other products to prevent cross-contamination. Rotate stock. Ship and store away from food, feed or seed. Clean spilled material and patch broken bags immediately.

GENERAL

KEEP OUT OF REACH OF CHILDREN. Keep out of water supplies, ground water or open water. This product is only slightly toxic to fish and wildlife.

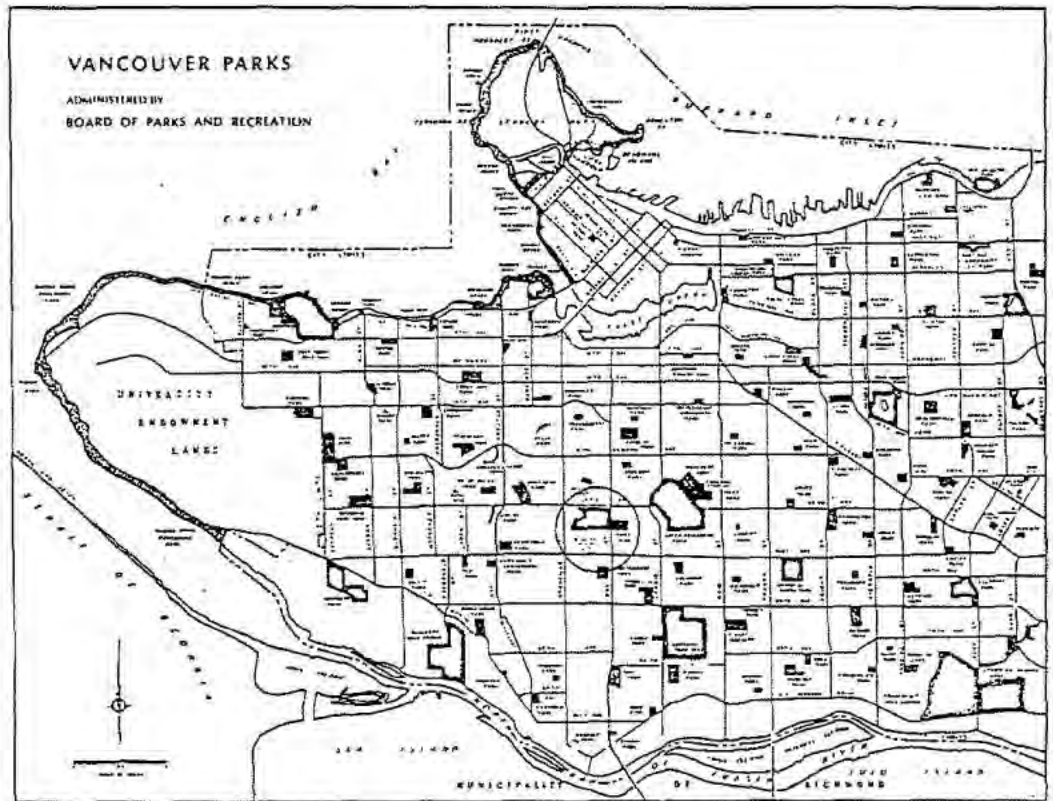
XI TRANSPORT INFORMATION

IDENTIFICATION NUMBER	CLASS AND SUBCLASS	PACKING GROUP	SPECIAL PROVISIONS	IMO CLASS	IATA CLASS	PACKAGE SIZE LIMITS	
						PASSENGER AIRCRAFT AND VEHICLES	CARGO AIRCRAFT
		Not regulated.					
SHIPPING NAME INSTRUCTIONS		Triazine herbicide,	solid, n.o.s.				
		Keep away from food,	feed or seed.				

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED ON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED IS MADE WITH RESPECT TO THE INFORMATION PROVIDED HEREIN.

TECHNICAL DEPARTMENT

REVISION NO. 2



APPLICATION FOR A PESTICIDE USE PERMIT

#207-013-92

Vancouver Park Board has made application to the B.C. Ministry of the Environment to use Princep 9T (90% Sinazine) for the control of aquatic weeds in VanDusen Gardens. One application of the herbicide in granular form is scheduled between April 1 and April 30/92.

Copies of the permit application and maps of the treatment area may be viewed at:

VanDusen Botanical Garden
5251 Oak Street
Vancouver, B.C.
V6M 4H1

Vancouver Park Board
2099 Beach Avenue
Vancouver, B.C.
V6G 1Z4

A person wishing to contribute information about the site for evaluation of this application for a use permit must send written copies of this information to both the applicant and the Regional Manager of the Pesticide Control Program, Lower Mainland Region, 10334 152A Street, Surrey, B.C. V3R 7P0, within 30 days of the date the notice was published.

Province of British Columbia
 Ministry of Land and Water
 PESTICIDE MANAGEMENT PROGRAM
 Receipt for \$125.00 Permit Fee
 (original)
 No 3003 P

Ministry of Environment

Pesticide Control Program

PESTICIDE USE PERMIT APPLICATION

This form and maps are required along with one copy of the map on the reverse side of this form. Shaded areas are for Pesticide Control Program use only. For complete instructions refer to Guide to Applicants (1990). Pesticide Use Permits other than B.C. Government Ministries shall include a cheque or money order for \$100 (one hundred dollars) payable to the Minister of Finance and Corporate Relations. No fee is required for a Special Use Permit prescribed in regulation 10(1)(b). Send applications to the appropriate regional office.

1. Name of Applicant Vancouver Park Board		Applicant's File No.		Application No. 267-015-92			
Mailing Address Vandusen Gardens 5251 Oak Street Vancouver, B.C. V6M-4H1		Tel. No. 266-7194		Date Received JUNE			
Program Use Only		Fee Enclosed X		Amount Paid \$125.00			
		Method of Payment Cheque		Publication Deadline JULY 16			
2. Name of Contractor		Pest Control Service Lic. No. JULIO 1 1992		Tel. No.			
Address							
3. Permit Category Applied for		Use X		Special Use One Year Only			
4. a. Pesticide Trade Name		b. Active Ingredient (common name)		c. P.C.P. No.	d. Application Rate (kg a.i./ha)		
Princep 9-T		Simazine		SMZ 16370	15g/10000 L		
e. Treatment Area (ha)		f. Quantity (kg a.i.)					
.31 ha		4,185 kg					
Additional Information For pond volume calculations, we used .31 ha x 1M depth							
5. Target Species Myriophyllum spicatum, Nymphaeoides spp.							
6. Purpose To improve ornamental quality of pond, reduce odours					Purpose Code AWC		
7. a. Nearest Town							
b. Specific Location Vandusen Gardens in the City of Vancouver					NTS Map Ref. 92GSW		
c. Name of newspaper(s) in which public notice shall appear if required. West Courier							
8. Application Method Broadcast					Method Code 12		
9. Commencement Date		Yr. 92	Mo. 06	Day -	Completion Date		
		Yr. 92	Mo. 07	Day -	will give notice as to exact date		
10. Aquatic Information		a. 10 metre pesticide-free zone to be maintained on all water bodies and wells		Yes	No X		
b. Distance to nearest domestic water intake or well		Water from pond system does not flow in drinking water.					
c. Additional information Pond level will be lowered for several weeks							
11. Forestry and Range Applications on Public Land		Has the District Manager of the local District Office of the Ministry of Forests been provided with written notification of this proposed pesticided use?			Yes	No	
12. Land Ownership		Public X	Private		13. For Special Use Permit Applications		
				a. Research outline submitted		Yes	No
14. Name of Project Supervisor Roy Forster				b. Research report to be submitted by		Date	
Tel. No. 266-7194				c. Federal authorization for unregistered use		Attached	To be provided prior to use
15. Pesticide Applicator Dave Kuklo		Category of Certification Landseer		Certificate No. 8572-A			
16. Signature of Applicant Bill Stepler		Title		Date of Application June 01, 1992			

The above pesticide use is authorized subject to the Pesticide Control Act and the additional conditions listed on the covering page(s). Permit is not valid unless signed by Administrator.

SUBJECT: VANDUSEN/SHAUGHNESSY LAKE - HERBICIDE TREATMENT

RECOMMENDATION

The application of a herbicide, PRINCEP 9T (SIMAZINE) to the Shaughnessy Pond, followed by the application of a permanent weed control bottom barrier.

BOARD POLICY

It is the policy of the Board to manage pest problems with an integrated Pest Management approach (I.P.M.)

BACKGROUND

Shaughnessy Lake is named for its proximity to Shaughnessy Place Phase II. The lake is a water barrier in lieu of a fence between the condos and VanDusen Gardens. The lake has considerable aesthetic value to the residents but because of its position, is not used by visitors to VanDusen. Most of the lake is on Park Board lands.

For several years the residents have complained about the density of aquatic weeds that builds up during the summer months. Usually, by midsummer, the surface of the lake is covered and no open water can be seen.

The lake level is maintained by natural drainage and occasionally from the city water supply. The lake water is generally clear and there is no apparent health problem.

Various methods of mechanical weed removal have been attempted but abandoned because of the high cost/lack of effectiveness.

Before the implementation of the Board I.P.M. policy in 1987, the water weeds were controlled by the defoliant herbicide Reglone. When applied twice during the growing season Reglone killed all the leafy growth, but not the roots. As a result, the effect was only temporary, not cost effective, and was abandoned. In a different lake, a plastic membrane was next tried, with no herbicide. This was not effective because the rotting biomass generated gas which lifted the membrane to the surface. After the Park Board ban on aquatic herbicide applications, mechanical control was attempted. The Strata Council, on its own initiative, removed weeds by cutting. After \$ 2,000.00 had been expended and less than one quarter of the lake cleared, the project was abandoned because of the high cost. Subsequent re-growth was rapid. Within two months the effect of the treatment could not be seen.

In 1990, Aqua Research Ltd. of Kelowna was hired. A floating weed harvester machine was used, at a cost of \$ 6,000.00 shared 50/50 with the Strata Council. A large amount of bro-mass was removed from the lake. Within a period of four months the lake was again 80% infested with weeds. The treatment was judged ineffective.

DISCUSSION

Discussions have centered on what steps were needed to best prevent the growth of unwanted aquatic vegetation while satisfying B.C. Environment's guidelines and the Park Board's Integrated Pest Management Policy. Dr. Truelson's experience and advice in water management was taken into consideration within the context of the constraints and demands of the Park Board and Shaughnessy Place.

It was agreed that the most environmentally and cost effective control methodology was to first treat the bottom with the registered herbicide PRINCEP 9T (90% SIMAZINE) on a once only basis. Approval for such an application was granted by B.C. Environment, Pesticide Control Branch (Special Permit #207-013-92). The level of the pond will be kept down for at least one month after the application to prevent water from flowing out. Simazine is commonly prescribed for aquatic weed control because of its non-solubility in water.

Following this waiting period, during which existing vegetation will be allowed to decompose, the pond will be drained and pumped dry to allow the laying bottom barrier specially designed to suffocate existing plants and prevent the rooting of the colonizing plants while allowing the remaining decomposition gases to escape. Dr. Truelson recommends that use of the "Texel" bottom barrier as it has been effective in similar situations for at least ten years. Information on this product is enclosed. It is anticipated that there will be some trapped gas bubbles in the first year, VanDusen staff will release these by making small incisions in the textiles; it is not expected that the textiles will be visible after the first year. The Simazine treatment is expected to reduce this trapped gas bubbling to a manageable level while reducing the likelihood of unwanted plants invading any gaps or holes that might develop.

In addition to it being environmentally benign and having long term effectiveness, the bottom barrier is an attractive control methodology because pieces can be easily taken out to provide growing space for ornamental plants such as Nymphaea flowering hybrids.

Financial Implications

Cost of PRINCEP 9T	50.00
Permit	100.00
Advertising	500.00
Labour to Apply Herbicide	200.00
Cost of Texel membrane	3,000.00
Labour to clear lake bottom and install Texel	<u>1,600.00</u>
	5,450.00

This cost will be shared equally between Shaughnessy Place and the Park Board

CONCLUSION

Environmental Impact

The herbicide is persistent and highly unsoluble and will stay on the lake bottom for a period of six months. It will then slowly bio-degrade.

However, the lake level will be lowered to eliminate the possibility of a discharge of water to the other ornamental lakes in the garden.

Effectiveness of Treatment

One treatment of herbicide alone would not give 100% long-lasting control, but in combination with the membrane the long term (10 year) control should be effective. Use of the barrier alone would not guarantee effective weed control because of the presence of roots and live weeds in the lake bottom which could promote re-colonization and build-up of gases.

Effectiveness of Treatment (cont'd)

There may be some re-infestation of the lake margin, at the edge of the membrane, which will require manual removal, possibly one year after the initial treatment.

The above recommendation was developed from a meeting between the following:

Roy Forster, Curator, VanDusen Gardens
Ron Caswell, Foreman, VanDusen Gardens
Bill Stephen, I.P.M. Coordinator
Dr. Bob Truelson, B.C. Environment
George Bielly, Shaughnessy Place Strata Council

Prepared by Environment and Operations Division
February 25, 1992

SHAUGHNESSY LAKE AQUATIC WEED CONTROL

	LABOUR		MATERIALS		EQUIPMENT		TOTAL	
1. JUNE 26 - APPLICATION OF HERBICIDE	190	74	64	66			255	40
2. SEPT. 18 - 25 PUMPING OUT LAKE	1074	75	85	54	69	60	1229	89
3 SEPT. 28-29 APPLICATION OF PRINCEP & TEXEL	1223	18	489	79	17	40	6132	37
4 OCT 2 LAYING ADDITIONAL TEXEL	498	65	136	40	17	40	1877	45
TOTAL.	2981	32	6403	39	104	40	9495	11

Justification

2. Originally the lake was to be drained by gravity, but silt build up near outflow made it necessary to use many hours of labour and a pump to clear the lake.

3 & 4. The original estimate for Texel and installation was \$4,600 - (See attached)
 The labour cost, because of adverse muddy conditions was much higher than estimated (2x)



VanDusen Botanical Garden
Lake, North-West Quadrant

Pesticide Use Permit Application - Supporting Map

Bed: LAKE07

Date: 09/15/88

Scale: 1:50

x
(Irrigation Valve)

Area to be treated = 0.31 ha.

Island

Vacant building

Residential Condominium Development



OUTFLOW (Catch basin with stops)