SITE HAZARD ASSESSMENT
WORKSHEET 1
SUMMARY SCORE SHEET

Site Name/Location (Street, City, County, Facility Site ID Number, Lat/Long):

Harrington Beall Greenhouses
18527 Beall Rd SW
Vashon, WA 98070
King County
Ecology Facility Site ID: 67887948
T-23N, R-3E, Sec-32
Longitude: 122° 26' 59.00"
Latitude: 47° 26' 16.00"
Site assessed for August 23, 2006 update

Site Description (Include management areas, substances of concern, and quantities):

The Harrington Beall Greenhouses (HBG) site is located in a residential area on Vashon Island. The site consists of two parcels and is 16.57 acres in size. The property is bordered to the north and west by residential properties, to the east by Beall Road SW and to the south by SW 188th ST. The site is served by a private sewer system and a municipal water system fed by drinking water wells. There are nineteen wells, including four municipal wells, within a two-mile radius of the HBG property.

The HBG site started operations in 1888 and was established to grow greenhouse vegetables. As business grew at the site, more greenhouses and support buildings were added to grow several varieties of flowers. At its peak in the 1960's the property contained 56 large greenhouses, 16 buildings and 6 structures serving functions in support of the business including a boiler heating plant and 6 residence buildings. Building footprints cover approximately 50 percent of the total area of the site.

Coal-fired boilers were originally used to heat the greenhouses. Sometime during the 1930's or 1940's the boilers were switched to oil heat. There are five above ground storage tanks on the property that were used to store the oil. Combined, these five tanks held 98,000 gallons of Bunker C oil for fueling the boilers.

During the mid 1970's the business moved to South America due to competition from other growers in California. Some of the greenhouses were used until the 1980's when the site was abandoned. In 1994, the property was designated a King County Landmark within a 23-acre Harrington-Beall Greenhouse Company Historic District. All of the greenhouses and most of the service buildings have now fallen into disrepair and are overgrown by large blackberry bushes and trees. A few of the buildings still in operation are rented out to small businesses and organizations.

The Harrington-Beall Greenhouse Company was the owner of the property until 1992 when it was sold to the Hooper family. In 2003, the property was sold to the Foster-Moss family who are the current owners. The Foster-Moss family has now entered into a purchase and sale agreement for the property with the Institute for Environmental Research and Education (IERE) a non-profit organization. For the last few years IERE has been one of the tenants on the HBG site.

In July of 1997 an anonymous complainant contacted the Washington Department of Ecology (Ecology) to report illegal dumping of hazardous materials at the HBG site. An Ecology inspection of the site did not locate any dumped materials. Ecology was concerned that there could be other contamination due to past practices at the site and recommended further investigation of the HBG property. The HBG property was

listed on Ecology's Conformed and Suspected Contaminated Sites List on November 11, 1998, to await further assessment for suspected soil contamination.

During the fall of 2005, the King County Brownfields Program was able to obtain an Environmental Protection Agency (EPA) Brownfields Assessment Grant. This grant provided funds to perform Phase I and II assessment activities to support the future cleanup and development of the HBG property. Camp Dresser & McKee Inc. (CDM) was contracted through the King County Brownfields Program to perform the assessment.

Carsten Thomsen and Yolanda Pon of Public Health-Seattle & King County (PHSKC) conducted a site hazard assessment (SHA) visit on the HBG site on January 31, 2006. Lance Peterson, Senior Hydrogeologist for CDM, led a tour of the HBG site for PHSKC. During the site visit Mr. Peterson discussed the sample locations that would be used for the HBG Phase II assessment. Several of the sample locations would be near the fuel storage tanks where large areas of soil staining by what appeared to be petroleum products were visible. No other visible soil contamination was encountered during the SHA visit. After discussing the HBG sample plan with Ecology it was decided that the analytical data collected during the CDM assessment would be used for PHSKC's SHA of the HBG property.

During January and February of 2006, CDM performed the site assessment on the HBG property. The assessment included 40 soil samples taken throughout the site for laboratory analysis. The samples were analyzed for Northwest Total Petroleum Hydrocarbons Diesel extended (NWTPH-Dx), organochlorine pesticides, organophosphorus pesticides, chlorinated acid herbicides, total metals, volatile organic compounds (VOC's) and polycyclic aromatic hydrocarbons (PAH's). Several of the samples did contain various contaminants that exceeded the Model toxics Control Act (MTCA) Method A cleanup levels. The following chart shows the highest levels of soil contamination obtained at the HBG property.

	Benzo(a)pyrene (PAH's) (ppm)	Organochlorine Pesticide(DDT) (ppm)	Heavy Oil (Bunker C) (ppm)
S16/HB-S16-1/06	**0.10**	ND	**2,700**
S6/HB-S6-1/06	ND	**9.2**	ND
S20/HB-S20-1/06	Not Tested	ND	**180,000**
MTCA Method A Cleanup Level	0.10	3.0	2000

ppm=parts per million
ND = Non-detectable

On the basis of this SHA, completed by the PHSKC's Environmental Health division, this site will be scored for the surface water, air and groundwater routes.

Special Considerations (Include limitations in site file data or data which cannot be accommodated in the model, but which are important in evaluating the risk associated with the site, or any other factor(s) over-riding a decision of no further action for the site): N/A

ROUTE SCORES:

Surface Water/Human Health: 22.7

Surface Water/Environmental: 27.7

Air/Human Health: 9.2

Air/Environmental: NS

Ground Water/Human Health: 46.6

OVERALL RANK: 2

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

List those substances to be considered for scoring: Source: 2,3

Benzo(a)pyrene, DDT, Heavy oil

Explain basis for choice of substance(s) to be used in scoring.

All of the above substance concentrations are above MTCA Method A cleanup levels.

List those management units to be considered for scoring: Source: 3

Surface soil contamination.

Explain basis for choice of unit to be used in scoring. Source: 3

Surface soil is exposed to weather with no containment.

2. AIR ROUTE

List those substances to be considered for scoring: Source: 2,3

Benzo(a)pyrene, DDT

Explain basis for choice of substance(s) to be used in scoring.

All of the above substance concentrations are above MTCA Method A cleanup levels.

List those management units to be considered for scoring: Source: 3

Surface soil contamination.

Explain basis for choice of unit to be used in scoring. Source: 3

Surface soil is exposed to weather with no containment.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 2,3

Benzo(a)pyrene, DDT, Heavy oil

Explain basis for choice of substance(s) to be used in scoring.

All of the above substance concentrations are above MTCA Method A cleanup levels.

List those management units to be considered for scoring: Source: 3

Surface soil contamination.

Explain basis for choice of unit to be used in scoring.

Surface soil is exposed to weather with no contamination.

WORKSHEET 3
SURFACE WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard (ug/l)	Val.	Acute Toxicity (mg/kg-bw)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-genicity WOE	PF*	Val.
1.benzo(a)pyrene	0.2	10	50	10	ND	-	B2	12	7
2.DDT	ND	-	87	8	0.0005	5	B2	0.34	4
3.NWTPH-Heavy Oil	ND	-	ND	-	2.0	1	ND	ND	-

*Potency Factor

Source: 2
Highest Value: 10 (Max.=10)
+2 Bonus Points? yes
Final Toxicity Value: 12 (Max.=12)

1.2 Environmental Toxicity

(x) Freshwater
( ) Marine

Substance	Acute Water Quality Criteria (ug/l)	Value	Non-human Mammalian Acute Toxicity (mg/kg)	Value
1.benzo(a)pyrene	50.0	10		
2.DDT	1.1	8		
3.NWTPH-Heavy Oil	ND	-	ND	-

Source: 2 **Value: 10** (Max.=10)

1.3 Substance Quantity: unknown Source: 3 **Value: 1** (Max.=10)
Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 3 **Value: 10** (Max.=10)
Explain basis: spill/discharge with no containment or maintained run-on/runoff control

2.2 Surface Soil Permeability: sandy clay loam Source: 3 **Value: 5** (Max.=7)

2.3 Total Annual Precipitation: 46.5 inches Source: 5 **Value: 3** (Max.=5)

2.4 Max. 2-Yr/24-hour Precipitation: 1-2 inches Source: 5 **Value: 2** (Max.=5)

2.5 Flood Plain: not in flood plain Source: 6 **Value: 0** (Max.=2)

2.6 Terrain Slope: < 2% Source: 6 **Value: 1** (Max.=5)

WORKSHEET 3 (CONTINUED)
SURFACE WATER ROUTE

3.0 TARGETS

3.1 Distance to Surface Water: ~2000 feet Source: 6 **Value: 7** (Max.=10)

3.2 Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): pop.= 0 = 0 Source: 8 **Value: 0** (Max.=75)

3.3 Area Irrigated within 2 miles 0.75 (√no. acres) = (Refer to note in 3.2.): 0.75(√30)= 0.75(5.5)= 4 Source: 8 **Value: 4** (Max.=30)

3.4 Distance to Nearest Fishery Resource: >10,000 feet Source: 6 **Value: 0** (Max.=12)

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) >10,000 ft County park Source: 6 **Value: 0** (Max.=12)

4.0 RELEASE

Explain basis for scoring a release to surface water: none confirmed Source: 3 **Value: 0** (Max.=5)

WORKSHEET 4
AIR ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction (WARM Scoring Manual)

1.2 Human Toxicity

Substance	Air Standard (ug/m^3)	Val.	Acute Toxicity (mg/m^3)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcinogenicity WOE	PF*	Val.
1.benzo(a)pyrene	0.0006	10	ND	-	ND	-	B2	ND	-
2.DDT	0.01	10	ND	-	ND	-	B2	0.34	4

*Potency Factor

Source: 2
Highest Value: 10 (Max.=10)

+2 Bonus Points? yes
Final Toxicity Value: 12 (Max.=12)

1.3 Mobility (Use numbers to refer to above listed substances)

1.3.1 Gaseous Mobility
Vapor Pressure(s) (mmHg): 1= 1; 2= 1 Source: 1
Value: 1 (Max.=4)

1.3.2 Particulate Mobility
Soil type: sandy clay loam Source: 3
Erodibility: 56 Value: 1 (Max.=4)
Climatic Factor: 1-10

1.4 Highest Human Health Toxicity/Mobility Matrix Value (from Table A-7) equals **Final Matrix Value: 6** (Max.=24)

1.5 Environmental Toxicity/Mobility Source: 1

Substance	Non-human Mammalian Acute Inhal. Toxicity (mg/m^3)	Value	Mobility (mmHg)	Value	(Table A-7) Matrix Value
1.benzo(a)pyrene	No data				
2.DDT	No data				

Highest Environmental Toxicity/Mobility Matrix Value (From Table A-7) equals **Final Matrix Value: NS** (Max.=24)

1.6 Substance Quantity: unknown Source: 3 **Value: 1** (Max.=10)
Explain basis:

WORKSHEET 4 (CONTINUED)
AIR ROUTE

2.0 MIGRATION POTENTIAL

2.1 Containment: no cover, discharges/spills to ground — Source: 3 — **Value: 10** (Max.=10)

3.0 TARGETS

3.1 Nearest Population: < 1,000 feet — Source: 3 — **Value: 10** (Max.=10)

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) >5,200-county park — Source: 3 — **Value: 0** (Max.=7)

3.3 Population within 0.5 miles: pop.= √195 = 14 — Source: 3 — **Value: 14** (Max.=75)

4.0 RELEASE

Explain basis for scoring a release to air: No confirmed release — Source: 3 — **Value: 0** (Max.=5)

WORKSHEET 5
GROUND WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard (ug/l)	Val.	Acute Toxicity (mg/kg-bw)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-genicity WOE	PF*	Val.
1.benzo(a)pyrene	0.2	10	50	10	ND	-	B2	12	7
2.DDT	ND	-	87	8	0.0005	5	B2	0.34	4
3.NWTPH-Heavy Oil	ND	-	ND	-	2.0	1	ND	ND	-

*Potency Factor

Source: 2
Highest Value: 10 (Max.=10)
+2 Bonus Points? yes
Final Toxicity Value: 12 (Max.=12)

1.2 Mobility (Use numbers to refer to above listed substances)

Cations/Anions: 1= ; 2= Source: 1 **Value: 0** (Max.=3)

OR

Solubility(mg/l): 1(1.2e-03=0); 2(5.0e-03=0)

1.3 Substance Quantity: unknown Source: 3 **Value: 1** (Max.=10)

Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 3 **Value: 10** (Max.=10)

Explain basis: spills/discharges; no containment

2.2 Net Precipitation: 34.5-5.7=28.8 inches Source: 5 **Value: 3** (Max.=5)

2.3 Subsurface Hydraulic Conductivity: clayey sand Source: 3 **Value: 3** (Max.=4)

2.4 Vertical Depth to Ground Water: > 50 - 100 feet Source: 3 **Value: 4** (Max.=8)

WORKSHEET 5 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

3.1 Ground Water Usage: federally-designated sole source aquifer — Source: 6 — **Value: 10** (Max.=10)

3.2 Distance to Nearest Drinking Water Well: 3,200 ft — Source: 7 — **Value: 2** (Max.=5)

3.3 Population Served within 2 Miles: >10,000=100 — Source: 8 — **Value: 100** (Max.=100)

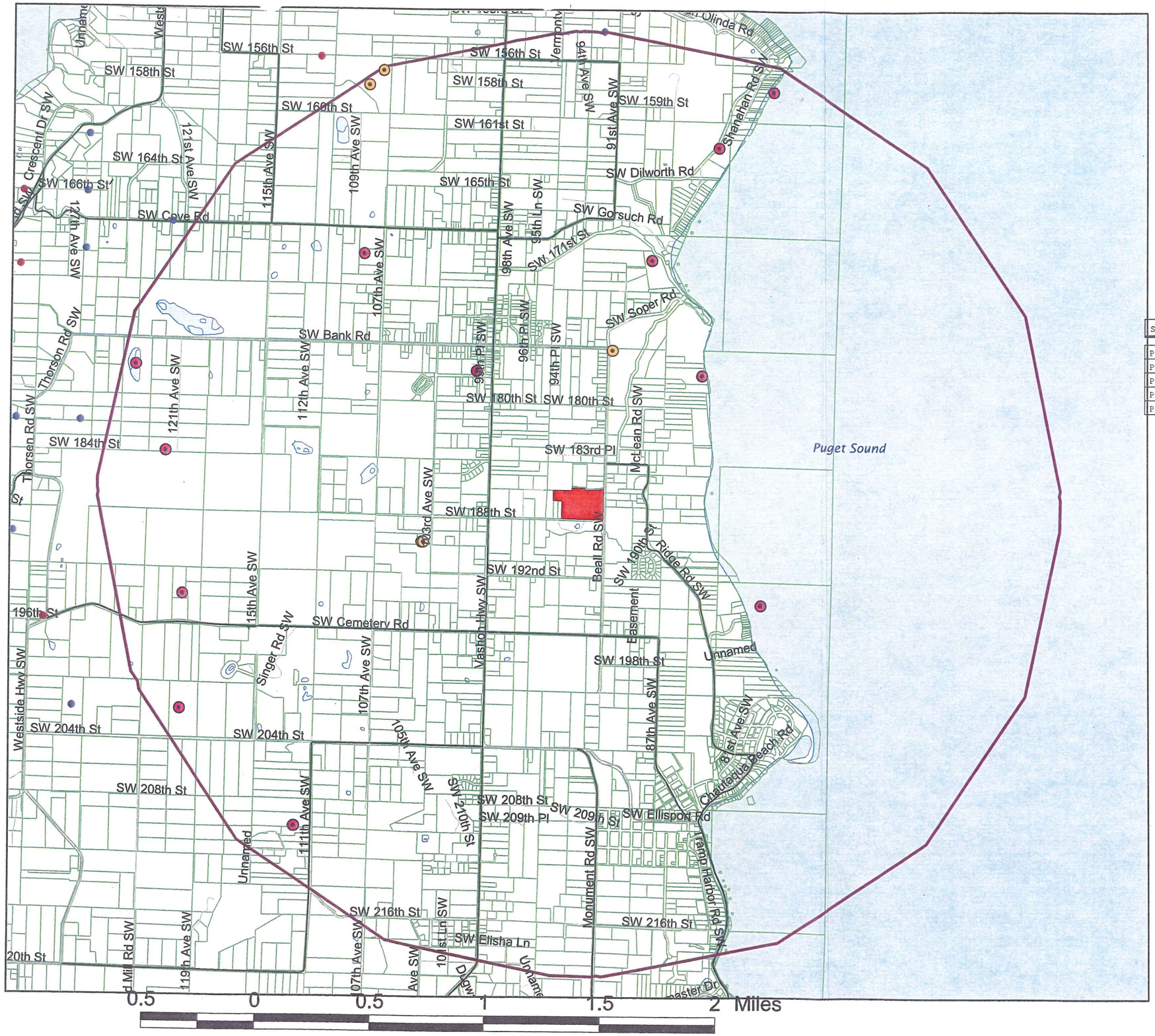
3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 0.75 √no.acres = 0 — 0.75 =0.75 ( )= — Source: 8 — **Value: 0** (Max.=100)

4.0 RELEASE

Explain basis for scoring a release to ground water: none confirmed — Source: 3 — **Value: 0** (Max.=5)

SOURCES USED IN SCORING

1. Washington Ranking Method Toxicological Database.
2. Phase II Environmental Site Assessment, Harrington-Beall Greenhouse Property, Vashon, WA, May 9, 2006.
3. Site hazard assessment, PHSKC, June 2006.
4. National Weather Service Data.
5. Isopluvials of 2-yr., 24hr. precipitation, NOAA atlas 2, vol. IX.
6. Sensitive Areas Coverage, King County Geographic Information System Data
7. Washington State Department of Health Public Water Supply Listing.
8. Washington State Water Use Data.



Wells Within a Two Mile Radius

Site Hazard Assessment
Harrington-Beall Greenhouses Site
18527 Beall RD SW
Vashon, WA

Group A Wells Within 2 Miles of SHA Site:

Shape	Pwsid	Systemname	Sourcetype	Latitude	Longitude
Point	38900	KING COUNTY WATER DISTRICT 19	Well	47.43483	-122.466762
Point	38900	KING COUNTY WATER DISTRICT 19	Well	47.43483	-122.466615
Point	38900	KING COUNTY WATER DISTRICT 19	Surface	47.44723	-122.449440
Point	94950	WESTSIDE WATER ASSN	Spring	47.46457	-122.471673
Point	94950	WESTSIDE WATER ASSN	Well in Well Fie	47.46364	-122.473024

Group B Wells Within 2 Miles of SHA Site

Shape	Pwsid	Systemname	Sourcename	Latitude	Longitude
Point	01055	KST WATER SYSTEM	WELL	47.44577	-122.441000
Point	01068	LOZON/BROWN WATER SYSTEM	WELL	47.45300	-122.446000
Point	01689	SAGER WATER	WELL	47.45293	-122.473000
Point	03330	ATLAS WATER ASSN		47.43131	-122.435000
Point	03357	RISDAL/DRESCHER	WELL #1	47.42382	-122.489000
Point	06476	DRIVEN SNOW	WELL #1	47.44550	-122.494000
Point	12031	PACKARD HENDLY WATER SYSTEM	WELL # 1	47.44571	-122.462000
Point	26956	HIGH BANK WATER ASSOC.	WELL #1	47.44011	-122.491000
Point	33800	HOLMES E W		47.46388	-122.435000
Point	34185	B HOOVER WATER		47.46024	-122.440000
Point	42750	KLAHANIE BEACH WATER SYSTEM	SPRING	47.43131	-122.435000
Point	56800	MOUNTAIN VIEW COMMUNITY CLUB	WELL	47.46024	-122.440000
Point	64381	MORGAN	MORGAN	47.41660	-122.478000
Point	67291	PICKETT		47.43109	-122.489000

- Harrington-Beall Group B 2 Mile Wells
- Harrington-Beall Group A 2 Mile Wells
- Harrington_site.shp
- 2 Mile Buffer of Harrington-Beall SHA Site
- Group A Water Wells
- Group B Water Wells

King County Streets
- Primary
- Collector
- Minor
- Local

- King County Tax Parcels
- Open Water

N

Public Health
Seattle & King County
HEALTHY PEOPLE. HEALTHY COMMUNITIES.

Peter Isaksen, Carsten Thornsen, Environmental Health GIS May 12, 2006

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

September 8, 2005

Nancy and Scarlett Foster-Moss
18527 Beall Road S.W.
Vashon, WA 98070

Subject: Site Hazard Assessment – Harrington Beall Greenhouses
Ecology Facility Site ID: 67887948

To Whom It May Concern:

The Department of Ecology (Ecology) will conduct a site hazard assessment (SHA) of Harrington Beall Greenhouses, 18527 Beall Road S.W., Vashon, WA 98070, under the Model Toxics Control Act (MTCA), Chapter 173-340-320 WAC. This site has been on Ecology's Confirmed and Suspected Contaminated Sites List, awaiting assessment, since November 11, 1998. This assessment will be performed by Carsten Thomsen, Public Health – Seattle & King County. He will contact you in the near future to arrange a suitable time for a site visit, as appropriate.

The purpose of an SHA is to gather information on past/present waste management activities, along with other basic site-specific environmental data, in order to score the site following the Washington Ranking Method (WARM) Scoring Manual guidelines. Potential/actual threats to human health and the environment are evaluated for each applicable migration route, with a resultant "hazard ranking" for the site determined.

Sites are ranked on a scale of one to five, with one representing the highest level of concern, and five the lowest, relative to all other assessed/ranked sites in the state. The level of relative concern may be such that a recommendation of "No Further Action" (NFA) is made, and your site will then be removed from Ecology's Integrated Site Information System (ISIS) list.

For your information, Ecology will publish a notice in an upcoming issue of the Site Register that an SHA is scheduled for this site. This notice may evoke media inquiries. Likewise, the outcome of the SHA, either as a ranked site or a determination as NFA, will be published in the Site Register.

In addition to any required fieldwork, the following information will be considered in scoring this site:

- Ecology Northwest Regional Office Site Files
- Public Health – Seattle & King County Site Files

You are requested to submit any additional environmental information regarding this site to:

Mr. Carsten Thomsen
Environmental Health
Public Health – Seattle & King County
999 Third Avenue, Suite 700
Seattle, WA 98104-4099

Additional data could include any environmental assessments or laboratory analyses which have been conducted regarding this site and which have not previously been submitted to Ecology. Every attempt will be made to obtain the most recent and accurate data for scoring your site. If you have better information or comments on the adequacy of the data we already have, please let us know as soon as possible. The final site rank and eventual site priority will be based primarily on the information used in the scoring. Your active participation in the assessment and scoring process is important to insure that only the best data available is used.

Fact sheets describing Site Hazard Assessments, the Washington Ranking Method and the Hazardous Sites List are enclosed for your information, as well as a copy of the ISIS Site Data Summary Sheet for this site. If you have any questions please call me at (360) 407-7195 or Carsten Thomsen at (206) 296-4830.

Sincerely,

Michael J. Spencer
Site Hazard Assessments
Toxics Cleanup Program

MJS:ms
Enclosures (4)

cc: Carsten Thomsen, Public Health – Seattle & King County
Louise Bardy, Ecology Northwest Regional Office

Public Health
Seattle & King County

HEALTHY PEOPLE. HEALTHY COMMUNITIES.

Dorothy F. Teeter, MHA, *Interim Director and Health Officer*

July 26, 2006

Scarlett & Nancy Foster-Moss
P.O. Box 622
Vashon, WA 98070

Dear Ms. Foster-Moss and Ms. Foster-Moss:

Public Health-Seattle & King County has completed the site hazard assessment (SHA) of the Harrington Beall Greenhouses site, as required under the Model Toxics Control Act. This site's hazard ranking, an estimation of the potential threat to human health and/or the environment relative to all other Washington state sites assessed at this time, has been determined to be a 2, where 1 represents the highest relative risk and 5 the lowest.

For your information, Ecology will be publishing the ranking of this and other recently assessed sites in the August 23, 2006 Special Issue of the Site Register. The site hazard ranking will be used in conjunction with other site-specific considerations in determining Ecology's priority for future actions.

Please contact me at (206) 296-4830 if you have any questions relating to the SHA of your site. If you have any inquiries/comments about the site scoring/ranking process, please call Michael Spencer at (360) 407-7195. For inquiries regarding any further activities at your site now that it is on Ecology's Hazardous Sites List, please call Louise Bardy at (425) 649-7209.

Sincerely,

Carsten Thomsen

Carsten Thomsen
Health and Environemental Investigator III

CT:sf

cc: Michael Spencer, Washington Department of Ecology
Louise Bardy, Washington Department of Ecology

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