STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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August 8, 2013

Mr. Len Waclawski
Walgreens Co
300 Wilmont Rd
Deerfield, IL 60015

Re: SITE HAZARD ASSESSMENT: Facility Site ID 6819
The Tux Shop
5409 15th Ave NW
Seattle, WA 98107
Property Tax # 2767701290
Cleanup Site ID 1450

Dear Mr. Waclawski:

The Washington State Department of Ecology (Ecology) is writing to inform you that the above referenced property was subject to a site hazard assessment (SHA) as required under the Model Toxics Control Act, on 6/28/2013. The site was determined to be contaminated with tetrachloroethene, trichloroethylene, cis-1,2-dichloroethylene, vinyl chloride. The 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 by Ecology to be a 5, where a 1 represents the highest relative risk and 5 the lowest.

For your information, Ecology will be publishing ranking of this, and other recently assessed sites, in the August 2013 Special Issue of the Site Register. The hazard ranking will be used in conjunction with other considerations in determining Ecology's priority for future action at this site.

For inquiries regarding what may occur with your site now that it is on Ecology's Hazardous Sites List please contact Donna Musa at (425) 649-7136 or donna.musa@ecy.wa.gov.

Sincerely,

Donna Musa
Site Hazard Assessments
Toxics Cleanup Program

cc: Ted Benson, Ecology (ted.benson@ecy.wa.gov)

SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

SITE INFORMATION:

Cleanup Site ID: 1450

The Tux Shop

Facility/Site ID: 6819

5409 15th Ave NW

Seattle, King County, WA 98107

Section:	11	Latitude:	47.66845
Township:	25N	Longitude:	-122.37654
Range:	3E	Tax/Parcel ID:	2767701290

Site Scored/ranked for the August 2013 Hazardous Sites List Publication

SITE DESCRIPTION:

The The Tux Shop site is a former tuxedo retail center located in Seattle, King County, Washington. The 0.82-acre property is located approximately 2,100 feet from Salmon Bay (Lake Washington Ship Canal), and zoned for commercial (C1-65) use.

The property is bound on three sides by public streets and to the west by a Seattle Fire Department station. Properties surrounding the former Tux shop are generally used for commercial purposes with some residential properties located southwest of the site along NW 54th Street. The eastern portion of the site formerly contained a Unocal service station, which was decommissioned in 1993.

The site is currently operated as a Walgreens retail center by Walgreens Company.

Current activities at the site include commercial retail and automobile parking.

The site is located on the corner of Northwest Market Street and 15th Avenue NW in the Ballard neighborhood of Seattle, Washington.

SITE BACKGROUND:

A summary of prior operations/tenants at the subject property is presented below.

From	To	Operator/Tenant	Activity
1950	1993	The Tux Shop	Retail tuxedo services / tuxedo dry cleaning
1997	2013	Walgreens	Retail

SITE CONTAMINATION:

In 1996 the The Tux Shop site was reported to Washington Department of Ecology and placed on the TCP/ERTS list with ID number 424110.

During site characterization activities conducted by Unocal (adjacent property) in 1990, tetrachloroethene (PCE) and several other chlorinated solvents were detected in shallow groundwater beneath the property. Following the PCE detection, The Tux Shop and the FN&F Investment Company initiated a site characterization investigation to evaluate the extent of the PCE release in soil and shallow groundwater.

The presence of chlorinated solvents at the site appears to be associated with dry cleaning operations that were formerly conducted on the western portion of the property (The Tux Shop). PCE is the predominant chlorinated solvent detected at the site (up to 100 mg/L in groundwater and 6.9 mg/kg in soil). Tricholorethene, 1,2-dichloroethene, and vinyl chloride were observed in groundwater at much lower concentrations than PCE (up to 1.1, 0.32, and 0.06 mg/L, respectively).

The highest PCE concentrations in soil and groundwater occurred in the vicinity of a sump (sewer drain) located immediately south of the former Tux Shop building. However, no historical records exist regarding the discharge

of solvents into the sump.

In an additional site characterization report, PCE concentrations were detected in soil vapor at concentrations ranging from 0.092 to 5.8 ppm.

In a Phase II Remedial Investigation conducted at a Wendy's restaurant located downgradient (south), a groundwater monitoring well (MW-4) at the Wendy's site contained PCE, TCE, and 1,4-dichlorobenzene at concentrations above MTCA Method A and B cleanup levels, confirming the solvent plume has migrated beyond the property boundary, and across NW 54th Street from the Tux Shop.

PAST REMEDIATION ACTIVITIES:

An air sparging / soil vapor extraction system (AS/SVE) was installed at the site and operation began in May 1997. Condensate water generated during initial system operation (approximately 3 months) was sampled to contain PCE at a concentration of 3.9 ug/L.

Documentation on system performance is not available. Documentation of groundwater/soil sampling following system operations is not available in Ecology's files.

CURRENT SITE CONDITIONS:

No soil/groundwater analytical data following operation of the AS/SVE system is on file. Current chlorinated solvent concentrations in soil and groundwater are unknown.

Tetrachloroethene, trichloroethene, 1,2-dichloroethene, and vinyl chloride have been documented to be above MTCA Method A cleanup levels for groundwater. Tetrachloroethene has been documented to be above MTCA Method A cleanup levels for soil.

The approximate depth to groundwater is 15 feet below ground surface, with groundwater flowing to the southeast toward the former Unocal portion of the site. Subsurface soils are sands and silts.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for WARM scoring

☐ **Surface Water**

Release occurred in the subsurface.

☑ **Air**

Volatile organic compounds in shallow subsurface soil.

☑ **Groundwater**

Volatile organic compounds in shallow groundwater and soil.

An AS/SVE system was installed and began operating in May 1997. The duration of system operation is unknown. Remedial system performance reports are not available in Ecology's files.

ROUTE SCORES:

Surface Water/ Human Health:		Surface Water/ Environment:	
Air/ Human Health:	8.8	Air/ Environment:	0.3
Groundwater/ Human Health:	35.3		

Overall Rank: 5

SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

REFERENCES:

Hart Crowser, 1995. Proposed Cleanup Action; Former Tux Shop Site. December 1995.

Hart Crowser, 1997. Treatment and Disposal of Sparging/Vapor Extraction Condensate Water; Former Tux Shop Site. August 1997.

WARM Toxicological Database

WARM Scoring Manual

Washington Department of Transportation 24-hour Isopluvial Maps, January 2006 update. http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIspoluvials.pdf

King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed January 2013. http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx

National Climatic Data Center 2011 Local Climatological Data for Seattle, Seattle Tacoma Airport. http://www1.ncdc.noaa.gov/pub/orders/IPS-90B1F39F-6CFA-4A6B-AA82-5ED1FF897CCC.pdf

Washington State Department of Health Source Water Assessment Maps. March 2011 update. https://fortress.wa.gov/doh/eh/dw/swap/maps/

Ecology Water Resources Explorer, accessed January 2013. https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx

FEMA Map Service Center, accessed January 2013. https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. Http://mcdc.missouri.edu/websas/caps10c.html. Accessed February 2013

SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 1450 The Tux Shop

Facility/Site ID: 6819

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

Not applicable

Explain the basis for choice of substances to be used in scoring:

List those management units to be considered for scoring:

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

2. AIR ROUTE

List those substances to be considered for scoring:

Tetrachloroethene, Trichloroethylene, 1,2-dichloroethylene; cis, vinyl chloride

Explain the basis for choice of substances to be used in scoring:

Presence in shallow subsurface soil and groundwater

List those management units to be considered for scoring:

Soil vapor

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

Presence in shallow subsurface soil and groundwater

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

Tetrachloroethene, trichloroethene, 1,2-dichloroethene, and vinyl chloride

Explain the basis for choice of substances to be used in scoring:

Last reported concentrations in groundwater and soil above MTCA Method A Cleanup levels

List those management units to be considered for scoring:

Groundwater

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

Most recent analytical results (1995) above MTCA Method A cleanup levels

Worksheet 5

Air Route

CSID: 1450 **Site Name:** The Tux Shop

1.0 Substance Characteristics

1.1 Introduction (WARM Scoring Manual) - Please Review before scoring

1.2 Human Toxicity

Substance	Ambient Air Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Tetrachloroethene (PCE)	9	X	X	X
Trichloroethylene (TCE)	10	3	X	4
1,2-dichloroethylene; cis (DCE-cis)	1	3	X	X
Vinyl chloride	10	1	X	X

Highest Value 10

Bonus Points? 2

Toxicity Value 12

1.3 Mobility

Gaseous Mobility	Max Value:	4
Particulate Mobility	Soil Type:	
	Erodibility:	
	Climatic Factor:	

Mobility Value 4

1.4 Final Human Health Toxicity/Mobility Matrix Value **HH Final Matrix Value** 24

1.5 Environmental Toxicity/Mobility

Substance	Non-human Mammalian Inhalation Toxicity (mg/m3)	Acute Value	Mobility Value	Table A-7 Matrix Value
Trichloroethylene (TCE)	15583	3	4	6
1,2-dichloroethylene; cis (DCE-cis)	65000	3	4	6
Vinyl chloride	460123	1	4	2

Env. Final Matrix Value 6

1.6 Substance Quantity

Amount: 2160 sq ft

Basis: Estimated surface area of impacted soil based on soil and vapor sample data.

Substance Quantity Value 4

Worksheet 5

Air Route

CSID: 1450 **Site Name:** The Tux Shop

2.0 Migration Potential

2.1 Containment Containment Value 0

Explain Basis: Assume SVE system is functional

3.0 Targets

3.1 Nearest Population Population Distance Value 10

within 500 ft

3.2 Distance to and name of nearest sensitive environments Sensitive Environment Value 6

Gilman playground = 1500 ft

3.3 Population within 0.5 miles Population Value 75

8555 population

4.0 Release Release to Air Value 0

Explain basis for scoring a release to air:

Pathway Scoring - Air Route, Human Health Pathway

$AIR_H = (SUB_{AH}*60/329)*[REL_A+(TAR_{AH}*35/85)]/24$

Where:

SUB_{AH} =(Human toxicity + 5) * (Containment + 1) + Substance Qty	SUB_{AH}	33
REL_A = Release to Air	REL_A	0
TAR_{AH} = Nearest Population + Population within 1/2 mile	TAR_{AH}	85
	AIR_H	8.8

Pathway Scoring - Air Route, Environmental Pathway

$AIR_E = (SUB_{AE}*60/329)*[REL_A+(TAR_{AE}*35/85)]/24$

Where:

SUB_{AE} =(Environmental Toxicity Value +5)*(Containment +1) +Substance Qty	SUB_{AE}	15
REL_A = Release to Air	REL_A	0
TAR_{AE} = Nearest Sensitive Environment	TAR_{AE}	6
	AIR_E	0.3

Worksheet 6

Groundwater Route

CSID: 1450 **Site Name:** The Tux Shop

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Tetrachloroethene (PCE)	8	5	3	4
Trichloroethylene (TCE)	8	3	X	4
1,2-dichloroethylene; cis (DCE-cis)	6	X	3	X
Vinyl chloride	8	5	X	7

Highest Value 8

Bonus Points? 2

Toxicity Value 10

1.2 Mobility

Cations/Anions Max Value:

Solubility Max Value: 3 Mobility Value 3

1.3 Substance Quantity

Amount: 640 cu. Yds.

Basis: Estimated volume of contaminated soil

Substance Quantity Value 3

2.0 Migration Potential

2.1 Containment Containment Value 10

Explain Basis: contaminated soil

2.2 Net Precipitation 10-20 inches Net Precipitation Value 2

2.3 Subsurface Hydraulic Conductivity Conductivity Value 3

sands and silts

2.4 Vertical Depth to Groundwater Depth to Aquifer Value 8

Confirmed release to groundwater

3.0 Targets

3.1 Groundwater Usage Aquifer Use Value 2

irrigation

3.2 Distance to Nearest Drinking Water Well Well Distance Value 0

Not used for drinking water

3.3 Population Served within 2 Miles Population Served Value 0

0 people

Worksheet 6

Groundwater Route

CSID: 1450 **Site Name:** The Tux Shop

3.4 Area Irrigated by GW Wells within 2 miles Area Irrigated Value 0.75

1 acres no actual acreage reported; assume no more than 1 acre

4.0 Release Release to Groundwater Value 5

Explain basis for scoring a release to groundwater:

Confirmed release to groundwater

Pathway Scoring - Groundwater Route, Human Health Pathway

$GW_H = (SUB_{GH}*40/208)*[(MIG_G*25/17)+REL_G+(TAR_{GH}*30/165)]/24$

Where:

SUB_{GH} =(Human toxicity + mobility + 3) * (Containment + 1) + Substance Qty	SUB_{GH}	179
MIG_G=Depth to Aquifer+Net Precip + Hydraulic Conductivity	MIG_G	13
REL_G = Release to Groundwater	REL_G	5
TAR_{GH} = Aquifer Use + Well Distance + Population Served + Area Irrigated	TAR_{GH}	2.75
	GW_H	35.3

Legend:

- Property Location (approximate)
- Sump Excavation Location (approximate)
- Former Building Location (approximate)

Notes:

1. All locations are approximate, and not to scale.

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The Tux Shop
5409 15th Avenue NW
Seattle, WA 98107

DEPARTMENT OF ECOLOGY
State of Washington

Site Overview Map

CSID 1450
CSID1450.vsd

Washington Ranking Method
Route Scores Summary and Ranking Calculation Sheet

Site Name: The Tux Shop **CSID:** 1450

Site Address: 5409 15th Ave NW **FSID:** 6819

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	8.8	2
Groundwater	35.3	3

H=	3
M=	2
L=	0

$$\frac{H^2 + 2M + L}{8} = \frac{9 + 4 + 0}{8}$$

Human Health Priority Bin Score: **2**

rounded up to next whole number

ENVIRONMENT ROUTE SCORES

Enter Environment Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	0.3	1

H=	1
L=	0

$$\frac{H^2 + 2L}{7} = \frac{1 + 0}{7}$$

Environment Priority Bin Score: **1**

rounded up to next whole number

Comments/Notes:

FINAL MATRIX RANKING **5**

FOR REFERENCE:

Final WARM Bin Ranking Matrix

Human Health Priority	Environment Priority 5	4	3	2	1	N/A
5	1	1	1	1	1	1
4	1	2	2	2	3	2
3	1	2	3	4	4	3
2	2	3	4	4	5	3
1	2	3	4	5	5	5
N/A	3	4	5	5	5	NFA

Quintile Values for Route Scores - February 2013 Values

Quintile	Human Health: Surface Water	Human Health: Air	Human Health: Ground Water	Environment: Surface Water	Environment: Air
5	>= **27.0**	>= **32.0**	>= **50.1**	>= **47.0**	>= **32.0**
4	>= **18.5**	>= **21.1**	>= **40.4**	>= **30.3**	>= **26.1**
3	>= **12.4**	>= **13.1**	>= **31.6**	>= **21.4**	>= **21.1**
2	>= **7.5**	>= **7.1**	>= **22.4**	>= **11.0**	>= **14.6**
1	< **7.5**	< **7.1**	< **22.4**	< **11.0**	< **14.6**

Quintile value associated with each route score entered above