CSID 923

WORKSHEET 1
SUMMARY SCORE SHEET

September 20, 2001

Site was assessed for the February, 2002, Update.

Site Name/Location (Street, City, County, Section /Township/Range, ID Number):

Airport Auto Wrecking I
6504 Old Clifton Road
Port Orchard, WA 98367

Township:	23N
Range:	1W
Section:	13
Longitude:	122° 44' 36.35"
Latitude:	47° 29' 45.6"

Facility Site ID: 2646

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

This site was listed on the Washington State Department of Ecology's (Ecology) Integrated Site Information System (ISIS) list on June 19, 1995, after an initial investigation (II) performed by Ecology. The investigation noted management practices on site leading to the confirmed release of petroleum products, and the suspected release of halogenated organics, metals, PAHs, and conventional organic compounds. The site is currently an operational auto salvage yard. Research has revealed that the auto wrecking operations have been occurred at the property from the early 1960's until present.

In preparation for conducting a site hazard assessment (SHA) for the Airport Auto Wrecking, a site visit was conducted by the Health District on July 20, 2001. This site visit gave Health District staff a familiarity with the site, nearby drinking water well locations, and surface water flow directions. The soil at the site is low permeability glacial till and the site is largely flat. The wrecking yard is surrounded by predominantly forested property in a rural residential setting. During this visit it was noted that some of the contamination problems noted during the II had been addressed. In the vicinity there are federally designated wetlands and fisheries resources.

The site contains a large auto hulk storage yard, an old engine core pile, a car crushing area, waste oil storage tanks, and a covered auto working area. The only paved area is the pad in front of the covered garage and storage shed area. During site inspections and the sampling event, petroleum stained soil was noted in many areas, inappropriately stored waste oil, gasoline, and batteries were noted also. Sampling took place in areas with noted contamination and other highly suspect historic spill areas.

Sample results from the site which were above MTCA Method A Unrestricted Land Use standards are below:

Soil Sample ID	Parameters					
	Metals	MTCA Standard	TPH-D,O	MTCA Standard	SVOCS	MTCA Standard
AAW1	-	-	4700 ppm	2,000 ppm	Bis(2-ethylhexyl)phthalate - 24 ppm pyrene – 2.9 ppm 2-methyl napthalene – 3.3 ppm	1.0 ppm
AAW2	-	-	-	-	Di-n-butyl phthalate – 8.0 ppm Butyl benzenyl phthalate – 18.0 ppm Bis(2-ethylhexyl)phthalate - 2.6 ppm	1.0 ppm
AAW3	-	-	4460 ppm	2,000 ppm	Napthalene - 3.7 ppm 2-methyl napthalene – 12 ppm Acenaphthylene – 1.1 ppm Fluorene – 4.4 ppm Phenanthrene – 9.8 ppm Anthracene – 2.3 ppm Fluoranthrene – 3.3 ppm Pyrene – 18 ppm Benzo(a)anthracene – 2.0 ppm Chrysene – 1.7 ppm Bis(2-ethylhexyl)phthalate – 28 ppm Benzo(k)fluoranthrene – 1.7 ppm Benzo(g,h,i)perlyene – 1.3 ppm	1.0 ppm
AAW4	-	-	2270 ppm	2,000 ppm	Bis(2-ethylhexyl)phthalate– 1.3 ppm	1.0 ppm
AAW5	Lead – 346 ppm	250 ppm	6160 ppm	2,000 ppm	Pyrene – 1.0 ppm Bis(2-ethylhexyl)phthalate – 15 ppm	1.0 ppm

Within 2 miles of the site there are both Group A and B public water supply systems and many private wells. The Group A Sunnyslope Water System serves 970 persons. The three (3) Group B water systems serve an estimated 42 persons and the private wells serve an estimated 132 persons. Local drinking water wells are established in deep (>300') aquifers with aquitards above these water-bearing layers.

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):

No surface water samples were collected as there are no stormwater conveyances or surface water bodies to sample on or near the site.

Because lead was found in only one sample above the MTCA Method A Cleanup Standard, the groundwater mobility score was based on the Total Petroleum Hydrocarbons detected in all soil samples.

The substance quantity score in all three routes was scored as unknown. This is due to the site's large area, previous inspections, and historic and current management practices. Other areas of contaminated soil may exist at the site.

PATHWAY SCORES:

Surface Water/Human Health:	27.59	Surface Water/Environ:	38.17
Air/Human Health:	9.92	Air/Environmental:	20.74
Groundwater/Human Health:	21.00		

OVERALL RANK: 2

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE -

List those substances to be considered for scoring: Source: 1

TPH-D, lead, anthracene, fluorene, phenanthrene, pyrene

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

Analytical results from soil samples above MTCA Method A Unrestricted Land Use cleanup standards.

List those management units to be considered in scoring: Source: 1

Contaminated soils.

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

Spills and releases to ground surface at site resulting in contaminated soils.

2. AIR ROUTE

List those substances to be considered for scoring: Source: 1

TPH-D, lead, anthracene, fluorene, phenanthrene, pyrene

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

Analytical results from soil samples above MTCA Method A Unrestricted Land Use cleanup standards.

List those management units to be considered in scoring: Source: 1

Contaminated soil.

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

Spills and releases to ground surface at site resulting in contaminated soils. No controls to mitigate particulate mobility and/or vapors from contaminants.

WORKSHEET 2 (CONTINUED)
ROUTE DOCUMENTATION

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 1

TPH-D, lead, anthracene, fluorene, phenanthrene, pyrene

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

Analytical results from soil samples above MTCA Method A Unrestricted Land Use cleanup standards.

List those management units to be considered in scoring: Source: 1

Contaminated soil contacting groundwater.

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

Spills and releases to ground surface at site resulting in contaminated soils.

WORKSHEET 4
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.	Carcinogenicity WOE	PF	Val.
TPH-D	20	6	490	5	0.004	3	-	-	ND
lead	5	8	-	ND	-	ND	B2	ND	ND
anthracene	-	ND	-	ND	0.3	1	-	-	ND
fluorene	0.2	10	-	ND	0.04	1	-	-	ND
phenanthrene	0.2	10	-	ND	-	ND	-	-	ND
pyrene	0.2	10	2700	3	0.03	1	-	-	ND

Source: 1, 4

Highest Value: 10

2 Bonus Points? 2

Final Toxicity Value **12**

1.2 Environmental Toxicity

(X) Freshwater
( ) Marine

Substance	Acute Criteria (ug/l)	Val.	Non-human Mammalian Acute Toxicity (mg/kg)	Val.
TPH-D	2300	2		
lead	82	6		
anthracene	-	ND	-	ND
fluorene	-	ND	-	ND
phenanthrene	-	ND	-	ND
pyrene	-	ND	2700	3

Source: 1, 4 Value: 6

1.3 Substance quantity Source: 1 Value: 1

Explain basis: Unknown volume of contaminated soils within 11 acre property parcel

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 1, 3 Value: 10

Explain basis: spills and discharges at the surface with no run-on/run-off controls

2.2 Surface Soil Permeability: sandy clay loam, very low perm. Source: 1, 3, 8 Value: 7

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

2.3 Total Annual Precipitation: 56 inches/year — Source: 5A Value: 4

2.4 Max. 2-Yr/24-hour Precipitation: 3.1 inches — Source: 5a Value: 3

2.5 Flood Plain: Not in a flood plain — Source: 1, 6 Value: 0

2.6 Terrain Slope: 0-2% — Source: 6 Value: 1

3.0 TARGETS

3.1 Distance to Surface Water: (1,000-2,500 feet) — Source: 1 Value: 7

3.2 Population Served within 2 miles: None. — Source: 6 Value: 0

3.3 Area Irrigated within 2 miles: None. Due to heavy rainfall in the area — Source: 1 Value: 0

3.4 Distance to Nearest Fishery Resource: 5,700 ft — Source: 7 Value: 3

3.5 Distance to, and Name (s) of, nearest Sensitive Environment (s) : wetlands <1,000 feet — Source: 7 Value: 12

4.0 RELEASE

Explain basis for scoring a release to surface water: — Source: 1 Value: 0
No confirmed release to surface water

WORKSHEET 5
AIR ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction (WARM Scoring Manual) - Please review before scoring.

1.2 Human Toxicity

Substance	Air Standard (ug/m3)	Val.	Acute Toxicity (mg/kg)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcinogenicity WOE	PF	Val.
TPH-D	166.5	4	-	ND	-	ND	-	-	ND
lead	0.5	10	-	ND	-	ND	B2	-	ND
anthracene	-	ND	-	ND	-	ND	-	-	ND
fluorene	-	ND	-	ND	-	ND	-	-	ND
phenanthrene	-	ND	-	ND	-	ND	-	-	ND
pyrene	-	ND	170	4	-	ND	-	-	ND

Source: 4
Highest Value: 10
2 Bonus Points?
Final Toxicity Value **10**

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

1.3.1 Gaseous Mobility — Source: 3 Value: 3

Vapor Pressure: TPH-D 3
anthracene 2

1.3.2 Particulate Mobility — lead — Source: 3 Value: 1

Soil type: sandy loam
Erodibility: 86
Climactic Factor: 1-10

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

1.5 Environmental Toxicity/Mobility — Source: 4

Substance	Non-human Mammalian Acute Toxicity (mg/m3)	Value	Mobility Value	Matrix Value
pyrene	170	4	1	2

1.5 Highest Environmental Toxicity/Mobility Matrix Value (from Table A-7) equals
Final Matrix Value 2

1.6 Substance Quantity: Source: 1 Value: 1
Explain basis unknown volume of contaminated soils on site

WORKSHEET 5 (CONTINUED)
AIR ROUTE

2.0 MIGRATION POTENTIAL

2.1 Containment: contaminated soil with no cover and no vapor collection system — Source: 3 Value: 10

3.0 TARGETS

3.1 Nearest Population: <1,000 feet — Source: 3,7 Value: 10

3.2 Distance to, and Name (s) of, Nearest Sensitive Environment (s) — Source: 1,3,7 Value: 7

wetlands >1,000 feet

3.3 Population within 0.5 miles: — Source: 7 Value: 16

85 homes at 3 people per home = 255 persons
square root of 255 = 16 persons

4.0 RELEASE

Explain basis for scoring a release to air: No confirmed release — Source: 1,3 Value: 0

WORKSHEET 6
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)	Carcinogenicity Val.	WOE	PF	Val.
TPH-D	20	6	490	5	0.004	3	-	-	ND
lead	5	8	-	ND	-	ND	B2	ND	ND
anthracene	-	ND	-	ND	0.3	1	-	-	ND
fluorene	0.2	10	-	ND	0.04	1	-	-	ND
phenanthrene	0.2	10	-	ND	-	ND	-	-	ND
pyrene	0.2	10	2700	3	0.03	1	-	-	ND

Source: 1,3,4
Highest Value: 10
2 Bonus Points? 2
Final Toxicity Value: 12

1.2 Mobility (Use numbers to refer to above listed substances) Source: 3,4 Value: 1

Solubility	TPH-D	1
	anthracene	0
	fluorene	0
	phenanthrene	0
	pyrene	0

1.3 Substance Quantity unknown quantity of contaminated soils 1,3 Value: 1
Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment contaminated soil at surface Source: 1,3 Value: 10
Explain basis: no controls to prevent migration

2.2 Net Precipitation: Total (42) - Evap (20) = 26 inches Source: 2,3,5C Value: 3

2.3 Subsurface Hydraulic Conductivity: low permeabililty till Source: 3,8 Value: 1

2.4 Vertical Depth to Ground Water: >300 Source: 3,9 Value: 1

WORKSHEET 6
GROUND WATER ROUTE (CONTINUED)

3.0 TARGETS

3.1 Ground Water Usage:Public and private supplies with alternates available Source: 3,7,9 Value: 4

3.2 Distance to Nearest Drinking Water Wel > 1,300 -2,640 feet Source: 3,7,9 Value: 3

3.3 Population Served within 2 Miles: square root of 1144 = 34 Source: 3,7,9 Value: 34
Sunnyslope Group A Water System - 970 people on public water
3 Group B Water Systems - 14 connections * 3 people each = 42 people
44 private wells at 3 persons per well = 132 people on private water
square root of 1144 = 34

3.4 Area Irrigated by (Groundwater) Wells NO AREA IRRIGATED Source: NA Value: 0
within 2 miles:

4.0 RELEASE
Explain basis for scoring a release to ground water: Source: 1,3 Value: 0
No confirmed release

Sources Used in Scoring

1. Bremerton-Kitsap County Health District SHA investigation site visits and sampling event

2. Kitsap County Stormwater Management Ordinance and Design manual, April 1997.

3. Washington Department of Ecology, WARM Scoring Manual, April, 1992.

4. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January, 1992.

5A. Kitsap County Groundwater Management Plan, Volume I, July 1989.
5B. Kitsap County Groundwater Management Plan, Volume II, April 1991.
5C. Kitsap County Groundwater Management Plan, Volume III, April 1996

6. BKCHD GIS system for Kitsap County topographic information

7. EPA Site Info, April 2001

8. Soil Survey of Kitsap County Area, WA, United States Department of Agriculture, Soil Conservation Service, September 1980

9. Bremerton-Kitsap County Health District Well Log Database, 2001

10. Washington State Department of Ecology, Model Toxics Control Act Cleanup Levels and Risk Calculations Update February 1996.

PATHWAY SCORING FORMULAE WITH WEIGHTING AND NORMALIZATION FACTORS

Air Route - Human Health Pathway

AIR = (SUB X 60/329) X {REL + (TAR X 35/85} / 24 = **9.92**

where AIR = Pathway score for Air-Human Health =

SUB = (Human Toxicity Value + 5) X (Containment +1) + Substance Quant = 122

REL = Release to Air = 0

TAR = Nearest population + Population within 1/2 mile = 26

Air Route - Environmental Pathway

AIR = (SUB X 60/329) X {REL + (TAR X 35/85} / 24 = **20.74**

where AIR = Pathway score for Air-Environmental =

SUB = (Env. Toxicity Value + 5) X (Containment +1) + Substance Quantity = 78

REL = Release to Air = 0

TAR = Nearest Sensitive Environment = 7

Surface Water Route - Human Health Pathway

SW = (SUB X 40/175) X {(MIG X 25/24)) + REL + (TAR X 30/115)} / 24 = **27.59**

where SW = Pathway Score for Surface Water-Human Health =

SUB = (Human Toxicity + 3) X (Containment + 1) + Substance Quantity = 166

MIG = Soil Permability + Annual Precip. + Rainfall Frequency + Floodplain + Slope = 15

REL = Release to the Surface Water = 0

TAR = Distance to Surface Water + Population Served by Surface Water + Area Irrigated = 7

Table 2 (Continued)

Surface Water Route - Environmental Pathway

SW = (SUB X 40/175) X {(MIG X 25/24)) + REL + (TAR X 30/115)} / 24 = 38.17

where SW = Pathway Score for Surface Water-Environmental =

SUB = (Env. Toxicity + 3) X (Containment + 1) + Substance Quantity = 100

MIG = Soil Permability + Annual Precip. + Rainfall Frequency + Floodplain + Slope = 15

REL = Release to the Surface Water = 0

TAR = Distance to Nearest Surface Water + Distance to Fisheries Resource + Distance to Sensitive Environment = 22

Ground Water Route - Human Health Pathway

GW = (SUB X 40/208) X {(MIG X 25/17) + REL + (TAR X 30/165)} / 24 = 21.00

GW = Pathway Score For Ground Water-Human Health =

SUB = (Human Toxicity + Mobility + 3) X (Containment + 1) + Substance Quantity = 177

MIG = Depth to Aquifer + Net Precipitation + Hydraulic Conductivity = 5

REL = Release to the Ground Water = 0

TAR = Aquifer Use + Well Distance + Population Served + Area Irrigated = 41