Map I-27. Stormwater drainage lines on the Jorgensen Forge facility and along the Boeing Plant 2/Jorgensen Forge boundary.

Source: Ecology and Environment (2007b)
Wind

Outfalls shown were identified during a City of Seattle low-tide survey in 2003 (Herrera 2004). Some locations were later surveyed using a high-resolution orthoimage of the Puget Sound region from the Federal Geographic Data Committee (FGDC) website. Photo source: USGS High-Resolution Orthoimage, Seattle/Tacoma, WA, USGS, 2003. Distributed by King County GIS. Photo date 06/11/2002.

Environmental

Prepared by CEH, 07/13/2010; MAP 3014; W:\Projects\00-08-06_Duwamish_RI\data\gis\Phase2 RI\Source Control\Appendix I

Chemical

SQS and CSL exceedances are reported only for detected concentrations, reporting limits for undetected chemicals that were above the SQS or CSL are not included. When OC normalizations were not appropriate because TCC content was ≤ 2% of HHAs at 15 cm below mudline, these locations are compared instead to the LAET and 2LAET.

Chemicals in red exceeded CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for the chemicals shown. Surface sediment samples were collected at depths ≤ 15 cm below mudline.

ne - no exceedance

SQS/CSL categories for all chemicals within the 2006 SCA boundary

- CSL, detect
- > SGS and ≤ CSL, detect
- > SGS and > CSL, non-detect
- ≤ SGS, detect and non-detect

Surface sediment sampling location outside the 2008 SCA boundary

- Subsurface sediment sampling location
- EOF/storm drain
- Permitted private storm drain
- Pipe of unresolved origin and/or use
- Abandoned
- Labeled facilities are associated with the SCA; facilities also outlined in orange are SCA-associated facilities that are discussed in text and tables because they are either also outlined in orange or are located upland and have source-tracing data.

River mile
- Navigation channel
- Former Slip 5 (1949)

* The early action area boundary is preliminary and has not been finalized by EPA and Ecology.
* Boundary shown is based on Ecology and SAVC (2008).

Map I-28. Surface sediment and drainage basin information for the Boeing Isaacson/ Central KCIA SCA
An X indicates that source documents reported that data are available or the existence of data was implied for the
identified media; however, the analytical data may not have been included in the source documentation. Absence of
an X does not necessarily indicate that facility-specific data for that media type do not exist.

Facilities listed are those identified in the data gaps report (SAIC 2009b) and draft SCAP (Ecology 2009a) with
relevant source control information.

No porewater data were identified in the source documents for any facility.

The presence of stormwater data collected from the Boeing Isaacson facility was reported in the draft SCAP
(Ecology 2009a); however, actual data were not presented in the source documents.

Major outfalls listed are those discussed as individual source control entities in the source documentation.

na - not applicable

**Table:**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Soil</th>
<th>Groundwater</th>
<th>Porewater</th>
<th>Stormwater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boeing Isaacson</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Boeing Thompson</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>KCIA (central drainage basin)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**

- Source-tracing sampling location
- Private mainline
- Public mainline
- Public lateral line
- KCIA SD No. 2 / PS78 ECWF drainage basin
- Source-Tracing Data
- SQS/CSL categories for all chemicals within the 2008 SCAs boundary
  - CWS, detect
  - CWS and smaller CWS, detect
  - CWS, non-detect
  - CWS, detect and non-detect
- Surface sediment sampling location
- outside the 2008 SCAs boundary
- Subsurface sediment sampling location
- EOF/storm drain
- Permitted private storm drain
- Pipe of unresolved origin and/or use
- Tax parcel
- SCA-associated property
- SAC boundary
- 2008 SCA boundary
- River mile
- Navigation channel

**Map:**

- Boeing Isaacson: Soil and groundwater investigations and remedial activities, including soil removal and smoke soil
treatment and capping, were conducted throughout the drainage basin, and source control practices have been conducted
since 1991. An RI/FS will be conducted at the property under a MTCA order. Additional source control investigations may be conducted as part of the RI/FS.

- Boeing Thompson: Soil and groundwater investigations and remedial activities, including soil removal and smoke soil
treatment and capping, were conducted throughout the drainage basin, and source control practices have been conducted
since 1991. An RI/FS will be conducted at the property under a MTCA order. Additional source control investigations may be conducted as part of the RI/FS.

- Boeing Thompson Property

**Figure:**

- KCIA SD No. 2 / Pump Station 78 ECWF
- Several business inspections have been conducted within the drainage basin, and source control sampling has been conducted
inside the 2008 SCA boundary.

- Boeing Isaacson: Soil and groundwater investigations and remedial activities, including soil removal and smoke soil
treatment and capping, were conducted throughout the drainage basin, and source control practices have been conducted
since 1991. An RI/FS will be conducted at the property under a MTCA order. Additional source control investigations may be conducted as part of the RI/FS.

- Boeing Thompson: Soil and groundwater investigations and remedial activities, including soil removal and smoke soil
treatment and capping, were conducted throughout the drainage basin, and source control practices have been conducted
since 1991. An RI/FS will be conducted at the property under a MTCA order. Additional source control investigations may be conducted as part of the RI/FS.

**Note:**

- Box of unresolved origin and/or use
- Source-tracing data.
- Boundary shown is based on Ecology and SAIC (2008).
- The early action area boundary is preliminary and has not been finalized by the EPA and Ecology.
- Sources of information for facilities, outfalls, the drainage basin and for source-tracing sampling samples (Ecology 2009a, SCAP 2008, Schmoyer 2009a, 2009b).
Map I-30. Stormwater drainage lines on the Boeing Thompson and Boeing Isaacson properties

Source: Boeing (2008) as provided in SAIC (2008b)

<table>
<thead>
<tr>
<th>OUTLET LETTER</th>
<th>DRAIN NUMBER</th>
<th>STORM AREA (ACRES)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>1.05</td>
<td></td>
</tr>
</tbody>
</table>
Review of agency files and interviews with agency and LDWG personnel provided additional outfall-specific...locations were field-verified by LDWG members; some additional outfall locations were identified during these subsequent verifications. The outfall layer is meant to serve as a snapshot of outfall conditions at the time the survey was completed (2003).


Tax parcel information was provided in 2008 by SPU and King County. Some tax parcel polygons were edited to conform to the LDW shoreline presentation. A comprehensive survey of property owner records was not conducted.

Analyst: D. Benzo (a,h) anthracene 1.9 ne

Analytes

B E HP 1.6 ne

Dibenz (a, h) anthracene 2.0 ne

acenaphthene 2.9 ne

Indeno (1, 2, 3-cd) pyrene 1.3 ne

ace napht he ne 1.6 ne

Dibenz (a, h) anthracene 2.2 ne

Fluorantrhene 2.1 ne

Dibenz (a, h) anthracene 1.3 ne

Communications in red CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET. Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.

Chemicals in red exceed CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for all analytes, at all concentrations; reporting limits for undetected chemicals are compared instead to the LAET and 2LAET.
Rhône-Poulenc: Environmental investigations involving groundwater, soil, source tracing, air, and seep sampling have been conducted. Remedial actions have included closure and removal of USTs, groundwater extraction, application of oxygen-releasing compound to soils and groundwater, excavation and removal of petroleum contaminated soils, and installation of an Air/SVE system to treat VOCs. The middle outfall (Nos. 2076, 2077) was closed and the complete site m water system was cleaned. An investigation of the north storm drain was completed and the drain was repaired. Stormwater quality improvements were conducted in 2008 and monitoring is ongoing. Planned actions include a soil and groundwater investigation of the southern shoreline and northwest corner, additional sediment coring, and a review of the current O&M plan.

PACCAR: Environmental investigations involving groundwater, soil, source tracing, air, and seep sampling have been conducted. Remedial actions have included closure and removal of USTs, groundwater extraction, application of oxygen-releasing compound to soils and groundwater, excavation and removal of petroleum contaminated soils, and installation of an Air/SVE system to treat VOCs. The middle outfall (Nos. 2084, 2085) was closed and the complete site m water system was cleaned. An investigation of the north storm drain was completed and the drain was repaired. Stormwater quality improvements were conducted in 2008 and monitoring is ongoing. Planned actions include an investigation of shoreline bank contamination, review of the stormwater system, and a review of the current O&M plan.

Environmental investigations involving groundwater, soil, source tracing, air, and seep sampling have been conducted. Remedial actions have included closure and removal of USTs, groundwater extraction, application of oxygen-releasing compound to soils and groundwater, excavation and removal of petroleum contaminated soils, and installation of an Air/SVE system to treat VOCs. The middle outfall (Nos. 2084, 2085) was closed and the complete site m water system was cleaned. An investigation of the north storm drain was completed and the drain was repaired. Stormwater quality improvements were conducted in 2008 and monitoring is ongoing. Planned actions include an investigation of shoreline bank contamination, review of the stormwater system, and a review of the current O&M plan.

Data availability by media type for each facility associated with the Slip 6 SCA

<table>
<thead>
<tr>
<th>Facility</th>
<th>Soil</th>
<th>Groundwater</th>
<th>Seep</th>
<th>Stormwater</th>
<th>Shallow groundwater</th>
<th>Public storm drain</th>
<th>Private storm drain</th>
<th>Public mainline</th>
<th>Public lateral line</th>
<th>Portion of KCIA that drains to Slip 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boeing Developmental Center</td>
<td><img src="image" alt="Boeing Developmental Center" /></td>
<td><img src="image" alt="Boeing Developmental Center" /></td>
<td><img src="image" alt="Boeing Developmental Center" /></td>
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<td><img src="image" alt="Boeing Developmental Center" /></td>
<td><img src="image" alt="Boeing Developmental Center" /></td>
</tr>
</tbody>
</table>

Notes:
- "S" indicates that source-tracing data are not available.
- "X" indicates that data are available or the existence of data was implied for the specified media type.
- An X does not necessarily indicate that facility-specific data for that media type do not exist.

**SQS/CSL categories for all chemicals within the 2008 SCA boundary**
- > CSL, detect
- > SQS and > CSL, detect
- > CSL, non-detect
- > SQS and >= CSL, non-detect
- > SQS, detect and non-detect
- Surface sediment sampling location outside the 2007 and 2008 SCA boundaries
- Porewater sampling location
- Seep sampling location
- Permitted private storm drain
- Private storm drain
- Public storm drain
- Pipe of unresolved origin and/or use
- Abandoned
- Stream, channel, or swale
- Tax parcel
- SCA-associated property
- 2007 SCA boundary
- 2008 SCA boundary
- Navigation channel
- River mile

**Sources of information for facility, outfall, and drainage basin data**
- Ecology and SAIC (2007)
- Ecology and SAIC (2008)
- Sources of information for facility, outfall, and drainage basin data are based on Ecology (2007f).

**Map I-32. Regulatory investigation, remediation, and drainage basin information for the Slip 6 SCA**

- Private mainline
- Public mainline
- Public lateral line
- Portion of KCIA that drains to Slip 6

**Kcia**: One catch basin solids sample was collected in 2004. Airport catch basins have been cleaned semi-annually and airport O/W separators are cleaned annually. Evaluations of the drainage system are planned. An evaluation of joint causation material for PCBs is also planned.

**Sources**
- Boeing Developmental Center: No environmental investigations or remedial actions have been reported within the Slip 6 SCA drainage area. NPDES permit and SWPPP monitoring requirements have been established for this property. An evaluation of the drainage system and the current SWPPP plan is planned.

**Data availability by media type for each facility associated with the Slip 6 SCA**

- Boeing Developmental Center: No environmental investigations or remedial actions have been reported within the Slip 6 SCA drainage area. NPDES permit and SWPPP monitoring requirements have been established for this property. An evaluation of the drainage system and the current SWPPP plan is planned.
Map I-33. Drainage basin for the Slip 6 SCA
Prepared by CEH, 07/13/2010; MAP 3017; W:\Projects\00-08-06_Duwamish_RI\data\gis\Phase2 RI\Source Control\Appendix I


In the field, review of agency files and interviews with agency and LDWG personnel provided additional outfall-specific locations. Some of these additional outfall locations were identified during these subsequent verifications. The outfall layer is meant to serve as a snapshot of outfall conditions at the time the survey was completed (2003).

Tax parcel information was provided in 2008 by SPU and King County. Some tax parcel polygons were edited to conform to the LDW shoreline presentation. A comprehensive survey of property owner records was not conducted.

Military Boeing Associated

Analyze Exceedance Factor

<table>
<thead>
<tr>
<th>Chemical</th>
<th>SOS</th>
<th>CSL</th>
</tr>
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<tbody>
<tr>
<td>PCBs (total calc'd)</td>
<td>16.0 2.90</td>
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</tr>
<tr>
<td>BEHP</td>
<td>1.40 ne</td>
<td></td>
</tr>
<tr>
<td>BEHP</td>
<td>1.40 ne</td>
<td></td>
</tr>
<tr>
<td>BBP</td>
<td>2.20 ne</td>
<td></td>
</tr>
<tr>
<td>CBZ</td>
<td>1.10 ne</td>
<td></td>
</tr>
<tr>
<td>Fluoranthene</td>
<td>1.30 na</td>
<td></td>
</tr>
<tr>
<td>PCE (total calc'd)</td>
<td>3.0 0.50</td>
<td></td>
</tr>
<tr>
<td>TCE (total calc'd)</td>
<td>2.2 0.40</td>
<td></td>
</tr>
<tr>
<td>TPH</td>
<td>2.7 0.5</td>
<td></td>
</tr>
</tbody>
</table>

Boundary shown is based on Ecology and SAIC (2008).

Wallace Station

15 cm below mudline.

Boundary shown is based on Ecology (2007f).

Boundary shown is based on Ecology and SAIC (2008).
Military Flight Center: Joint cautching materials containing PCBs were investigated and removed in 2005 and 2006.

Military Flight Center: A RCRA facility investigation was conducted in 1994, and corrective actions for soil and groundwater contamination have been conducted. In 2003, a Phase I ESA was conducted near the Museum of Flight. Subsequent groundwater monitoring was conducted. A four-phase source-tracing sampling event was conducted in and around the south SD line in 2001, and a segment of the south SD line was cleaned in 2002. Groundwater investigations were conducted following a gasoline leak. Soil near the south SD was remediated, and USTs have been removed.

Near South SD in LDW: In 2003, Boeing removed approximately 60 cy of PCB-contaminated sediment. Sediment samples were collected from this area in 2004 and 2005.

Between South SD and Norfolk CSO/SD in LDW: Sediment samples were collected in 2003 as part of a Phase I investigation.

Near Norfolk CSO/SD in LDW: Sediment contamination was investigated near the Norfolk CSO/SD outfall in 1994. Sediment near the Norfolk CSO/SD was dredged and backfilled with clean sediment in 1999, followed by 5 years of monitoring.

Data availability by media type for each facility and major outfall associated with the Norfolk CSO/SD SCA

<table>
<thead>
<tr>
<th>Facility</th>
<th>Soil</th>
<th>Groundwater</th>
<th>Seep</th>
<th>Public</th>
<th>_Lateral</th>
<th>Norfolk</th>
<th>_DR</th>
<th>Instream Sediment</th>
<th>Surface Sediment</th>
<th>Groundwater</th>
<th>Seep</th>
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</thead>
<tbody>
<tr>
<td>Boeing Developmental Center</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Arco Gas Station</td>
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</tbody>
</table>

As it indicates that source documents reported that data are available or the existence of data was implied for the identified media; however, the analytical data may not have been reviewed in the source documentation. None of the data are representative of the facility boundary that is the basis for the facility SCA.

Facilities labeled in those identified in the site's report (Ecology and Environment 2007) and the SCAP (Ecology 2007) with relevant source control information. These are facilities that were identified in the source documents for any facility.

* Labeled facilities are associated with the SCA, facilities are discussed in text and tables because they are either source-tracing data or were sampled adjacent to the LDW or are located upland and have been sampled adjacent data. Labeled facilities were also sampled for chemical data. Non-labeled facilities were not sampled for chemical data. Some additional outfall locations were identified during these subsequent samplings. The North AFB is included twice as a result of multiple locations at the site where the survey and subsequent remedial action plans were completed.


Map I-36. Regulatory investigation and remediation status of the Norfolk CSO/SD SCA
Map I-37. Norfolk CSO/SD in-line sediment sampling locations
For the Norfolk early action area, surface sediment data represent samples collected after dredging and capping at the Norfolk CSO/SD removal area in 1999 and before sediment removal and capping at the Boeing Developmental Center south storm drain in 2003.

Outfalls shown were identified during a City of Seattle low-tide survey in 2003 (Herrera 2004). Some locations were initially identified using drainage maps from Ecology's National Pollutant Discharge Elimination System (NPDES) permit files and other relevant agency databases. These locations were later surveyed in the field. Review of agency files and interviews with agency and LDWG personnel provided additional outfall-specific information. The outfall layer is meant to serve as a snapshot of outfall conditions at the time the survey was completed (2003).
Chemicals in red exceeded CSL. The exceedance factor has no regulatory significance beyond the representation of concentrations that are above CSL as being potentially problematic. Concentrations that are above CSL are highlighted in yellow. Values are provided in units dw.

Reports limits for undetected chemicals that were above the SQS or CSL are not included. When OC-normalization was not appropriate because of methodological limitations or low sample concentrations, SQS/CSL categories were not assigned.

SQS and CSL exceedances are reported only for detected concentrations. Concentrations for undetected chemicals that are above the CSL or SQS were assigned as "SQS/CSL, non-detect." The exceedance factor in these cases is calculated as: 

\[
\text{Exceedance Factor} = \frac{\text{Concentration}}{\text{SQS/CSL}} 
\]

Chemicals without SQS criteria are shown in purple and highlighted in yellow. Values are provided in units dw.

*no exceedance

**no exceedance**

### Analysis and Exceedance Factors

#### Aromatic Compounds

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Exceedance Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCBs</td>
<td>1.2</td>
</tr>
<tr>
<td>CDD</td>
<td>1.6</td>
</tr>
<tr>
<td>CDF</td>
<td>1.0</td>
</tr>
<tr>
<td>CDFP</td>
<td>1.0</td>
</tr>
<tr>
<td>2,4-DDE</td>
<td>1.0</td>
</tr>
<tr>
<td>DDE</td>
<td>1.0</td>
</tr>
<tr>
<td>DDD</td>
<td>1.0</td>
</tr>
<tr>
<td>TCE</td>
<td>1.0</td>
</tr>
<tr>
<td>TPH</td>
<td>1.0</td>
</tr>
<tr>
<td>Dioxins/ Furans TEQ</td>
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</tr>
<tr>
<td>PCE</td>
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</tr>
<tr>
<td>PCB</td>
<td>1.0</td>
</tr>
<tr>
<td>TCA</td>
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<td>CDFP</td>
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<tr>
<td>DDD</td>
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<td>TCE</td>
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<tr>
<td>TPH</td>
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<tr>
<td>Dioxins/ Furans TEQ</td>
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<td>TPH</td>
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<td>Dioxins/ Furans TEQ</td>
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<tr>
<td>TPH</td>
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</tr>
</tbody>
</table>

### River Mile

*Source-tracing data.*

*Boundary shown is based on Ecology (2007).*

### Map I-39. Surface sediment information for the Glacier Bay SCA


Windward LLC

### Analysis and Exceedance Factors

#### Aromatic Compounds

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Exceedance Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCBs</td>
<td>1.2</td>
</tr>
<tr>
<td>CDD</td>
<td>1.6</td>
</tr>
<tr>
<td>CDF</td>
<td>1.0</td>
</tr>
<tr>
<td>CDFP</td>
<td>1.0</td>
</tr>
<tr>
<td>2,4-DDE</td>
<td>1.0</td>
</tr>
<tr>
<td>DDE</td>
<td>1.0</td>
</tr>
<tr>
<td>DDD</td>
<td>1.0</td>
</tr>
<tr>
<td>TCE</td>
<td>1.0</td>
</tr>
<tr>
<td>TPH</td>
<td>1.0</td>
</tr>
<tr>
<td>Dioxins/ Furans TEQ</td>
<td>1.0</td>
</tr>
<tr>
<td>PCE</td>
<td>1.0</td>
</tr>
<tr>
<td>PCB</td>
<td>1.0</td>
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<tr>
<td>TCA</td>
<td>1.0</td>
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<tr>
<td>CDFP</td>
<td>1.0</td>
</tr>
<tr>
<td>DDD</td>
<td>1.0</td>
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<tr>
<td>TCE</td>
<td>1.0</td>
</tr>
<tr>
<td>TPH</td>
<td>1.0</td>
</tr>
<tr>
<td>Dioxins/ Furans TEQ</td>
<td>1.0</td>
</tr>
<tr>
<td>PCE</td>
<td>1.0</td>
</tr>
<tr>
<td>PCB</td>
<td>1.0</td>
</tr>
<tr>
<td>TCA</td>
<td>1.0</td>
</tr>
<tr>
<td>CDFP</td>
<td>1.0</td>
</tr>
<tr>
<td>DDD</td>
<td>1.0</td>
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<tr>
<td>TCE</td>
<td>1.0</td>
</tr>
<tr>
<td>TPH</td>
<td>1.0</td>
</tr>
<tr>
<td>Dioxins/ Furans TEQ</td>
<td>1.0</td>
</tr>
<tr>
<td>PCE</td>
<td>1.0</td>
</tr>
<tr>
<td>PCB</td>
<td>1.0</td>
</tr>
<tr>
<td>TCA</td>
<td>1.0</td>
</tr>
<tr>
<td>CDFP</td>
<td>1.0</td>
</tr>
<tr>
<td>DDD</td>
<td>1.0</td>
</tr>
<tr>
<td>TCE</td>
<td>1.0</td>
</tr>
<tr>
<td>TPH</td>
<td>1.0</td>
</tr>
</tbody>
</table>

### River Mile

*Source-tracing data.*

*Boundary shown is based on Ecology (2007).*

### Map I-39. Surface sediment information for the Glacier Bay SCA


Windward LLC
O

Field. Review of agency files and interviews with agency and LDWG personnel provided additional outfall-specific information. Several outfall locations were field-verified by LDWG members; some additional outfall locations were identified during these subsequent activities. Source control information is discussed in text and tables because they are either non-detect or lack data. Labeled sources are associated with the SCA; facilities also outlined in orange are SCA-associated facilities that are located off-site and have source-tracing data.

SGS/CSL categories for all chemicals within the 2008 SCA boundary

- > CSL, detect
- > SCS and 5 CSL, detect
- > SCS and non-detect
- < SCS, detect and non-detect
- Surface sediment sampling location outside the 2008 SCA boundary
- Subsurface sediment sampling location
- Seep location
- CSO/storm drain
- Permitted private storm drain
- Public storm drain
- Tax parcel
- SCA-associated property
- 2007 SCA boundary
- 2008 SCA boundary
- Dredged area
- Dredged and thin-layer cap placement
- Navigation channel
- River mile

* Labeled facilities are associated with the SCA; facilities also outlined in orange are SCA-associated facilities that are located off-site and have source-tracing data.

** Boundary shown is based on Ecology (2007).

* Boundary shown is based on Ecology and SAIC (2008).


Data availability by media type for each facility and major outfall associated with the Glacier Bay SCA

<table>
<thead>
<tr>
<th>Facility</th>
<th>Soil</th>
<th>Groundwater</th>
<th>Seep</th>
<th>Pore-water</th>
<th>Storm-water</th>
<th>Source-Tracing Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska Marine Lines</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemtton Corporation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duwamish Shipyard</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former MRI Corporation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For an X indicates that source documents reported that data are available or the existence of data was implied for the identified media; however, the analytical data may not have been provided in the source documentation. Absence of an X does not necessarily indicate that facility-specific data for that media type do not exist.

Facilities listed are those identified in the data gaps report (SAIC 2007d) and SCAP (Ecology 2007d) with relevant source control information.

No porewater data were identified in the source documents for any facility.

Major outfall listed is discussed as an individual source control entity in the source documents.

Map I-40. Regulatory investigation and remediation status for the Glacier Bay SCA
Source-tracing sampling locations were mapped when coordinates were available. Therefore, not all source-tracing samples with chemical data are mapped.

Labeled facilities are associated with the SCA; facilities also outlined in orange are SCA-associated upland and have source-tracing data.


Wind parcel information was provided in 2008 by SPU and King County. Some tax parcel polygons were edited to conform to the LDW shoreline presentation. A comprehensive survey of property owner records was not conducted.

The outfall layer is meant to serve as a snapshot of outfall conditions at the time the survey was completed (2003).

The outfalls shown were identified during a City of Seattle low-tide survey in 2003 (Herrera 2004). Some locations were later surveyed with coordinates; others were identified in the presence of visible outfall structures. Source-tracing sampling locations were mapped when coordinates were available. Therefore, not all facilities that are discussed in text and tables because they are either adjacent to the LDW or are located outside the 2008 SCA boundary.

For parcel: SCA-associated property

Boundary shown is based on Ecology (2007f).

Boundary shown is based on Ecology and SAIC (2008).


Sources of additional information for facilities and outfalls:


City of Seattle SD: ROW catch basin sampling within the drainage basin was completed in 2006. In-situ sediment sampling is in progress.
Proximal shorelines

Sediment sampling location

Boundary shown is based on Ecology and SAIC (2008).

BOE boundary is based on Ecology (2007f); this boundary is preliminary and has not been finalized by EPA and Ecology.

Tax parcel information was provided in 2008 by SPU and King County. Some tax parcel polygons were edited to conform to the LDW shoreline presentation. A comprehensive survey of property owner records was not conducted.

SQS and CSL exceedances are reported only for detected concentrations; reporting limits for undetected chemicals that were above the SQS or CSL are not included. When SQS/CSL exceedances were detected at the same location, reporting limits are indicated. Some locations where > SQS or ≤ CSL were not analyzed for SQS/CSL exceedances.

Chemicals in red exceeded CSL. The exceedance factor has no regulatory relevance and is presented here to provide an indication of the general magnitude of the concentration. Sampling locations represented by circles were analyzed for SQS chemicals. Sediment samples were collected at depths ≤ 15 cm below mudline.

Chemicals without SMS criteria are shown in purple and highlighted in yellow.

- no exceedance
- > CSL, detect
- > SQS and ≤ CSL, detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Surface sediment sampling location
- outside the 2008 SCA boundary
- Subsurface sediment sampling location
- Seep sampling location
- EOF
- Permitted private storm drain
- Public storm drain
- Pipe of unresolved origin and/or use
- Tax parcel
- SCA-associated property
- 2008 SCA boundary
- Navigation channel
- River mile

of unresolved origin and/or use
- EO
- Permitted private storm drain
- Public storm drain
- Pipe of unresolved origin and/or use
- Tax parcel
- SCA-associated property
- 2008 SCA boundary
- Navigation channel
- River mile

Chemicals without SMS criteria are shown in purple and shaded in yellow.

Analyze

Analyte

Analyte

Analyte

Analyte

Analyte

Map I-42. Surface sediment information for the Trotsky Inlet SCA


Outfalls shown were identified during a City of Seattle low-tide survey in 2003 (Herrera 2004). Some locations were later identified in drainage maps from Ecology’s NPDES permit files and other relevant agency databases. These locations were later surveyed for verification. Some locations were field verified by LDWG members; some additional outfall locations were identified during these subsequent verifications. The outfall layer is meant to serve as a snapshot of outfall conditions at the time the survey was completed (2003).

A comprehensive survey of property owner records was not conducted.
Data availability by media type for each facility and major outfall associated with the Trotsky SCA

<table>
<thead>
<tr>
<th>Facility</th>
<th>Soil</th>
<th>Groundwater</th>
<th>Seep</th>
<th>Stormwater</th>
<th>Catch Basins</th>
<th>ROW Catch Basins</th>
<th>Intermittent Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Douglas Management Co.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Trotsky SCA</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Wells Trucking and Leasing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

An 'X' indicates that source documents reported that data are available or the existence of data was implied for the identified media. However, the analytical data may not have been provided in the source documentation. Absence of an 'X' does not necessarily indicate that facility-specific data for that media type do not exist.

Facilities listed are those identified in the SCAP (Ecology 2007c), data gaps report (SAIC 2007d), or additional site characterization activities report (SAIC 2007e) with relevant source control information.

No porewater data were identified in the source documents for any facility.

No soil, groundwater, seep, stormwater, or source-tracing data were identified in the source documents for this facility.

Major outfalls listed are those discussed as individual source control entities in the source documentation. ns - not applicable

---

**Map I-43. Regulatory investigation and remediation status of the Trotsky Inlet SCA**

- **Douglas Management Co.:** A cleanup of a LUST was conducted in the 1990s. Additional site characterization will be conducted.
- **Trotsky:** A pretreatment facility was installed around 1970. In 1973, the site was bermed with concrete in response to a spill. A three-phase soil and groundwater assessment was conducted in 1986. A site hazard assessment (including the collection of soil samples and a source tracing sample) was conducted in 1991. Additional groundwater sampling also was conducted in 1991. A site characterization study was conducted in 2007. Site inspections also have been conducted. An RIFS will be conducted at the property under a MTCA order. Additional source control investigations may be conducted as part of the RIFS.
- **Wells Trucking and Leasing:** SPU inspected the facility in 2002. Catch basins were cleaned in 2002, and catch basin samples were collected in 2003.

---

**SOS/CSL categories for all chemicals within the 2008 SCA boundary**

- > CSL, detect
- > SOS and ≤ CSL, detect
- ≤ SOS, detect and non-detect

**Surface sediment sampling location outside the 2008 SCA boundary**

- Subsurface sediment sampling location
- Seep sampling location

** ╓ EQF  ╔ Permitted private storm drain  ╔ Public storm drain  ╔ Pipe of unresolved origin and/or use  ╔ Tax parcel  ╔ SCA-Associated property  ╔ EAA boundary  ╔ 2008 SCA boundary  ╔ Navigation channel  ╔ River mile

* Labeled facilities are associated with the SCA; facilities also outlined in orange are SCA-associated facilities that are discussed in text and tables because they are either adjacent to the 120W or are located upland and have source-tracing data.

* The EAA boundary shown is based on Ecology (2007c); this boundary is preliminary and has not been finalized by EPA and Ecology.

* Boundary shown is based on Ecology and SAIC (2008).

**Sources of Information for facilities and outfalls:** SAIC (2007b, c), Ecology (2007b, c), Schmoyer (2006), and Windward (2004).
Map I-44. Drainage basin for the Trotsky Inlet SCA

Sources of information for drainage basin and source-tracing samples: Schmoyer (2008a, d).

*Source-tracing sampling locations were mapped when coordinates were available. Therefore, not all source-tracing samples with chemical data are mapped.

Labeled facilities are associated with the SCA; facilities also outlined in orange are SCA-associated facilities that are discussed in text and tables because they are either adjacent to the LDW or are located upland and have source-tracing data.

The EAA boundary shown is based on Ecology (2007f); this boundary is preliminary and has not been finalized by EPA and Ecology.

Boundary shown is based on Ecology and SAIC (2008).

*Boundary shown is based on Ecology and SAIC (2008).

Tax parcel information was provided in 2008 by SPU and King County. Some tax parcel polygons were edited to conform to the LDW shoreline presentation. A comprehensive survey of property owner records was not conducted.
Legend:
- **Outfalls**
  - Abandoned pipe
  - CSO-KC
  - CSO/SD-City
  - CSO/SD-SPU/KC
  - Channel
  - Private SD
- **Utilities**
  - Storm drain
  - Sanitary sewer
  - Combined sewer
  - King County Interceptor
  - 2nd Ave S SD basin

Map I-45. Stormwater basin and drainage features for the Trotsky Inlet SCA

Source: City of Seattle (2006) as provided in Ecology (2007b)
Wind

upon supplemental sampling. Boundary shown is

Labeled facilities are associated with the SCA; facilities

within the 2008 SCA boundary

adjacent to the LDW or are located upland and have

are discussed in text and tables because they are either

( > CSL, detect

Stream, channel, or swale

Tax parcel

SCA-associated property

CAA boundary

NTCRA-cleanup boundary

River mile

Navigation channel

* Labeled facilities are associated with the SCA; facilities also outlined in orange are SCA-associated facilities that are discussed in text and labeled because they are either adjacent to the LDW or are located upland and have active-tracking data.

** The T-117 early action area boundary was identified in the SECA as the removal action area contingent upon supplemental sampling. Boundary shown is based on Windward et al. (2008).

* Boundary shown is based on Ecology and SAIC (2008).
Outfalls shown were identified during a City of Seattle low-tide survey in 2003 (Herrera 2004). Some locations were later surveyed using high-resolution orthoimages from the U.S. Geological Survey (USGS) in 2003. These locations were later surveyed using high-resolution orthoimages from the U.S. Geological Survey (USGS) in 2003.


**Map I-47: Surface sediment and drainage basin information for the T-117 SCA**

*Source: Schmoyer 2006a*

**Legend:**
- **T-117 drainage basin**
- **PCBs:** Polychlorinated biphenyls
- **PAHs:** Polycyclic aromatic hydrocarbons
- **SDD:** Sediment decay rate
- **SCA-associated property**
- **EAA boundary**
- **NYCMA cleanup boundary**
- **2008 SCA boundary**
- **River mile**
- **Navigation channel**

**Table:**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Occurrence Factor</th>
<th>Age</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; CSL, detect</td>
<td>15-17</td>
<td>15-17</td>
<td>15-17</td>
</tr>
<tr>
<td>&gt; SDS and ≤ CSL, detect</td>
<td>1.6-2.5</td>
<td>1.6-2.5</td>
<td>1.6-2.5</td>
</tr>
<tr>
<td>&gt; SDS and ≤ CSL, non-detect</td>
<td>1.6-2.5</td>
<td>1.6-2.5</td>
<td>1.6-2.5</td>
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<tr>
<td>Surface sediment sampling location</td>
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<tr>
<td>Subsurface sediment sampling location</td>
<td>1.6-2.5</td>
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<tr>
<td>Deep sampling location</td>
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<td>Permitted private storm drain</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public storm drain</td>
<td>1.6-2.5</td>
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<td></td>
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<tr>
<td>Pipe of unresolved origin and/or use</td>
<td>1.6-2.5</td>
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<tr>
<td>Abandoned</td>
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<td>Not an outfall</td>
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<td></td>
</tr>
<tr>
<td>Stream, channel, or swale</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax parcel</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCA-associated property</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EAA boundary</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYCMA cleanup boundary</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008 SCA boundary</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>River mile</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navigation channel</td>
<td>1.6-2.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Footnotes:**
- *Co-located surface and subsurface sampling station using same sample ID*
- *PCB categories for all chemicals within the 2008 SCA boundary*
- *SDS and CSL occurrence are reported only for detected values. Due to the permissive nature of the U.S. Environmental Protection Agency (EPA) for SDS, the maximum allowable SDS concentration is 0.01 mg/L, as compared to a maximum allowable PCB concentration of 0.0001 mg/L. SDS concentrations were reported in ng/L (1 mg/L = 0.001 mg/L). The weight percent of PCBs is a weight percent of the total concentration of all PCBs in a sample.*
- *Chemicals not included in the occurrence factor are based on low levels of PCBs that were detected in the 2003 survey (Herrera 2004).*
South Park Marina: Soil and catch basin sampling as well as water quality and stormwater compliance inspections have been conducted.

City of Seattle Street ROW (Dulles Avenue Vicinity): Soil and street dust samples were collected, leading to the performance of interim and cleanup actions. Stormwater and catch basin sediment monitoring has also been completed. Stormwater and catch basins have been restored, contaminated soils have been removed from the streets and residential yards, and new storm and catch basins have been installed.

Port of Seattle SD (No. 2209): No source-tracing investigations have been reported.

Port of Seattle SD (No. 2211): No source-tracing investigations have been reported.

Port of Seattle SD (No. 2223): No source-tracing investigations have been reported.

Port of Seattle SD (No. 2214): No source-tracing investigations have been reported.

T-117: Several groundwater, soil, and sediment sampling events have been conducted within T-117. Investigations have been conducted to identify potential sources of recontamination. Soil has been removed from multiple areas around T-117, and a GST was removed. Site characterization and hazard assessments also have been completed in preparation of various removal actions.

Sedim Oil: Several environmental investigations related to dangerous waste compliance inspections and site visits have been conducted. Remedial actions conducted thus far have included adding gravel to disturbed areas, installing a silt fence, removing tanks.

Source-tracing sampling location
4 T-117 drainage basin
3 SQS/CSL categories for all chemicals within the 2008 SCA boundary
2 - CSL detect
> SGS and c CSL, detect
> SGS and c CSL, non-detected
≤ SGS, detect and non-detect
Surface sediment sampling location
3 Subsurface sediment sampling location
2 Seep sampling location
1 EOF/SD drain
2008 SCA boundary

Source-tracing sampling locations were mapped when coordinates were available. Therefore, not all source-tracing samples with chemical data are mapped.

Labeled facilities are associated with the SCA; facilities also identified in orange are SCA-associated facilities that are not identified individually but located near the facility due to potential contamination.

The T-117 early action area boundary was identified in the ECDA as the removal area upon supplemental sampling. Boundary shown is based on Windward et al. (2008).

Boundary shown is based on Ecology and SAIC (2008).

Map I-48. Regulatory investigation and remediation status of the T-117 SCA

Data availability by media type for each facility and major outfall associated with the T-117 SCA:

- Public SD (No. 2215): No source-tracing investigations have been reported.
- Port of Seattle SD (No. 2223): No source-tracing investigations have been reported.
- Port of Seattle SD (No. 2214): No source-tracing investigations have been reported.