3.3 Hazardous Materials

What are the regulations that govern the management of hazardous materials?

Hazardous materials are defined and regulated by federal, state, and local agencies. At the federal level, they are identified and regulated by the EPA. For properties in Washington, the EPA delegates implementing federal hazardous materials regulations to Ecology. Although EPA has delegated these responsibilities to Ecology, the federal agency maintains final authority on regulating hazardous materials. The State of Washington also implements its own, often more stringent, laws and regulations. As a result, the project would be subject to both federal and state regulations.

Some of the federal laws and regulations relating to hazardous materials and wastes that would affect the project include the Comprehensive Environmental Response, Compensation, and Liability Act and All Appropriate Inquiries; the Resource Conservational and Recovery Act; the Occupational Safety and Health Act; the Clean Water Act; Endangered Species Act; and NEPA. State laws and regulations include the Model Toxics Control Act (MTCA), Dangerous Waste Regulations, Solid (Nondangerous) Waste Disposal, Water Pollution Control Act, Water Quality Standards for Surface Waters, Wastewater Discharges to Ground, Underground Storage Tank Statue and Regulations, and various health and safety standards.

What is the Hazardous Materials Technical Memorandum?

This section was derived from the Hazardous Materials Technical Memorandum, which includes the following information:

- The project sediment characterization report
- The potential best management practices and construction practices that could be used as part of the project

For more detailed information on these topics, please refer to this document in Appendix E.

What is the Model Toxics Control Act Cleanup Regulation?

The Model Toxics Control Act Cleanup Regulation (WAC 173-340) implements the Model Toxics Control Act (RCW 70.105D), which sets forth strict requirements for reporting the discovery of hazardous material sites and conducting site assessments and remediation. Most importantly, the regulation defines standard methods for assessing whether a site is contaminated or clean. Standard cleanup methods include Methods A, B, and C.

What is the federal Clean Water Act?

The federal Clean Water Act establishes the basic structure for regulating pollutant discharges into the waters of the United States and regulating quality standards for surface waters.

How did WSDOT evaluate project effects related to hazardous materials?

If hazardous materials were to be encountered or released during project construction or operation, then they could adversely affect human health and the environment and present liability for WSDOT. To assess whether there could be hazardous materials effects resulting from the SR 520 Pontoon Construction Project, WSDOT analyzed a study area extending up to 1 mile from the center of each Grays Harbor build alternative site.

In the study area, WSDOT conducted the following activities to identify the locations of potential hazardous materials and evaluate their possible effects during project construction and operation at the two Grays Harbor build alternative sites:

- Reviewed local, state, and federal regulatory databases to identify potential contamination sources within and adjacent to each study area.

- Based on the database search, reviewed historical information sources (for example, topographic maps, aerial photographs, and Sanborn maps) to identify past uses and activities located within each build alternative sites.
- Conducted visual site reconnaissance of the study area to observe current site conditions and identify potential contamination sources that could affect the proposed project.
- Reviewed Ecology's regulatory files to obtain additional site-specific environmental data on sites of highest concern.
- Reviewed previous investigations to identify past and present releases or potential releases of contaminants to soil, groundwater, and/or sediment.
- Interviewed representatives of the property owners to determine if any records exist indicating that hazardous substances or petroleum products were ever used, stored, or generated on the properties.
- Developed risk rankings for the hazardous materials sites based on their potential effects on construction activities, property acquisitions, and costs.
- Conducted field site investigations, including collecting soil, groundwater, and sediment samples for chemical analysis, to further evaluate environmental conditions.

WSDOT began the evaluation by searching environmental regulatory databases to identify hazardous materials sites in the study area that might pose a risk to the two Grays Harbor build alternative sites. Sites were eliminated from the initial database search list during the screening process if the site was determined not to pose a risk to the project. WSDOT then evaluated existing information sources and conducted a visual site reconnaissance to narrow the list of sites to only those that would most likely pose a risk of being affected during project construction and operation. Sites in the study area were then placed into two risk categories: low-to-moderate-risk sites and high-risk sites. (These risk categories are defined in the sidebar to the right).

What is a low-to-moderate risk?

This risk level identifies sites where potential contamination is known or where it can be reasonably predicted. These sites are typically small to medium in size, include contaminants that are not extremely toxic or difficult to treat, and have straightforward remediation options.

What is a high risk?

This risk level identifies sites that might be substantially contaminated and would create a major liability for WSDOT. These sites usually have large volumes of contaminated soil, groundwater, or sediment and have complex types of contaminants that require special handling and requiring disposal that is expensive to manage.

Are there any hazardous materials in or immediately adjacent to the study area?

CTC Facility

No project-related excavation or construction activities would occur at the existing CTC facility, so the proposed project would not encounter or disturb any known hazardous materials sites. As a result, WSDOT

did not conduct additional hazardous materials assessments for this site.

Grays Harbor Build Alternatives

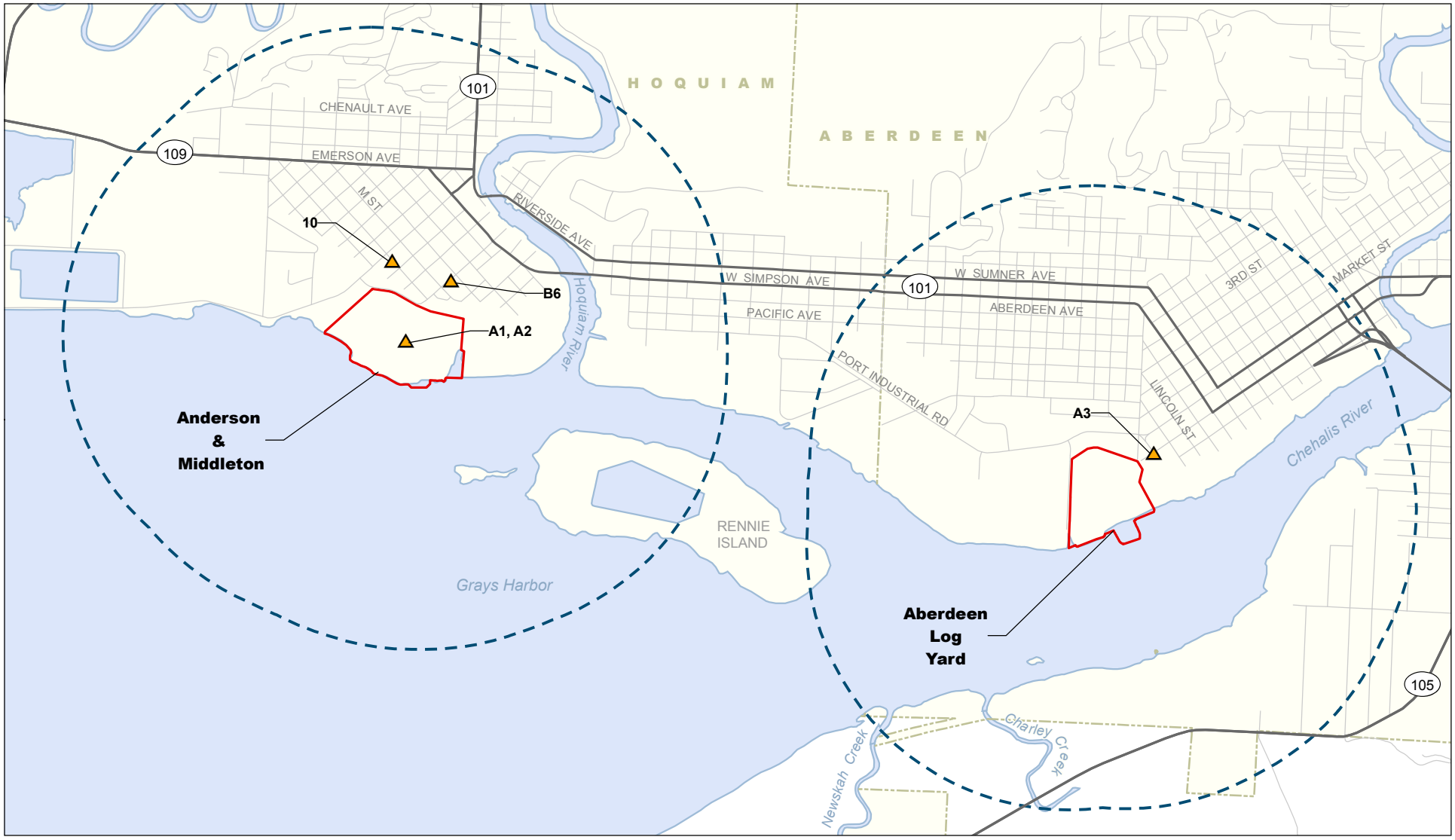
Lumber and shingle mills, a potential source of hazardous materials, were once located along and at the mouths of the Chehalis and Hoquiam rivers. Active lumber mills occupied both Grays Harbor build alternative sites from the early 1900s until the 1960s and 1970s. For the past few decades, both sites have been used mostly to store logs; no former mill structures currently remain on the sites' surfaces.

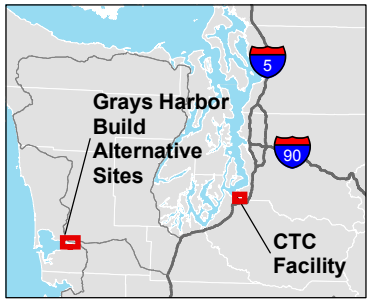
Exhibit 3.3-1 shows the location of the five low-to-moderate-risk hazardous material sites (including the Grays Harbor build alternative sites themselves) that WSDOT identified. WSDOT's analysis determined that none of these sites are high risk based on their location relative to proposed construction or their potential for substantial contamination. Of the five low-to-moderate-risk hazardous materials sites identified, three were identified in the Anderson & Middleton Alternative study area and two in the Aberdeen Log Yard Alternative study area (one of the two is the site itself); the low-to-moderate-risk site information is listed in Exhibit 3.3-2.

WSDOT also conducted field investigations to determine whether these low-to-moderate-risk sites currently contain hazardous material and whether project construction or operation would likely encounter or disturb the hazardous material. After the analysis, WSDOT determined that the identified hazardous materials sites would pose a low risk during project construction and operation. Information about each of these hazardous materials sites of concern is presented below.

Anderson & Middleton Alternative

The Anderson & Middleton property is listed in the database as 815 8th Street in Hoquiam. The site was first developed in 1901 for the Grays Harbor Lumber Company and began operating as a lumber mill and operated as such for approximately 60 years. Anderson & Middleton Lumber Company acquired the property from the Grays Harbor Lumber Company in late 1962. In 1963 and 1964, the central portion of the property was backfilled with sediments dredged from Grays Harbor, increasing the size of the property and creating a new shoreline farther to the south. These dredged sediments can also be found in the area under what is now the asphalt pad in the center of the site. Crushed rock was placed on top of the dredged sediment throughout the site to provide a level surface for paved and gravel roadways.





Listed site

Low- to moderate-risk site

1-mile buffer

Build Alternative Site

City limits

Source: Environmental Data Resources (2008) GIS Data (Listed Site), Grays Harbor County (2006) GIS Data (Waterbody and Street). Horizontal datum for all layers is State Plane Washington South NAD 83; vertical datum for layers is NAVD88.

N

0 1,500 3,000 Feet

Exhibit 3.3-1. **Locations of Low- to Moderate-Risk Sites in the Grays Harbor Study Area**

SR 520 Pontoon Construction Project

Washington State Department of Transportation

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EXHIBIT 3.3-2
Summary of Low- to Moderate-Risk Sites in the Grays Harbor Study Area

Map ID	Site Name	Site Address	Site Location Relative to the Project Area	Site Information Sources	Hazardous Materials of Concern, Site Conditions of Concern, Affected Media and Remediation History	Risk Rating and Rationale
Anderson & Middleton Alternative						
A1, A2	Anderson & Middleton Lumber Company	815 8th Street, Hoquiam	Alternative site	NPDES, FINDS, Phase II ESA (WSDOT 2009b), sediment investigation (WSDOT 2009c)	Localized petroleum and/or creosote soil and/or groundwater contamination in one area. May be due to historical use as lumber mill and log yard. Methane gas and hydrogen sulfide from decomposition of wood waste in soil borings in 2009.	Low-to-moderate risk due to site use history, methane gas, and hydrogen sulfide detections in subsurface
B6	City Hall	609 8th Street, Hoquiam	Crossgradient approximately 721 feet northeast of the subject property	LUST, ICR	TPH in soil and groundwater reported cleaned up in 2000	Low-to-moderate risk due to TPH in groundwater and proximity cross gradient to subject property
10	Truck Stop	5th Street and Railroad Avenue, Hoquiam	Upgradient approximately 1,036 feet northwest of the subject property	LUST, UST	TPH in groundwater reported cleaned up 1991	Low-to-moderate risk site due to TPH in groundwater, site proximity, and location hydraulically upgradient from subject property
Aberdeen Log Yard Alternative						
N/A	Aberdeen Log Yard	East Terminal Road and Port Industrial Road	Alternative site	Phase II ESA (2009b), sediment investigation (2009c)	Localized petroleum and/or creosote soil and/or groundwater contamination in several areas. May be due to historical use as lumber mill and log yard. Low levels of total DDT and dioxins and furans in launch channel sediments.	Low-to-moderate risk due to site history, methane gas and hydrogen sulfide detections in subsurface; petroleum contaminants detected in the subsurface; sediment contaminant detections might require special handling and disposal at an upland facility. Release of contaminated sediment into the water column during construction.
A3	Public Works Shop	Garfield and Heron streets, Aberdeen	Upgradient, approximately 285 feet north-northeast of the subject property	LUST, UST	TPH diesel released to soil, groundwater reportedly not affected	Low-to-moderate risk site due to TPH release to soil, proximity to the site, and located hydraulically upgradient from subject property

Notes:

DDT Dichlorodiphenyltrichloroethane
ESA environmental site assessment
FINDS Facility Index System
ICR Independent Cleanup Report
LUST Leaking Underground Storage Tank database
NPDES National Pollutant Discharge Elimination System
TPH total petroleum hydrocarbon
UST underground storage tank database

Anderson & Middleton Lumber Company demolished the lumber mill structures shortly after purchasing the property and has used the site primarily to process and sort logs. A refuse wood waste burner also was located on the southwestern portion of the site. Since the 1960s, the site has been used to store logs and is currently vacant.

To initially identify potential soil and groundwater contamination that might be present at the site as a result of current or past releases, WSDOT conducted a Phase II environmental site assessment for this site. The Phase II environmental site assessment involved soil and groundwater sampling in areas WSDOT suspected could potentially be contaminated. WSDOT determined the sample locations and types of analyses conducted based on the site's operational history (identified through an interview with the property owner representative) and historical sources such as Sanborn maps and historical aerial photographs. On December 17, 2008, analysts collected field samples, which involved 12 soil samples and 6 groundwater samples. These samples were analyzed for potential contaminants, including petroleum hydrocarbons, volatile organic compounds (VOCs), metals, polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and dioxins and furans. Analysts compared the analytical results to applicable regulations, including MTCA (WAC 173-340) cleanup levels and dangerous waste regulations. Additional groundwater samples were collected in January 2009 and compared to surface water quality standards (WAC 173-201A). The results of the Phase II environmental site assessment, which was finalized in February 2009, indicated that soils and groundwater at the site were relatively unaffected by past industrial activities.

To confirm initial groundwater findings at the site as a follow up to the Phase II environmental site assessment (Attachment to Appendix E, Hazardous Materials Technical Memorandum) and to evaluate potential contamination discovered during geotechnical and archeological investigations, WSDOT conducted a supplemental soil and groundwater investigation. In September 2009, analysts collected seven groundwater samples, which were analyzed for potential contaminants, including petroleum hydrocarbons and total and dissolved metals. Analysts compared the analytical results to applicable regulations, including MTCA (WAC 173-340) cleanup levels and the surface water quality standards (WAC 173-201A).

The results of the supplemental investigation confirm that groundwater at the Anderson & Middleton site is relatively unaffected by past industrial activities except for one localized area in the southern portion of the site (Attachment to Appendix E, Hazardous Materials Technical Memorandum). Field observations in this area identified a strong

unidentifiable odor and groundwater sheen, and samples collected showed the presence of acetone in soil and acetone and toluene in groundwater at this location; these detections, however, were not above cleanup levels. Together these data indicate that, although contamination might be present in this portion of the site, the contamination is likely to be relatively localized.

In February 2009, WSDOT conducted a sediment characterization analysis to identify potential sediment contamination that might be present in the proposed launch channel area as a result of historical activities on the upland area and nearby industrial discharge sources. The reconnaissance-level sediment sampling indicated that dredged sediments at the Anderson & Middleton site are relatively clean and might be suitable for unconfined open-water disposal. Additional testing following the U.S. Army Corps of Engineers' Dredged Material Management Program procedures will be conducted in 2010 to confirm this finding.

During geological explorations to evaluate the site, workers detected hydrogen sulfide and methane gas (Landau Associates 2009c, d, e). The hydrogen sulfide and methane gas were likely caused by decomposing wood waste in the upper soil units—a result of previous backfilling and site activities. Methane gas could create a fire hazard if ignition sources are present during excavation activities and if concentrations are sufficiently high (that is, between 5 and 15 percent). The presence of methane gas could also present a health concern for workers during trenching work if the workspace is not adequately ventilated.

City Hall (Site B6)

Hoquiam City Hall, located at 609 8th Street, northeast of the Anderson & Middleton site, is listed on the Leaking Underground Storage Tank (LUST) and Independent Cleanup Report (ICR) lists. This property is positioned hydraulically cross-gradient of the Anderson & Middleton site, so groundwater contaminants originating from City Hall are not expected to migrate toward the Anderson & Middleton site. According to Ecology files, groundwater and soil contamination was remediated at this site as of September 22, 2000.

Truck Stop (Site 10)

The site listed as the truck stop in the LUST and Underground Storage Tank (UST) databases, located at 5th Street and Railroad Avenue, is hydraulically upgradient of the Anderson & Middleton site. According to Ecology files, groundwater contamination was remediated at this site as of September 16, 1991.

Aberdeen Log Yard Alternative

In the early 1900s, the shores of the Chehalis River and Grays Harbor in Aberdeen were developed with lumber and lumber mill facilities, which were typically built on piles over the water to ease transporting raw logs to ships and mills. The mills dumped wood waste and sawdust they generated into the river, leaving wood debris deposits. Lumber mill operations at the Aberdeen Log Yard site ended sometime between 1948 and 1971, and after that time it was used mostly for log storage.

As part of the Phase II environmental site assessment that WSDOT (2009b) conducted for this site, analysts collected 12 soil samples and 6 groundwater samples in December 2008. The samples were analyzed for potential contaminants, including petroleum hydrocarbons, VOCs, metals, PAHs, PCBs, and dioxins and furans.

WSDOT also determined the sample locations and types of analyses to be conducted at this site based on the site's operational history (identified through an interview with the property owner representative) and historical sources such as Sanborn maps and historical aerial photographs. WSDOT compared the analytical results to applicable regulations, including the MTCA (WAC 173-340) cleanup levels and dangerous waste regulations. Additional groundwater samples were collected in January 2009 and compared to surface water quality standards (WAC 173-201A). The results of the Phase II environmental site assessment, which WSDOT finalized in February 2009, indicated that soils and groundwater at the site were relatively unaffected by past industrial activities.

During the September 2009 supplemental soil and groundwater investigation discussed previously, analysts collected 12 soil and 8 groundwater samples at the Aberdeen Log Yard site. The results of the supplemental investigation indicate that soil and groundwater at this site is relatively unaffected by past industrial activities except for three areas in the southern, northern, and eastern portions of the site; these are described below (Attachment to Appendix E, Hazardous Materials Technical Memorandum).

In the southern portion of the Aberdeen Log Yard site, WSDOT analysts observed contaminated soil and groundwater during the baseline geotechnical study (Landau 2009e). Based on sampling and analysis, the extent of petroleum-contaminated soil is estimated to be 50 feet by 70 feet by 8 feet. Contaminated soil and groundwater observed at this location would need to be collected and disposed of separately.

During test trench excavations conducted for the archeological investigations, two potential locations of contamination were observed

in the northern portion of the site. WSDOT believes the contamination is related to creosote-treated wood, which would need to be excavated and disposed accordingly if encountered. No additional soil investigation was conducted in this area.

In the eastern portion of the site, soil samples were analyzed for potential contaminants, including petroleum hydrocarbons, PAHs in two samples, and VOCs in one sample. All analytes were either not detected or detected below cleanup levels. Groundwater samples from this area were analyzed for petroleum hydrocarbons and total and dissolved metals. One groundwater sample was also analyzed for PAHs. Analysts compared the analytical results to applicable regulations, including the MTCA cleanup levels and the surface water quality standards (WAC 173-201A). Soil and groundwater analytical results indicate that the contaminated soil and groundwater observed during the archeological study are likely to be relatively localized.

WSDOT's 2009 reconnaissance-level sediment sampling indicated that a portion of the dredged sediments at the Aberdeen Log Yard site might require disposal in a nonhazardous waste landfill due to low levels of chemical contaminants. The remaining portions might be suitable for unconfined open-water disposal. Additional testing following the U.S. Army Corps of Engineers' Dredged Material Management Program procedures will be conducted in 2010 to confirm this finding.

Similar to the Anderson & Middleton site, hydrogen sulfide and methane likely are present at the Aberdeen Log Yard site because of the site's history. Part of the Aberdeen Log Yard was backfilled with sediment dredged from the Chehalis River, accumulated wood waste, and other site-related fill material. As discussed previously, hydrogen sulfide and methane gas are generated as a result of decomposing wood waste.

Public Works Shop (Site A3)

Located at Garfield and Heron streets, the public works shop is approximately 285 feet upgradient from the Aberdeen Log Yard site and is listed in the LUST database. Four USTs at this location were closed in 1990, and one was removed in 1994. At that time, a nonspecified amount of petroleum-contaminated soil was excavated from the tank area. Soil sample results were below state cleanup levels specified under the MTCA for diesel, according to a site assessment report prepared by KD&S Environmental Support Services for the City of Aberdeen (KD&S Environmental Support Services 1994). Groundwater was not encountered during tank removal in 1994.

How would construction of the casting basin directly increase risks related to hazardous materials?

Hazardous materials are not themselves a resource, but when they are released into the air, water, or soils, they can harm people, livestock, fish and wildlife, and vegetation and affect how land is used and valued. For this reason, an adverse effect relating to hazardous materials is any release to the environment, and a beneficial effect is any reduction in the quantity or distribution of hazardous materials already present in the air, water, or soil.

Grays Harbor Build Alternatives

Constructing the casting basin could have the following hazardous materials effects on the Grays Harbor build alternatives:

- Contaminants could be released to the environment by ground-disturbing or dewatering activities. Potential types of hazardous substances contamination that WSDOT could encounter during construction include petroleum-contaminated soil and groundwater.
- Contaminants could be released into the water column during launch channel excavation. Potential types of hazardous substances that WSDOT could encounter include sediments contaminated with dichlorodiphenyltrichloroethane (commonly called DDT) and dioxins.
- Hazardous materials used at construction sites could be released as a result of accidental spills. For example, fuels and oils needed for heavy equipment operation and maintenance could be spilled in the project vicinity.
- Hazardous materials could be released when encountering previously unidentified USTs or LUSTs. If a UST, LUST, or associated piping is disturbed during excavation, hazardous materials or substances could be released.
- Contaminated air emissions (dust, hydrogen sulfide, and methane gas) could be released during construction.
- The contaminated groundwater plume(s) could be altered and contaminated water could be generated during dewatering activities.
- The contaminant migration pathways could be altered due to excavation and other construction activities.

These effects are common to many construction projects and to both Grays Harbor build alternatives. WSDOT would follow best

management practices to avoid accidental releases of hazardous materials to air, land, and water and to contain and clean any spill that did accidentally occur even with the precautionary measures taken.

Contaminated soil encountered during site construction and launch channel excavation would be removed and transported to an approved hazardous waste disposal site or a permitted facility, such as a nonhazardous waste landfill, in trucks, barges, or railcars. Removing contaminated material from the project site would be a beneficial effect.

Contaminated surface water or groundwater encountered during construction would be treated to prescribed regulatory standards before being discharged to the environment. The following paragraphs discuss hazardous materials effects common to each build alternative site.

Encounters with contaminated media could occur while constructing the new casting basin, support facilities, and new moorage facilities. Further, accidental spills could result in releases of hazardous materials to the environment and require cleanup. WSDOT's analysis of the study area indicates that contaminated soil and groundwater are present at selected areas of both Grays Harbor build alternative sites. However, WSDOT believes that the contaminated areas are relatively localized and are a result of the past use as lumber mill and log storage site.

The build alternative sites are located adjacent to environmentally sensitive areas, including the Chehalis and Hoquiam rivers and Grays Harbor. Several streams and wetlands are also nearby. Discharging dewatering water containing contaminants into sensitive areas—such as Grays Harbor—could degrade water quality and impair aquatic habitat.

Construction and operation dewatering activities at either build alternative site could alter contaminant migration pathways through the underlying soils from nearby contaminated properties. WSDOT expects that the dewatering zone of influence would extend beyond the property boundaries. The extent of the dewatering zone of influence was not, however, fully determined before this Draft EIS was prepared. With further geotechnical investigations, WSDOT will identify best management practices to minimize potential dewatering effects.

As previously noted, workers detected hydrogen sulfide and methane gas during geological explorations at both Grays Harbor build alternative sites (Landau Associates 2009a, b). Both sites contain wood waste from the years they were used to store and process logs and fill material; decomposing wood waste produces hydrogen sulfide and methane and is likely the source of the previous observed detection of gases. Further, these gases could be encountered at both Grays Harbor build alternative sites.

The presence of hydrogen sulfide and methane gas could present health concerns for workers during excavation and trenching if the work space is not adequately ventilated. Also, methane gas could create a fire hazard if there are ignition sources during excavation activities and if concentrations are sufficiently high.

A positive effect resulting from the project would be the planned onsite stormwater treatment facilities that would minimize the project's adverse effects on water resources by removing contaminants from water before it reenters the environment.

Anderson & Middleton Alternative

Launch channel construction would require dredging in Grays Harbor. WSDOT investigations indicate that the dredged sediments from the Anderson & Middleton site might be suitable for open-water disposal. WSDOT will conduct additional sediment testing in compliance with the U.S. Army Corps of Engineers Dredged Material Management Program procedures to identify suitable placement options for dredged sediments.

Aberdeen Log Yard Alternative

Reconnaissance sediment sampling results indicate that part of the dredged sediments from the Aberdeen Log Yard site might require upland disposal. WSDOT will conduct additional sediment testing in compliance with the U.S. Army Corps of Engineers Dredged Material Management Program procedures to identify suitable placement options for dredged sediments.

How would pontoon-building operations directly increase risks related to hazardous materials?

CTC Facility

Because WSDOT's proposed use of the CTC facility is consistent with the site's current industrial purpose and design, the proposed project would not produce additional adverse operational effects related to hazardous materials.

Grays Harbor Build Alternatives

Effects related to hazardous and waste materials that could occur during pontoon-building operations would be the same for both build alternatives. These potential effects would include contaminant runoff in stormwater, methane gas buildup, and sediment disposal of contaminated material from maintenance launch channel dredging.

Contaminants likely to be carried in stormwater include fuel, lubricants, heavy metal compounds from tires and brakes, and automobile engine coolants such as ethylene glycol. High-pH (alkaline) water would be generated as part of the concrete production process at the concrete batch plant, as well as from stormwater runoff that comes into contact with certain material used in or resulting from the pontoon manufacturing process. A stormwater treatment facility at the site would capture stormwater runoff and treat the water to remove contaminants before discharge to Grays Harbor. Stormwater treatment might include oil/water separation, sedimentation, media filtration, and/or chemical flocculation (the process by which small particles of fine soils and sediments aggregate into larger lumps).

Treated groundwater generated from dewatering activities would be discharged to Grays Harbor, and contaminated groundwater would be treated onsite or processed offsite at a nearby wastewater treatment facility. Treating and disposing of contaminated groundwater would result in some groundwater remediation at the site. Dewatering activities would result in a positive long-term effect related to hazardous materials.

When WSDOT is done building pontoons, the site's impervious surfaces would be cleaned to the point that they would no longer be considered pollutant-generating surfaces. Surface runoff would pass through the treatment facilities, but WSDOT does not expect treatment to be necessary.

Methane gas from the decomposing buried wood waste—although a low risk—could accumulate under vaults, catch basins, encasement pipe, and other underground openings constructed as part of the project. These features could accumulate concentrations of methane gas, which at substantial levels could be an explosion hazard.

Maintenance dredging of the launch channel might be necessary periodically during pontoon operations, and WSDOT would need to characterize and dispose of any contaminated dredged sediment as described above, where construction effects are discussed.

What is environmental remediation?

Generally, remediation means providing a remedy; so environmental remediation involves removing pollution or contaminants from environmental media, such as soil, groundwater, sediment, or surface water, for the general protection of human health and the environment or from a site intended for redevelopment. Remediation is generally subject to an array of regulatory requirements and also can be based on human health and ecological risk assessments where no legislated standards exist or where standards are advisory.

How would pontoon moorage directly affect hazardous materials?

Pontoon moorage is not expected to cause long-term effects related to hazardous materials.

How would the Grays Harbor build alternatives compare in their direct effects related to hazardous materials?

Exhibit 3.3-3 summarizes and compares the hazardous materials-related direct effects of the Grays Harbor build alternatives.

EXHIBIT 3.3-3
Hazardous Materials Summary of Direct Effects

	Anderson & Middleton Alternative	Aberdeen Log Yard Alternative
Casting basin construction	Dewatering could contain contaminants unsuitable for discharge. Contaminated water would be treated before being discharged. Areas of localized upland soil contamination might be encountered. Contaminated soils would be containerized and properly disposed. Data collected to date suggests that dredged materials might be suitable for open-water disposal. There would be positive effects resulting from developing onsite stormwater treatment facilities; potentially contaminated soil and sediments could be encountered, and properly disposed.	Dewatering could contain contaminants unsuitable for discharge. Contaminated water would be treated before being discharged. Areas of localized upland soil contamination might be encountered. Contaminated soils would be containerized and properly disposed. Data collected to date suggests that up to 30 percent of the dredged materials might not qualify for open-water disposal and would require disposal in an upland facility, such as a Subtitle D landfill, due to low-level contamination. Another potential effect would be the release of contaminated sediments into the water during launch channel dredging. There would be positive effects resulting from developing onsite stormwater treatment facilities; potentially contaminated soil and sediments could be encountered and properly disposed.
Pontoon-building operations	Potential effects could include contaminant runoff in stormwater, methane gas buildup, and sediment disposal from maintenance dredging of the launch channel. Positive effects would result from treated groundwater from dewatering activities.	Effects would be the same.
Pontoon moorage	None	None

What indirect effects would the project have related to hazardous materials?

CTC Facility

Because WSDOT's proposed use of the CTC facility would be consistent with the site's current industrial use, the project would not produce additional indirect, adverse effects related to hazardous materials.

Grays Harbor Build Alternatives

The Grays Harbor build alternative sites would produce indirect effects related to hazardous materials in several ways. By removing contaminated materials from soil or groundwater, the potential for contaminants to migrate to an otherwise uncontaminated area would diminish, as would the potential for the hazardous materials to harm human health and the environment. This positive effect would occur in the immediate vicinity where contaminated media is potentially present and would be removed as a result of either build alternative. For example, removing petroleum- and creosote-contaminated soil would prevent these contaminants from migrating into Grays Harbor. Removing contaminated sediment from the launch channel area would result in a healthier aquatic environment.

Acquiring either build alternative site could result in future long-term cleanup liability if the full extent of the contamination is not accounted for. For example, a contaminated property could require extensive ongoing cleanup even after project construction is completed. Offsite contamination could later be found to have originated from the acquired property; the owner of the contaminated property is then obligated to conduct cleanup at the offsite location. This negative effect can be mitigated or minimized by conducting a thorough investigation and/or requiring the current property owner to conduct cleanup before acquisition.

Because both build alternatives would involve offsite disposal of large quantities of soil and sediment, WSDOT could become liable in the future for the cleanup of contaminated media disposed of at sites that were later found to be unsuitable for the disposal of such material, particularly if the disposed material was not characterized properly or if disposal documentation (such as laboratory data, sampling procedures, waste profile sheets, and disposal tickets) were not properly maintained.

During pontoon-building operations, hazardous materials would be transported along the truck haul routes. This would lead to an increase in truck traffic and maintenance along the routes and an increased risk of vehicle accidents involving spills of hazardous materials, which could

cause adjacent soil and surface water contamination (typically from petroleum products and metals).

During pontoon towing and moorage, petroleum products could be released to Grays Harbor as a result of accidental spills, although the likelihood of this occurrence would be low.

How would hazardous materials be affected if the project were not built?

Because no construction activities would occur under the No Build Alternative, there would be no potential to encounter or disturb contaminated media; therefore, no contaminated media would be removed or disposed; there would be no project-related byproduct from transportation or transportation vehicles; no hazardous materials would be transported to or stored on the sites; and no dredging and sediment disposal would occur. In addition, WSDOT would not install the stormwater treatment facilities, and their potentially positive effects would not occur.

What mitigation measures does WSDOT propose to reduce direct effects related to hazardous materials?

CTC Facility

No mitigation measures beyond those that already exist at the existing CTC facility would be needed. No contaminated media would be removed or disposed.

Grays Harbor Build Alternatives

Because the Chehalis River and Grays Harbor are adjacent to the build alternative sites, these water bodies would require special protection from spills or releases of hazardous materials. WSDOT would prepare a project-specific spill prevention, control, and countermeasures plan before any construction activities begin. This plan would describe steps needed to mitigate effects on soil, surface water, and groundwater. This plan would also address procedures, equipment, and materials to be used if a spill of contaminated soil, petroleum products, contaminated water, or other hazardous substances occurs.

During proposed project construction, including launch channel maintenance dredging WSDOT would use standard best management practices to avoid and reduce potential effects from the project. WSDOT would manage and dispose of contaminated soil and/or groundwater in accordance with applicable regulations and would implement construction techniques that minimize disturbance to the subsurface and disturbance or release of contaminants into the aquatic environment.

WSDOT would use standard best management practices to avoid and reduce potential effects from the project related to hazardous materials. These best management practices would be designed in accordance with the *Environmental Procedures Manual* (WSDOT 2008b) and the *Highway Runoff Manual* (WSDOT 2008a).

Because both sites contain buried wood waste, workers could encounter hydrogen sulfide and methane gas during excavation; therefore, WSDOT would develop a comprehensive health and safety plan. This plan should include procedures for monitoring vapor releases and preventing fires caused by potential methane ignition. In addition, procedures should be put in place to provide adequate ventilation, particularly during activities involving confined spaces or trenching work. To address the potential presence of methane gas during operation, specific design measures might be required to limit methane gas from migrating on the site and to provide appropriate ventilation to keep methane gas buildup to levels below the explosive limit.

WSDOT would also implement best management practices during launch channel dredging. The best management practices would be designed to minimize the loss or transport of contaminated sediment or debris from the dredging footprint and minimize the generation and runoff of leachate from dredged material to Grays Harbor during transport or rehandling of dredged sediments. WSDOT would select best management practices based on dredging methods, transport equipment used, sequencing of the activities, and actual conditions.

Because the project would not produce long-term, unavoidable, negative effects related to hazardous materials, no compensatory mitigation would be necessary.

How could WSDOT mitigate for indirect effects related to hazardous materials?

CTC Facility

WSDOT has not identified any indirect effects related to hazardous materials as part of the existing CTC facility. As a result, no mitigation measures would be needed.

Grays Harbor Build Alternatives

WSDOT could minimize or mitigate any long-term cleanup liability as a result of acquiring either Grays Harbor build alternative site by thoroughly investigating the site and/or requiring that the current property owner conduct site cleanup before the site is acquired. The negative indirect effect of becoming liable in the future for the cleanup of contaminated media disposed of offsite can be mitigated or reduced

by conducting appropriate waste characterization and maintaining proper disposal records in accordance with applicable rules and regulations.

What would the cumulative effect related to hazardous materials likely be?

The analysts considered cumulative effects relating to hazardous materials to be the accumulation of contaminants in soil, surface water, or groundwater from accidental releases of hazardous materials during the construction and operation of many past and present development projects. Any measure that would add to existing levels of hazardous materials in the environment would increase the cumulative effect by a small amount. Further, any measure that would remove a portion of existing hazardous materials from the environment would decrease the cumulative effect by a small amount.

By implementing the federal and state environmental regulations—most of which were enacted in the 1970s and 1980s—many identified hazardous materials sites in the project vicinity have been cleaned up or remediated. Complying with more stringent enforcement of existing environmental regulations and advances in pollution prevention technologies has also resulted in fewer hazardous substances being released into the environment and fewer hazardous materials sites being created. Future development and transportation improvement projects could help accelerate the cleanup of existing contaminated sites.

Hazardous materials conditions would likely remain unchanged in the reasonably foreseeable future without the project because many of the planned development and traffic improvement projects in the project vicinity are currently not funded. Transportation improvement and land use redevelopment projects would typically have a beneficial effect on the presence and management of hazardous materials because encountering contaminated media during construction would require the contamination to be removed and disposed of, therefore leaving the site cleaner than if the project did not occur.

With either Grays Harbor build alternative, casting basin construction would make a short-term contribution to a cumulative effect on hazardous materials in the following ways:

- By generating and disposing of contaminated media
- By increasing the risk of accidental releases of hazardous substances, such as fuels and/or oils, or by discharging concrete-laden water into Grays Harbor

- By increasing risks to worker safety and public health through exposure to hazardous substances encountered during casting basin construction

Constructing either build alternative site would accelerate the cleanup of existing nearby properties with contamination by removing contaminated soil, groundwater, sediment, and USTs and result in an overall cleaner environment and reduced harm to human health; these overall cumulative effects would be beneficial. Additionally, either Grays Harbor build alternative would have a positive long-term effect by removing potentially contaminated soils and sediments during launch channel construction, excavation, or maintenance. The project would contribute a small, incremental cumulative decrease in the amount of contaminants present in the region. The contributions to cumulative effects from either build alternative sites would be similar.

How could cumulative effects related to hazardous materials be mitigated?

Hazardous materials are not themselves a resource that would be evaluated for cumulative effects. Hazardous materials could, however, enter the air and water and eventually affect human health and ecosystems. Hazardous materials can be associated with contaminated soils and groundwater, building materials encountered through demolition, accidental spills at construction sites, and leaking underground storage tanks. Depending on the type of contamination, there could be risks to worker safety and public health as well as environmental damage.

Redevelopment and transportation improvement projects improve hazardous materials conditions because contaminated soil or water encountered during construction must be removed and disposed of, leaving the site cleaner than it was before.

Implementing best management practices, adhering to standard operating procedures, and complying with health and safety procedures and regulations would minimize the potential contribution to the cumulative hazardous materials effects listed above and help to slow the rate at which hazardous materials are accumulating in the environment. WSDOT assumes that best management practices and regulatory compliance would be implemented by foreseeable projects and that the overall cumulative effect of this project, combined with other reasonably foreseeable projects on hazardous materials, would likely be beneficial.