1.1 INTRODUCTION

This Final Environmental Impact Statement (FEIS) addresses the planned remediation of arsenic- and lead-impacted soils at the former DuPont Works site within the City of DuPont, Washington (Figure 1). This FEIS was prepared to address the State Environmental Policy Act (SEPA) issues associated with the planned remediation and comments received on the Draft EIS (DEIS). The Washington State Department of Ecology (Ecology) is the lead agency under SEPA, and the Weyerhaeuser Company (Weyerhaeuser) and the E.I. du Pont de Nemours & Company (DuPont) are the project proponents. Weyerhaeuser and DuPont are responsible for the cleanup.

The area of the remedial action (the project site) is within Parcel 1, an approximately 636-acre parcel, which is one of two parcels (Parcel 2 is approximately 205 acres) that comprise an approximately 841-acre tract (Figure 2). These parcels were the site of a former industrial explosives manufacturing facility operated by DuPont until 1976, when the facility was closed and decommissioned. The property was sold to Weyerhaeuser in 1976. Parcel 1 is still owned by Weyerhaeuser and ownership of Parcel 2 was transferred to Weyerhaeuser Real Estate Company (WRECO) following cleanup in 1999. The entire 841-acre property (Parcels 1 and 2) is known as the former DuPont Works site.

In 1985, Weyerhaeuser began studies to determine whether chemical contamination was present on the site. Based on the findings in those studies, the Weyerhaeuser and DuPont companies signed a Consent Decree in 1991 with Ecology, pursuant to the Model Toxics Control Act (MTCA). Under this Consent Decree, the companies agreed to implement remedial cleanup activities for the contaminated areas of the site. The alternatives considered for site remediation under the Consent Decree include development of a cap/containment facility (that could be developed later as an 18-hole golf course) as a means for isolating and managing contaminated soils on the site. This Consent Decree also includes provisions for interim actions, including removal of areas of contaminated "hot spots" of soil. Various areas within the former DuPont Works site were contaminated during the operation and decommissioning of the industrial explosives manufacturing facility. All of the areas have been evaluated to determine the extent and magnitude of the contamination (see discussion in Section 2.1.2) and some have already been cleaned up.

Parcel 1 is currently undeveloped, with the exception of a few remaining buildings from the former DuPont Works. The former DuPont Works at one time included more than 200 individual structures, along with storage tanks, standard and narrow-gauge rail lines, a road network, and utility systems. Many of the former buildings were removed during plant decommissioning by DuPont when the plant was closed in 1976. Other features have been removed, along with the removal of contaminated soil, during the interim source removal actions. The current uses of the site consist of security control, administrative and caretaker property maintenance, and environmental investigation and monitoring activities associated with the site remediation process.

Considerable remedial investigation field work has been completed to date. A draft remedial investigation report, draft risk assessment, and a draft feasibility study have been prepared. The draft site cleanup options presented in the feasibility study represent a complete assessment of

possible alternatives for the site. The alternatives described in Section 1.5 of this document warrant further consideration.

1.2 BACKGROUND ON CLEANUP AND SEPA

As stated, there have been numerous and substantial interim cleanups conducted within Parcel 1. Parcel 2 of the former DuPont Works site has been cleaned up to meet industrial cleanup standards. The cleanup of Parcel 2 was approved by Ecology, and this parcel was removed from the Hazardous Sites List in 1997 after an opportunity for public review and comment.

Review under SEPA is required for cleanups occurring under MTCA. State and local permits are not required for actions undertaken in association with MTCA, but Ecology must ensure that the substantive requirements of any permit that would normally be required for any activities occurring during the cleanup are met. Therefore, Ecology's role in ensuring such requirements is an action under SEPA.

As co-sponsors of this project proposal, the Weyerhaeuser Company and the DuPont Company propose remediating the site (Parcel 1), which would allow a variety of subsequent land uses in specific areas, such as a golf course commercial, industrial, or open space. This plan includes consolidating and capping/containing contaminated soil into specific locations that would be suitable for future development as an operational golf course. The plan to contain the contaminated soil under a cap resulted after an extensive review of reasonable cleanup alternatives (see the feasibility study discussion in Section 1.5 of this document) and after many years of discussions between Ecology and the companies. The golf course cap/containment facility has also been discussed in public forums for many years. Given the extent of the contamination and the large volume of impacted soil, capping appeared to be the most cost-effective and reasonable, but also protective, alternative.

In 1995, Weyerhaeuser and DuPont approached the City of DuPont about constructing a golf course as part of the cleanup activity for the site. Because the proposed location of the golf course was not completely consistent with the City's comprehensive plan, Weyerhaeuser eventually withdrew their request for the conditional land use permit. Under the proposed project, there is no land use-related action. Only the cleanup action is being evaluated in this FEIS at this time.

In the future, when land use permits are requested from the City and a firm proposal for site development exists, evaluation of these land uses will require environmental review under SEPA. The current FEIS evaluates only impacts associated with the cleanup and should not be viewed as a SEPA analysis for a golf course, commercial and/or industrial uses, and/or open space. Permits and other actions required to enable subsequent uses of the site must be addressed in a separate SEPA document.

1.3 OBJECTIVES

The overall objective for the FEIS is to analyze the impacts of and propose mitigation for the remedial action proposal. The purpose of the remedial action is to eliminate the potential for direct contact with soil that exceeds site-specific remediation levels for arsenic and lead in Parcel 1. As part of the remedial action, a golf course cap/containment facility is proposed over a portion of Parcel 1. The cap/containment facility would prevent direct exposure of human and

ecological receptors to soils with metals present in concentrations below the site-specific golf course remediation but above ecological risk levels.

1.4 PROPOSED ACTION

The trigger for this FEIS is issuance of a determination of significance (DS) by Ecology. Ecology will approve a Cleanup Action Plan in the future that will describe implementation of the preferred cleanup alternative. The results of the EIS will help determine which cleanup alternative is chosen.

Ecology has agreed that golf course development and operation would be compatible with the planned remediation of Parcel 1. In general, the remediation objectives for Parcel 1 involve isolating soils on the site that are contaminated with lead or arsenic. The contaminant migration pathway of concern is direct contact with the contaminants. Based on the applicants' proposed land uses for Parcel 1, the area within the golf course layout must be cleaned up to meet golf course remediation levels. Specifically, the concentration of contaminated soils placed under the golf course should not exceed the health risk levels appropriate for an adult golf course worker (golf course remediation levels), as established by Ecology.

The general method proposed to meet the remediation objectives is to consolidate contaminated soils within a minimum area of the golf course "footprint" (the collective outer boundary of the golf course [roughs, fairways, greens, etc.] arranged in their proposed configuration). The potential for direct contact would be minimized by placing a suitable cover over the contaminated soils. Suitable covers would include clean soils (those that meet Ecology's residential and ecological cleanup standards) with a minimum depth of 18 inches (12 inches of clean soil over 6 inches of clean gravel or 18 inches of clean soil over a permeable geotextile layer) from elsewhere on the site or from offsite sources. Public streets or roads would not be placed over contaminated soils, and underground utility lines would be located to avoid contaminated areas. Golf course fairways, roughs, tees, and greens would be developed over contaminated soils; however, an impermeable geomembrane layer and water collection system would be used in the tee and green areas instead of a permeable layer because of higher water use in these areas, consistent with standard golf course construction practices. Some of the contaminated soils to be covered would remain in their current location within the golf course footprint, while other soils would be relocated from other parts of the course layout or elsewhere on the site and covered during course development. The proposed remediation is estimated to be completed sometime after 2001.

1.5 ALTERNATIVES

The Department of Ecology has identified three alternatives, in addition to the proposed action, for consideration in this FEIS. The proposed action is identified as Alternative 1, which is the project proponents' preferred alternative. Under Alternative 1, the engineered golf course cap would be used as a containment cover for the placed (and in-place) contaminated soils, and soil scraping (excavation) with placement under selected golf course areas would be involved. No soils above the golf course remediation level would be placed under the golf course footprint; any soils above that level would be treated (by screening) and/or disposed offsite in an Ecology-approved landfill. Alternative 2 would consist of soil scraping (excavation) and removal of contaminated soils for offsite disposal; no cap/containment facility would occur under this

alternative. Alternative 3 would consist of construction of a golf course footprint and scraping (excavation). All excavated soils would be washed or dry screened. Following washing or dry screening, soils below golf course remediation levels would be placed under golf course fairways and soils above golf course remediation levels would be removed for offsite disposal. Besides the differences in volumes of soil to be treated and/or disposed and the presence or absence of a golf course cap, Alternatives 1, 2, and 3 differ only in the duration of work and cost. Alternative 4 is the no action alternative.

As part of the MTCA process, Weyerhaeuser and DuPont companies have investigated contamination associated with the production, maintenance, disposal, and decommissioning activities at the former DuPont Works site. The investigation involved collecting and analyzing thousands of samples of soil, groundwater, surface water, marine and freshwater sediments, and waste to characterize the extent and magnitude of contamination remaining onsite. Those same data have been used to evaluate various cleanup alternatives (called a feasibility study) and to evaluate the risk to both human health and the environment. All of the investigative and cleanup work conducted at the site is being conducted under a 1991 Consent Decree agreement between Ecology and the companies.

A feasibility study document is used to compare and contrast various cleanup alternatives. A feasibility study evaluates the various alternatives against an established set of criteria. An initial screening occurs to reduce the potentially large number of options to a smaller set of reasonable alternatives. The screening of alternatives is based on three criteria: effectiveness, implementability, and cost. Within each criterion is also a set of sub-criteria. The sub-criteria for effectiveness include: protection of human health and the environment; compliance with applicable, relevant, and appropriate requirements; long-term effectiveness; reduction in toxicity mobility and volume; and short-term effectiveness. Under the implementability criterion are two sub-criteria: operational implementability (ability to construct and operate the remedial alternative) and administrative feasibility (ability to obtain approvals, disposal facilities/companies, and equipment). Sub-criteria for cost include an evaluation of construction and treatment system operation, as well as long-term operation and maintenance. Incorporated within various cleanup alternatives for the proposed project was construction of a golf course cap/containment facility as part of the remediation (see Section 2.2 for more details). Section 2.3 provides a brief summary of alternatives identified in the feasibility study that were eliminated from further consideration.

1.6 SUMMARY OF CONSTRUCTION OF THE PROPOSED GOLF COURSE CAP/CONTAINMENT FACILITY

The construction of the cap/containment facility, including the cleanup (scraping) of the surrounding property, would be conducted under the direct oversight of Ecology. The proposed cap/containment facility would be located on land Weyerhaeuser wishes to promote for a future operational golf course. Lead- and arsenic-contaminated soils, which are less than or equal to the appropriate remediation level for placement within the footprint of land for the future golf course, will be covered with either an appropriate permeable geotextile layer and a minimum of 18 inches of clean soil or a minimum of 6 inches of gravel and 12 inches of clean soil overlain with a grass cover. The soil layer is a human health barrier, and the gravel or geotextile layer is an ecological barrier. Construction of a clubhouse, maintenance facilities, or other golf course amenities would not be constructed as part of the cleanup. When construction of the

cap/containment facility is completed, there would not yet be an operational golf course for public play. However, as part of the long-term operation and maintenance of the cap/containment facility, the grass cover would be required to be maintained to reduce erosion of the cap.

Any eventual owner/applicant proposing to develop the site as a golf course or any other use would need to conduct an environmental analysis of the potential impacts to the community and the environment resulting from any construction, operation, and maintenance of the proposed land use. Those impacts may include, but are not limited to, traffic, noise, surface and groundwater quality, air quality, and historic and cultural resources.

The proposed remediation of the property involves leaving contamination onsite, which limits future land uses. Uses that would result in unacceptable human or ecological exposures to residual contamination would not be allowed. The options for future land uses will be limited by the choices being made in the cleanup process.

1.7 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Based on the nature of the proposed action, the results of project scoping, and DEIS comments received, the environmental review process documented in this FEIS addresses the following elements of the environment:

- Surface water
- Groundwater
- Historic and cultural resources
- Environmental health
- Land use

For each of these five elements, Chapter 3 of this FEIS describes the affected environment, the anticipated impacts of the proposed alternatives, and potential mitigation measures that would avoid or reduce the identified impacts. Statements about whether there would or would not be significant unavoidable adverse impacts to each element are included at the end of each section in Chapter 3. Table 1-1 summarizes this FEIS with respect to impacts and potential mitigation measures (for a full discussion of impacts and mitigation under the environmental elements, please refer to Chapter 3).

Based on the expected construction and operation plans for the proposed alternatives, including mitigation measures, the projected impacts to surface water, groundwater, historic and cultural resources, environmental health, and land use would generally be insignificant (with mitigation) and would be essentially the same for all three action alternatives. If the proposed mitigation is followed, no significant unavoidable adverse impacts are anticipated for the elements analyzed, with the exception of a significant unavoidable adverse impact to environmental health (in the form of habitat reduction until the site develops) after site excavation.

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
Surface Water			
Impacts	• Change in surface runoff characteristics and exposure to erosion due to: – vegetation clearing – temporary haul route building – mass excavation and placement • During cap construction, possible wind and stormwater impacts to soils in cap	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• Prepare Temporary Erosion/Sedimentation Control Plan (TESCP) and keep in place after construction • Have TESCP inspector or other qualified person present during site preparation activities • Submit Pollution Prevention Plan • Mulch or cover soil stockpiles (if necessary) • Collect runoff in appropriate containment facilities and either allow for infiltration or, if necessary, dispose in approved offsite facilities • Sediment ponds would be finished to or above final grade elevation, if necessary • Accidental spill response cleanup and notification procedures would be included in contractor agreements • Wet ponds (golf course footprint area) would be lined • Allow areas outside of golf course footprint to revegetate naturally	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Groundwater			
Impacts	• Potential for groundwater quality to be degraded as a result of spills, leaks, or other releases handled at remediation staging area • Transport of pollutants from future golf course operation to groundwater could occur without mitigation • Possible but minimal impact to surface water bodies from irrigation use (future golf course) if not mitigated	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• See Surface Water discussion above • Continue groundwater monitoring as part of ultimate site remediation • Implement strict operational and spill control practices at the remediation staging area • As part of cleanup action plan, prepare maintenance plan for cap/containment building	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Significant	• If mitigation is followed, none are anticipated	Same as Alternative 1	Same as Alternative 1

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
Unavoidable Adverse Impacts			
	Historic and Cultural Resources		
Impacts	• Possible impacts to Sites 45-PI-63, 45-PI-66, 45-PI-70, 45-PI-73, 45-PI-75, and 45-PI-404 • Deeper burial of sites or artifacts not yet uncovered could result in impacts without mitigation	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• Develop an investigative/survey plan for properties to be excavated/cleared. Follow procedures outlined in archaeological and cultural resources protection plan currently in preparation • A professional archaeologist (in accordance with WAC 25-48) would monitor construction activities	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation (cont'd)	• All construction and field personnel will receive training in identification of cultural resources. This includes equipment operators and ground personnel directing them • Construction scraping activities will occur in lifts (approximately 6-8 inches at a time) to minimize impacts. Each lift will be examined for artifacts • If monitoring reveals any significant historic/cultural sites, agencies (including OAHP) would be notified and consultation would occur • Weyerhaeuser will maintain a barrier around Site 45-PI-55 and the site noted as off limits. Extra precautions will be taken during construction around the site as well as other sites that may have cultural resources. To be certain no human remains are in the vicinity of Site 45-PI-404, additional archaeological research will be scheduled in this area before construction begins • Existing memorandum of understanding and memoranda of agreements will be followed and/or amended as appropriate • Ecology will ensure documentation on prehistoric and historic sites is forwarded to OAHP on a regular basis, as needed. Documents and review processes will be updated or established respectively, as necessary		
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated	Same as Alternative 1	Same as Alternative 1
	Environmental Health		
Impacts	• Possible spread of noxious weeds during clearing activities • Dust would be generated during construction	Same as Alternative 1 (except no golf course)	Same as Alternative One with additional exposure possible during washing

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
Impacts (cont'd)	• Haul route construction and removal of soil and vegetation will reduce habitat for plants and animals		and disposal processes. Possible low-level human exposure while spreading treated soil on the course and during exposure scenarios described for Alternative One.
Mitigation	• Exposure time for workers to soils with contaminants would be short and workers would wear protective equipment • Take precautionary measures to ensure noxious weeds are not spread • Allow area outside golf course footprint to revegetate naturally since land will be sold to companies who will develop properties • Dust control measures would be implemented during construction. To protect against changes in conditions during remediation activities, limited air monitoring will be conducted in the work zone and surrounding areas • Maintain a health and safety plan during construction and manage soils to eliminate health and ecological risks • Loss of habitat will occur until the site develops (gravel soil onsite is expected to contribute minimal amounts of sediment). Best Management Practices (BMPs) such as erosion and sedimentation control measures will be left in place after construction and monitored until no longer needed	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated except for a loss of habitat until the site develops	Same as Alternative 1	Same as Alternative 1
Land Use			
Impacts	• The golf course footprint area is larger than the golf course proposed in the City of Dupont 1995 Comprehensive Plan • Part of the golf course footprint would extend into Town Center area proposed in Comprehensive Plan • Golf course footprint area would displace portion of area proposed for Town Center use and community park as well as commercial area • Restrictive covenant on site does not allow residential use, schools, daycares, parks, and recreational uses– except for golf courses and related amenities	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• Future golf course that could be developed on golf course footprint needs to undergo City SEPA and permit processes		

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
	• Proposed cap/containment facility, and revised land use and use restrictions need to be described in Comprehensive Plan • Weyerhaeuser and City should continue to coordinate planning efforts		
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated	Same as Alternative 1	Same as Alternative 1

Notes:

[a] This table is a summary of impacts and mitigation and is intended for that purpose only. For a more extensive discussion of impacts and mitigation,
please refer to the individual sections in Chapter 3 for each environmental element analyzed.

OAHP = State Office of Archaeology and Historic Preservation.
SEPA = State Environmental Policy Act

2.1 BACKGROUND

2.1.1 Site History

The project site was originally used by the ancestors of the Nisqually Indians. European settlement began in 1832, when the Hudson's Bay Company established a cabin/storehouse on nearby Puget Sound at the mouth of Sequalitchew Creek (City of DuPont, 1995), northwest of the project site. In 1833, Hudson's Bay built Fort Nisqually at a location within the current Weyerhaeuser property and adjacent to the proposed golf course layout. Ten years later, Fort Nisqually was rebuilt at a location adjacent to but outside the eastern edge of the project site.

The DuPont Company acquired the Fort Nisqually property in 1906 and constructed an explosives plant and the historical Village of DuPont as a company town for plant workers (the historical village area is approximately 1 mile southeast of Parcel 1). DuPont continued to manufacture explosives at the site until the mid 1970s, when it sold the property to Weyerhaeuser.

Weyerhaeuser and its subsidiary, WRECO, still own the majority of the approximately 3,000 acres of Northwest Landing. Northwest Landing, a planned community, is in the City of DuPont and includes the former DuPont Works property. WRECO has begun to develop Northwest Landing on some of its lands within the City but has not yet developed the project site. Activities at the site have included extensive interim cleanup action in areas with the greatest degree of contamination.

2.1.2 MTCA Consent Decree and Site Remediation Studies

The explosives manufacturing and facility decommissioning activities at the former DuPont Works site (the project site) left residual chemical contaminants primarily in areas around buildings on the site, at materials disposal areas, and along the route of a narrow-gauge railroad that served the facility. Weyerhaeuser began remediation studies of the site in 1985 to determine whether hazardous substances were present and to develop plans for remediation. In 1991, Weyerhaeuser and DuPont signed a Consent Decree (No. 91 2 01703 1) with Ecology, according to the requirements of MTCA under which they agreed to study the site and complete a remedial investigation (RI), risk assessment (RA), and feasibility study (FS). The Consent Decree also allowed the Companies to implement interim remediation activities as approved by Ecology.

The boundaries of the area covered by the Consent Decree (referred to as the Consent Decree area) are shown in Figure 2. The portion of the initial Consent Decree area generally south of Sequalitchew Creek is referred to as Parcel 1 and is the focus of this EIS; the portion generally north of the creek is referred to as Parcel 2. The agreement provided for the companies to conduct a remedial investigation (RI), a health risk assessment (RA), and a feasibility study (FS). These studies are standard components of the remediation process for a contaminated site. Generally, the RI is the initial study in which physical samples from the site are subjected to laboratory analysis to identify the hazardous constituents present at the site and their levels of concentration. The RA is a rigorous analytical evaluation in which potential pathways for contact with the contaminants are identified, the human health and ecological risks associated with those pathways are quantitatively estimated, and remedial action objectives based on those risks are established. The FS evaluates alternative potential cleanup methods designed to meet

the remedial action objectives). Draft versions of these studies were delivered to Ecology in 1994 and 1995.

Between 1990 and 1994, while the site studies were ongoing, Weyerhaeuser and DuPont undertook interim source removal actions to clean up soil and/or debris from 21 areas of the site, in accordance with MTCA and the Consent Decree (DuPont Environmental Remediation Services and Hart Crowser, 1994a). Specific work plans were prepared for each interim source removal and were reviewed and approved by Ecology prior to implementation. These actions were undertaken to improve overall site conditions and minimize delays in the RI/RA/FS process. The interim source removals provided for more complete characterization of the site at lower risk and allowed the FS to focus on the remaining soil contamination at the site.

A draft RI for the former DuPont Works site (DuPont Environmental Remediation Services and Hart Crowser, 1994b) was completed in June 1994. The preliminary RI identified 14 potential chemical contaminants and 22 areas of the site that warranted consideration in the site risk assessment (RA). The preliminary RA, completed in December 1994, determined that no further action was needed for some areas and identified the remaining areas for which cleanup actions were to be evaluated in the feasibility study (FS) (DuPont Environmental Remediation Services and Hart Crowser, 1994c).

Based on the conclusions of the draft RI and RA, the draft FS focused on arsenic and lead present on the site in soils and debris. The preliminary FS (DuPont Environmental Remediation Services and Hart Crowser, 1994a) considered the relevant cleanup standards and estimated soil volumes requiring treatment based on those standards; defined remediation units on the site, and estimated soil volumes in each unit to be treated through cleanup actions; evaluated the effectiveness, implementability, and cost of potential cleanup technologies; summarized the results of treatability studies; developed remedial action alternatives (consisting of sets of applicable technologies) appropriate to the site; analyzed the alternatives; and presented a recommended cleanup strategy based on the preferred alternative for each remediation unit.

In general, the draft FS strategy recommended that soils from remediation units with arsenic-only or lead-only contamination (most of the remaining remediation units following completion of interim source removal) be treated and/or capped on the project site. The draft FS recommended that soils with other constituents from some small remediation units be shipped to appropriate offsite landfills. The conceptual plan proposed in the draft FS features a golf course layout that includes the arsenic-only and lead-only contaminated soils requiring excavation and/or treatment. Residential, open space, or mixed residential and commercial land uses could occur on other areas of the site surrounding the golf course. Soils with concentrations below the applicable remediation levels for the corresponding land use would be left in place. Soils within the golf course area that have concentrations above golf course remediation levels would be treated to reduce contaminant levels and left in place or would be taken offsite for disposal. Contaminated soils could be placed within the golf course footprint, provided the concentrations of these soils were below the golf course remediation levels. Following placement of these soils within the golf course footprint, clean soils would be deposited over the golf course to provide capping material and help shape the course. Soil washing, with secondary treatment of residual soils, was considered for a portion of the contaminated soils on the site.

The overall objective for the remedial action is to remove and dispose or consolidate under an engineered cap soil that exceeds the site-specific (and land use-specific) remediation levels in Parcel 1.

The interim source removal actions (discussed previously) cleaned up the approximately 205-acre portion of the site located north of Sequalitchew Creek (Parcel 2) to industrial cleanup and/or site-specific remediation levels, which was the past and planned land use for this area. Therefore, in 1996 Ecology approved a Cleanup Action Plan (CAP) for Parcel 2 that provided for no further remediation activities except for institutional controls to maintain the industrial use of Parcel 2. Parcel 2 was deleted from the Consent Decree in 1997, and the deed restriction has been recorded in the Pierce County Assessor's office.

MTCA includes an exemption from local government permits and approval processes for remedial actions performed under a consent decree, order, or agreed order (RCW 70.105D.090). However, Ecology determined that the remedial action may result in probable significant adverse impacts to several elements of the environment and, therefore, determined an EIS was required.

2.1.3 SEPA and Land Use Restrictions

In 1995, Weyerhaeuser Company applied to the City of DuPont for a conditional land use permit for construction of a golf course, which was an element of the soil remediation. The City of DuPont did a SEPA evaluation of the proposal and made a determination of significance that required the completion of an EIS. The consulting firm of Huckell/Weinman and Associates was hired by the City to draft the EIS. The EIS was to address both land use impacts associated with construction of a golf course and remediation of lead- and arsenic-contaminated soils. Weyerhaeuser and DuPont companies, the project proponents, requested that Ecology become co-lead agency with the City of DuPont because of the cleanup component in the EIS. Ecology and the City of DuPont made an agreement to share the lead agency role and to each focus on their respective issues.

There were various disagreements between all the parties involved in the DEIS, especially over land use issues. After 4 years of work on the DEIS, Weyerhaeuser withdrew its conditional land use application, which eliminated the need to continue with that EIS. The companies then approached Ecology and requested that an EIS be drafted which addressed remediation issues only. Because the applicants proposed a cap/containment facility only, and they would not be the entity that would complete or operate the golf course, Ecology agreed to develop an EIS addressing just remediation.

Analysis of possible future land uses such as construction of golf course facilities (club house, maintenance buildings, etc.) as well as operation and maintenance of a golf course would need to occur in a separate environmental document (for example, a supplemental EIS, Determination of Non-Significance [DNS], Mitigated Determination of Non-Significance [MDNS], or new EIS). The project proponent at that time would most likely be whoever buys the cap/containment facility, and the lead agency would most likely be the City of DuPont. The Weyerhaeuser and DuPont companies have indicated they would not be the owners or operators of the golf course.

The City of DuPont Comprehensive Land Use Plan (Comprehensive Plan) is currently being revised and is scheduled for completion in late 2000. Both the 1985 and the 1995 Comprehensive Plans identified the Parcel 1 property within the Consent Decree boundary as having a variety of mixed uses, including residential, commercial, open space, and industrial. In

October 1999, Weyerhaeuser Company and WRECO filed a Declaration of Restrictive Covenant that covered the entire 846 acres of the cleanup site, including Parcels 1 and 2. The Restrictive Covenant was filed with the Pierce County auditor (document no. 9910290750) and is available for public review. The 1999 Restrictive Covenant states that Parcel 2 shall be developed and used only for industrial purposes. It also states that none of the property (Parcels 1 or 2) shall be developed or used for residential uses, schools, daycare facilities, or parks or recreational uses – with the exception that golf course and related amenities shall be allowed on Parcel 1. These restrictions on land uses apply to the current landowners as well as any and all future land owners, unless determined otherwise in a legal venue.

2.1.4 Scoping

Ecology distributed a Determination of Significance (DS) and Request for Comments on Scope of this EIS on May 17, 1999. Agencies, affected tribes, and members of the public were invited to comment on the EIS scope. Comments were to be returned by June 7, 1999.

The scoping process resulted in a variety of comments with several divergent opinions about the site. The alternatives described below were developed upon review of these comments. The scope of the EIS, determined by Ecology, focuses on the elements of the environment where there may be probable significant adverse impacts. These elements are:

- Surface water
- Groundwater
- Historic and cultural resources
- Environmental health

As a result of the scoping process, no probable significant adverse impacts were identified for the elements of earth, and land and shoreline use, primarily because the impacts of the proposed action will be temporary and remedial actions are under way. Therefore, these latter two EIS elements were not considered further or evaluated in the DEIS. However, based on comments received on the DEIS, a section on land use was added to the list of elements evaluated in the FEIS.

This FEIS is being prepared to be consistent with SEPA. Ecology is the lead agency under SEPA and the Weyerhaeuser and DuPont Companies are the project proponents.

2.1.5 Proposed Action

The trigger for this EIS is issuance of a DS by Ecology. Prior to implementation of the remediation, project proponents will submit and obtain Ecology approval of a CAP, which will describe implementation of the chosen cleanup alternative. The results of this EIS will help determine which cleanup alternative is presented as the recommended cleanup option in the feasibility study.

Ecology has agreed that a golf course cap/containment facility would be compatible with the planned remediation of Parcel 1. In general, the remediation objectives for Parcel 1 involved isolating soils on the site that are contaminated with lead or arsenic. The contamination migration pathway of concern is direct contact with the contaminants. Based on the proposed land uses for Parcel 1, the area within the golf course footprint must be cleaned up to meet golf course remediation levels.

The general method proposed to meet the remediation objectives is to consolidate contaminated soils within a minimum area of the golf course "footprint" (the collective outer boundary of the golf course holes and supporting facilities, arranged in their proposed configuration). The potential for direct contact would be minimized by placing a suitable cover over the contaminated soils. Suitable covers would include clean soils with a minimum depth of 18 inches (12 inches of clean soil over 6 inches of clean gravel or 18 inches of clean soil over a geosynthetic layer) from elsewhere on the site or from offsite sources. Public streets or roads would not be placed over contaminated soils, and underground utility lines would be located to avoid contaminated areas. Golf course fairways, roughs, tees, and greens would be developed over contaminated soils. However, an impermeable geomembrane barrier and water collection system would lie on top of the contaminated soil in the tee and green areas, instead of the permeable geotextile or gravel used elsewhere, because of higher water use in these areas, consistent with standard golf course practice. Some of the contaminated soils to be covered would remain in their current location within the golf course footprint, while other soils would be relocated from other parts of the course layout or elsewhere in Parcel 1 and covered during course development.

Whereas the golf course conceptual plan includes the full complement of supporting facilities that are standard for an 18-hole golf course (such as a clubhouse with parking areas, a mid-course restroom facility, and a maintenance complex), they will not be developed as part of the remediation and are not covered under this FEIS. A computer-controlled irrigation system, putting greens, a practice range, and cart paths will be installed, and a detailed management plan for the golf course will be prepared in the future, following completion of the site remediation.

A summary of the proposed action is described below. The applicants' proposed action is defined as remediation of the site that includes the following:

- Development of a cap/containment facility with the layout of an 18-hole golf course footprint that will be used as a containment cover for contaminated soils. Grasses will be planted on the containment cover to inhibit or reduce the potential for erosion.
- Shallow excavation of the land outside of the golf course footprint to the depth of contamination, estimated to be 1 to 1.5 feet, as defined by the land use-specific remediation levels.
- Transport and containment under the golf course footprint of soils less than the golf course remediation level excavated outside the golf course footprint.
- The treatment of soils and/or offsite disposal of the remaining soils containing chemical concentrations greater than the golf course remediation level. These soils have been excavated and stockpiled onsite as part of an interim action.
- Preservation of open space in areas specified.
- Implementation of the remediation plan pursuant to a CAP approved by Ecology.

2.2 PROPOSED ALTERNATIVES

2.2.1 Introduction

As described previously, the proposed action would consist of consolidating contaminated soils within selected areas of the golf course footprint and placing an "eco-cap" with clean soil over the material to prevent direct contact with the soil. Based on the studies completed to date, Ecology has determined that the cleanup strategy is to prevent direct contact with contaminated soils by either humans or ecological receptors. Previous studies have indicated that site groundwater, sediments, and surface water require no further remedial action, except for monitoring. Final determination of the need for further remedial action will be made by Ecology upon finalization of the CAP. Groundwater at the site is being annually monitored for one constituent (dinitrotoluene) at selected site wells (see Section 3.2 for more details). Leaching of contaminants from the proposed containment area soils to site groundwaters have been shown (using site-specific leaching studies) to be very limited and should not result in impacts to human health or the environment. Similarly, Ecology has determined that no remedial action is necessary for Old Fort Lake and Sequalitchew Creek because the lake and creek surface waters and sediments meet available ecologically based guidelines and human health criteria. Consequently, active remediation of groundwater, surface water, or sediments is not a component of the cleanup program for the project site. Planning for golf course development, operation, and maintenance need not accommodate such remediation measures, with the exception of potential long-term groundwater monitoring at selected site wells.

2.2.2 Alternative 1 (Proposed Action)

Alternative 1, which is the project proponents' preferred alternative, would involve the mass excavation of soil in targeted areas of the project site to the depth of contamination (estimated to be 1 to 1.5 feet), as defined by applicable regulatory standards. The excavated soil would be transferred and consolidated in selected locations onsite. Soil with concentrations greater than the golf course remediation level would be screened, and the fraction still above the golf course remediation level would be disposed offsite at a hazardous waste landfill. Soil below the golf course remediation level would remain within the golf course footprint. Each of the consolidation locations would be capped and lie beneath the proposed golf course footprint on the project site (see Figure 3). In short, it would be a golf course cap/containment facility.

Remedial action within the golf course footprint would be necessary if (1) there is a potential ecological concern in the area or (2) contaminant concentrations greater than the golf course remediation level are discovered. For these occurrences, the following generally would take place:

- **Areas of Ecological Concern**—Areas of ecological concern would either be scraped or spot excavated, and the removed soil less than the golf course remediation level transferred to the placement areas (soils greater than the golf course remediation level will be taken to an appropriate landfill), or an "eco-cap" would be constructed using either 6 inches of gravel or a geotextile.

- **Hot Spots (locations with soil concentrations greater than the golf course remediation level)**—Hot spot excavation occurred during the fall of 1999. The soils are stockpiled onsite and will be further treated and disposed of either prior to or during the final remedial action.

Scraping

The primary remedial technique would be the mass excavation by scraping of soils to the depth of contamination (estimated to be 1 to 1.5 feet), as defined by applicable regulatory standards. This scraping would be done on those areas within Parcel 1 that (1) exceed site-specific remediation levels, and (2) are not designated by Weyerhaeuser for a golf course cap/containment facility, open space, or as sites listed on the Washington Heritage Register and the National Register of Historic Places (such as the 1833 Fort Nisqually site). Some selected excavation could occur within the golf course footprint. For some open space land use areas (e.g., along railroad tracks), hot spots may need to be remediated. However, in other areas, lead detections occur in some open space areas that are ecologically sensitive (the Sequalitchew Creek Canyon [excluding railroad tracks], the bluff along Puget Sound, and the open space setback surrounding Old Fort Lake), where despite lead detections over site-specific human health remediation and/or ecological risk levels, remediation may not occur for these areas based on ecological concerns due to an assessment of net environmental benefit.

In general, the steps used during the scraping would be:

- Phase I—The area would be cleared and grubbed of existing vegetation.
- Phase II—The duff and upper 9 inches of soil would be removed, using a self-loading pan scraper.
- Phase III—The remaining contaminated soil (estimated to extend an additional 3 to 9 inches) would be graded into a windrow and picked up by the pan scraper. If uncontaminated gravel is encountered prior to reaching the target depth, further excavation would be terminated. The gravel represents a natural barrier to penetration of the subsurface by burrowing organisms. A grade level, installed on the grader, would be used to confirm the depth excavated.
- All of the material excavated would be placed in the placement/consolidation areas (PAs) within the cap/containment facility and rough-graded to generally match a golf course design.

Alternate Excavation Method

In those areas not accessible to the pan scrapers (because of topography or other reasons), a bulldozer would push the contaminated soils (estimated to be the upper 1 to 1.5 feet) to a collection point. The pan scrapers would then collect the soils and deposit them onto the PAs. Direct placement of soils into the PA is also possible from the areas adjacent to the PA and in the glacial kettles on the site (depressions in the surface topography).

Cap Construction

A cap/containment facility with the footprint of a golf course would be constructed on the project site as an engineered cover (cap) for contaminated soils and, if necessary, debris. The majority of this material would be imported from the commercial land use areas of Parcel 1 and

consolidated in roughly 89 acres of the approximately 180-acre golf course footprint. These 89 acres would constitute the PAs. Only soils and debris that contain contaminant concentrations equal to or less than the golf course remediation levels would be placed in the PAs. Each PA would be capped with 18 inches of clean soil by one of the following two methods listed below. This cap would be placed on any areas within the golf course footprint with in-situ contaminant concentrations less than the golf course remediation level but greater than the ecological risk level or the site-specific commercial remediation level. The remainder of the golf course soil (i.e., soil less than the ecological risk level) would be left in its current state.

- **Method One—**Twelve inches of clean soil would be placed over 6 inches of screened gravel. In this process, the gravel would act as an exposure barrier to ecological receptors. The 12 inches of clean soil would act as an additional exposure barrier to individuals most likely to be exposed—the golf course worker, who on occasion may find it necessary to install drainage ditches or repair irrigation pipe.
- **Method Two—**Eighteen inches of "pit run" soil would be placed over a permeable geotextile. In this case, the 18 inches of soil would act as the human health exposure barrier and the geotextile would act as the ecological exposure layer. In the tee and green areas, the geosynthetic (geomembrane) would be impermeable and a water collection system would be installed above the barrier.

Stockpiles

Existing Stockpiles

There are currently over 110,000 cubic yards of stockpiled soils on the project site. Of these soils, approximately 35,000 cubic yards are contaminated or slightly contaminated, primarily with lead. Stockpiles that meet (less than or equal to) site-specific remediation levels will be designated for reuse onsite. Stockpiles that do not meet site-specific cleanup goals will be treated and disposed of as described below.

Interim Action (Hot Spot Excavation Program) Soil Stockpiles

The soil stockpiles created as part of the interim action/hot spot excavation program will require treatment prior to disposal or re-use onsite. This process (primarily screening) will concentrate the contaminants into smaller volumes while recovering clean oversize gravel and sands that can be reused onsite. The oversize fraction will be analyzed and will be reused onsite if it meets site-specific remediation levels.

Other Considerations

Clearing and grubbing would be done when approval to proceed is given by Ecology. Haul routes for the scraping program would be established 2 weeks prior to initiation of the program. Scrapers would not travel in previously scraped areas. Sampling of the scraped areas would occur after scraping of the site is complete. Surveying of each section would follow the sampling effort and any re-excavation in the non-placement areas.

General Approach by Land Use

Commercial Land Use Areas

All scraped areas in the sections of the project site designated for commercial land use by Weyerhaeuser would be cleared of vegetation and excavated in the following manner:

Excavation would be done by sections of the project site to minimize haul distances to a placement area. Initially, there would be four sections. During the final golf course design, additional placement areas may be defined and incorporated in the design of the scraping sections. Some areas may not be excavated if soils meet site-specific human health and ecological risk criteria and if Ecology agrees that no excavation is necessary.

Confirmation sampling of the scraped areas would occur after a section is complete. Surveying of each section would follow the sampling effort and any re-excavation in the non-placement areas.

Open Space Land Use Areas

There were lead detections over the site-specific human health and ecological risk criteria in the open space areas, and these detections are generally along the railroad tracks near Sequalitchew Creek. These areas may be remediated as part of the remedial action or capped pending an evaluation of net environmental benefit. Other lead detections occur in areas that are ecologically sensitive: the Sequalitchew Creek Canyon, the bluff along Puget Sound, and the open space setback surrounding Old Fort Lake. These detections are below the site-specific human health risk criteria. No remediation is anticipated for these areas.

2.2.3 Alternative 2 (Excavation and Disposal at an Offsite Landfill)

This alternative would involve the scraping of the entire 636 (approximate) acres of the project site, excluding open space and sites listed on the Washington Heritage Register and the National Register of Historic Places (see Figure 4). The excavated soils would be stockpiled, sampled, and transported to an approved offsite disposal site. This effort would involve the movement of more than 1.35 million cubic yards of soil over the course of the project. Under Alternative 2, a golf course cap/containment facility would not be constructed.

2.2.4 Alternative 3 (Excavation and Secondary Treatment of All Impacted Soils by Soil Washing/Screening)

Under this alternative, the entire 636 acres (approximate) of the project site, excluding open space and sites listed on the Washington Heritage Register and the National Register of Historic Places, would be scraped to the depth of contamination (estimated to extend to 1 to 1.5 feet) (see Figure 5). The excavated soils would be stockpiled and washed or dry screened (depending on the decision made in the CAP). The soil would be handled the same as in Alternative 2, with approximately 215,000 cubic yards requiring disposal (soils that still do not meet site-specific remediation levels after the soil washing/screening is completed). The remainder would be spread back onsite (soils that do meet site-specific remediation levels after the soil washing/ screening is completed) under the golf course cap/containment facility, which would be constructed under Alternative 3.

2.2.5 Alternative 4 (No Action)

SEPA requires evaluation of a no action alternative in the environmental review of proposed actions. In this instance, the project site would remain in its current condition and all remaining contaminated soils would be left in place. No further remediation action would take place. This alternative would not be acceptable to Ecology under MTCA.

2.3 ALTERNATIVES NOT CONSIDERED IN DETAIL OR REJECTED

The range of action alternatives considered in this EIS has been determined by the remediation context of the proposed action. The golf course cap/containment facility has been proposed as an effective and efficient means to implement cleanup of contaminated soils present on the project site. Given the size and configuration of the project site and the distribution of contaminated soils, the range of reasonable remediation alternatives is limited.

The draft FS evaluated the feasibility of other alternatives for remediating contaminated soil at the site. The three action alternatives presented above (1, 2, and 3) represent the alternatives judged most promising for the project site. These alternatives and ten combinations of alternatives were previously evaluated according to:

- Effectiveness
- Cost
- Implementability
- Ecology's cleanup technology preference

These additional alternatives are discussed in detail in the draft FS, along with a number of other options that were rejected during the initial screening of applicable technologies (DuPont Environmental Remediation Services and Hart Crowser 1994a). The general approaches that were previously considered and rejected are summarized below (see the draft FS for the details).

- **Soil Stabilization**. This operation would have included the excavation of contaminated soil, mixing of the excavated soil with cement-like material, and solidification of the mixture to form a solid matrix or soil-like material. Soil stabilization was considered together with either onsite deposition and cover, and offsite disposal at a landfill. In either case, the excavation would have been backfilled and/or regraded.
- **Wet Screening**. This alternative would have included excavation of contaminated soil, wet screening the soil according to a specific grain diameter (taken to be 6 millimeters), and deposition of the clean coarser fraction on the site. The classification would separate out a finer fraction, in which the contaminants tend to accumulate, and a coarser fraction which would likely be less contaminated or uncontaminated. The excavation would have been backfilled and/or regraded. The contaminated fine fraction would require offsite disposal.
- **Surficial Soil Amendment**. This alternative would have consisted of blending shallow soils, which contain higher concentrations of lead and arsenic, with deeper, relatively uncontaminated soils and soil amendments. A mixing depth of about 1 foot was considered. Soil amendments included fertilizers, organic-rich materials, and chemicals to modify soil pH. The areas amended would have been revegetated.

- **Capping.** This alternative would have involved installing layers of low permeability, high durability, engineered materials over soils at the site that contained contaminants at or above a specified concentration. The cap would have prevented direct contact exposure with contaminated soil, prevented surface water (rainfall) from contacting the underlying contaminated soil, and further reduced the already low potential for future leaching of constituents into subsurface soils and groundwater.
- **Cover**. This alternative would have involved installing a clean soil layer above those areas at the site that contained contaminants at or above a specified concentration. The soil cover would have reduced direct contact exposure with contaminated soil.

3.1 SURFACE WATER

This section is based largely on the findings of the project surface water analysis conducted by Associated Earth Sciences, Inc. (AESI 1998).

3.1.1. Affected Environment

The entire project site lies within the 171-square-mile Chambers-Clover Creek watershed. The Sequalitchew Creek drainage is a sub-basin within this watershed, which contains the site. Sequalitchew Creek originates in 81-acre Sequalitchew Lake offsite to the east. The creek flows through Hamer Marsh and Edmond Marsh before following a course down a steep ravine along the site's north and northeastern boundary into Puget Sound north of the Nisqually River delta mudflats. The upper and lower reaches of the creek flow intermittently during the dry season (DuPont Environmental Remediation Services and Hart Crowser, 1994c). When there is little or no flow in the lower reach, salt water backs up into the channel from Puget Sound.

There are four glacial kettles (a steep-sided glacial depression without surface drainage) in Parcel 1, one of which contains water either intermittently or year-round. This kettle (Old Fort Lake) is located in the southern half of the project site. Old Fort Lake lacks inflow or outflow streams and is controlled by groundwater elevations (DuPont Environmental Remediation Services and Hart Crowser, 1994c). Two small kettles in the north-central portion of the site are depicted on the U.S. Geological Survey (USGS) Nisqually quadrangle topographic map. A fourth kettle is located in the northernmost corner of Parcel 1. The three kettles other than Old Fort Lake have not held any appreciable water for at least the last 8 years, if ever.

Puget Sound and the Nisqually mudflats are located along the base of an adjacent steep slope parallel to the northwestern and western boundaries of Parcel 1. This boundary follows the uppermost contour of the slope approximately 175 feet above mean sea level. It also coincides with a catch line of a west-facing onsite slope that has a grade approaching 30 percent.

Steilacoom Gravels comprise the surficial soils at the project site. The thickness of these deposits ranges from 20 to 40 feet over much of the eastern and central portions of the project site. The Steilacoom Gravels consist of stratified sands and gravels with cobbles and occasional zones of siltier sand. The coarse grain size of the Steilacoom Gravels allows for rapid infiltration of surface water and little to no runoff.

Soil horizons developed on top of the Steilacoom Gravels consist of gravelly, sandy loam with variable percentages of organic matter and volcanic ash. These soil horizons range in thickness from a few inches to approximately 3 feet, depending on topography and vegetation.

Sequalitchew Creek Water Quality

As part of the former DuPont Works site remedial investigations (RI) conducted by DuPont Environmental Remediation Services and Hart Crowser (1994b), four surface water quality sampling stations were established in Sequalitchew Creek (surface water Station 1 [SW-1]) [downstream] through SW-4 [upstream]). The stations were sampled several times between 1986 and 1989 and quarterly during 1992 (March, June, September, and December). During the RI, DuPont Environmental Remediation Services and Hart Crowser monitored nitrate-nitrogen, total petroleum hydrocarbons (TPH), 14 metals (total and dissolved), polycyclic aromatic

hydrocarbons (PAHs), nitroaromatic explosives (NAX), nitroglycerin (NG), monomethylamine (MMAN), polychlorinated biphenyls (PCBs), total organic carbon (TOC), total dissolved solids (TDS), pesticides, and total suspended solids (TSS). During quarterly sampling in 1992, semivolatile organic compounds (SVOCs) were analyzed. During the initial sampling efforts in 1988, volatile organic compounds (VOCs) were measured.

PCBs, NAX, TPH, SVOCs, and NG were undetectable in Sequalitchew Creek. (Undetectable is defined as no analytical result that is above the detection limit for the specific analytical test). PAHs were detected at SW-1, located near the creek's mouth. Water temperatures at all surface water stations met the State Class A criterion of 18° C. One dissolved oxygen measurement was below the State Class A criterion of 8.0 milligrams per liter (mg/L) at the uppermost station (SW-4), which was attributed to natural causes in the headwater wetlands. Seven pH measurements were below the Class A lower criteria limit of 6.5, with at least one exceedance recorded at each sampling station.

Total copper and lead data were detected in Sequalitchew Creek. Two of 15 samples exceeded the acute standard at SW-1 on December 8, 1992. The surface water acute standard for total copper is 0.0081 mg/L for a hardness of 51 mg/L of $CaCO_3$ (WAC 173-201A-040). The measured values exceeding this standard for copper were 0.014 mg/L and 0.0096 mg/L total copper (DuPont Environmental Remediation Services and Hart Crowser, 1994b). The chronic total copper standard at the same hardness is 0.0057 mg/L total copper, which was exceeded for 7 of the 15 observations and at all four stations. Sources for the copper and lead measured in these samples were not known, although offsite sources were suspected for at least the dissolved fraction of these metals in the samples. All total and dissolved samples for zinc met the acute and chronic state surface water criteria of 0.059 mg/L and 0.053 mg/L, respectively.

Total lead detection limits were higher than the chronic lead standard of 0.0009 mg/L. Two values exceeded detection limits, with both values (0.039 mg/L and 0.02 mg/L) exceeding the acute standard for lead (0.008 mg/L). Both of these samples (including one duplicate sample) were collected December 8, 1992, at SW-1. Ecology's practical quantitation limit (PQL) standard for dissolved lead is 0.003 mg/L, which is equal to the detection limit used during all analyses, except for one analysis at SW-1 on December 8, 1992, which had a 0.015 mg/L detection limit (DuPont Environmental Remediation Services and Hart Crowser, 1994b). During monitoring, two samples exceeded the PQL established for lead: one sample was collected at SW-1 on March 13, 1992, and the other was collected at Station SW-4 on March 13, 1992. Total and dissolved chromium and cadmium were not detected during RI sampling (DuPont Environmental Remediation Services and Hart Crowser, 1994b).

Backwater tidal effects in lower Sequalitchew Creek are evident during low-flow periods, where TDS concentrations have been measured as high as 28,000 mg/L (DuPont Environmental Remediation Services and Hart Crowser, 1994b).

Old Fort Lake Water Quality

Old Fort Lake is a small kettle lake hydrologically supported by groundwater, with no surface inflows or outflows. Water level elevations in the lake reflect aquifer water levels. Seasonal water level data collected by DuPont Environmental Remediation Services and Hart Crowser (1994b) showed 8 feet of lake-water level fluctuation.

Three surface water quality sampling stations (identified as SW-5, SW-6, and SW-7) were established as part of the RI studies conducted for the former DuPont Works site. Water quality data were collected annually in 1986, 1988, and 1989 and quarterly during 1992 (March, June, September, and December) by DuPont Environmental Remediation Services and Hart Crowser (1994b). Surface water quality parameters collected include nitrate-nitrogen, TPH, 14 metals (total and dissolved), PAHs, NAX, NG, MMAN, TOC, TDS, and TSS (DuPont Environmental Remediation Services and Hart Crowser, 1994b). VOCs were analyzed during the initial sampling (DuPont Environmental Remediation Services and Hart Crowser, 1994b).

NAX, TPH, VOCs, MMAN, and NG were undetectable in Old Fort Lake samples. However, phenanthrene was detected at all three lake surface water stations. Lake waters were mostly neutral in pH, well oxygenated with low nitrate + nitrite concentrations (DuPont Environmental Remediation Services and Hart Crowser, 1994b). During the summer, lake temperatures exceeded 18° C at all stations. Lake pH ranged from 6.3 (SW-7 on March 13, 1992) to 8.8 (SW-5 on June 25, 1992), slightly beyond the pH range of 6.5 to 8.5 established by State Class AA standards.

Similar to Sequalitchew Creek, Old Fort Lake waters have total copper and lead concentrations exceeding the Class A standard for the protection of aquatic biota. Total copper concentrations exceeded the state surface water chronic criterion for copper during all samplings at all stations (0.0047 mg/L at a hardness of 40 mg/L of $CaCO_3$) (Chapter 173-201A WAC). Total copper exceeded the acute standard of 0.0064 mg/L during three sampling events between March and December 1992. Lead detection limits were higher than the chronic lead standard of 0.0007 mg/L for a hardness of 40 mg/L of $CaCO_3$, and 5 of the 22 observations were greater than the detection limit and the chronic standard. No exceedances of the acute lead standard were measured. However, three samples exceeded Ecology's PQL standard for dissolved lead (0.003 mg/L, which was also the RI dissolved lead detection limit). These samples were collected at SW-6 (June 29, 1988) and SW-7 (March 13, 1992).

Southern Puget Sound Water Quality

As a part of Ecology's Puget Sound Water Quality Monitoring Program, ambient water quality data were collected eight times near the mouth of the Nisqually River (Station No. NSQ002) from October 1984 through September 1985. Water samples were collected at a depth of 0, 10, and 30 meters. State Class AA (extraordinary) marine water quality standards are applicable to samples collected at this station (Chapter 173-201A WAC).

Ambient water sampling revealed waters of good quality that were low in nitrite-nitrogen, nitrate-nitrogen, and ortho-phosphate concentrations. Six of the 23 total temperature readings exceeded the marine Class AA criterion of 13.0° C at depths varying from 0 to 10 meters. Dissolved oxygen concentrations met the Class AA standard of greater than 7.0 mg/L, with an average concentration of 8.7 mg/L (range of 7.2 to 8.1 mg/L). The average pH was slightly basic (7.9 pH units). All pH readings were within the Class AA marine criteria range of 7.0 to 8.5 pH units. Waters were clear, with an average turbidity of 1.2 NTU. Fecal coliform counts were low and met the Class AA marine criterion of 14 colonies/100 mls (standard applies to a geometric mean) during each sampling event.

Ambient water quality samples were collected monthly at the Dana Passage Station (No DNA001) by Ecology from November 1989 through September 1996. Water quality samples were collected at three depths (0, 10, and 30 meters) during each sampling. State Class AA marine water quality standards are applicable to samples collected at this station (Chapter 173-201A WAC).

During monitoring, water quality was mostly good, with the exception of elevated temperatures and low dissolved oxygen concentrations. During this period, 77 temperature readings of the 242 total exceeded the Class AA marine criterion of 13.0° C. The average dissolved oxygen concentration was 8.6 mg/L and ranged from 3.5 mg/L to 15.4 mg/L. Seventeen of 241 dissolved oxygen readings were below the Class AA criterion of 7.0 mg/L. The average pH was slightly basic at 7.9 pH units, with two pH readings outside of the marine Class AA criteria range of 7.0 to 8.5 mg/L. At the time of sampling, marine waters had low ammonia, nitrate- and nitrite-nitrogen, and ortho-phosphate concentrations. Fecal coliform counts were low and met the Class AA marine criterion of 14 colonies/100 mls during each sampling event.

3.1.2 Impacts of Alternatives 1, 2, and 3

The proposed actions would include remediation of contaminated soils, and, under Alternatives 1 and 3, construction and maintenance of a golf course cap/containment facility. The remedial action would include scraping soils to the depth of contamination (estimated to be 1 to 1.5 feet), as defined by applicable regulatory standards, moving excavated soils into placement/consolidation areas (PAs), and, for Alternatives 1 and 3, construction of an engineered cap over PAs. Proposed actions related to the golf course include course construction and maintenance over an engineered cap. The following discussion summarizes the potential impacts to surface water.

Impact analyses for potential sources of surface water quality effects are based on excavation, disposition of excavated soil, and cap construction methods proposed by Weyerhaeuser and DuPont as part of the preferred alternative (Alternative 1). Alternatives 2 and 3 differ from Alternative 1 only in final disposition of soil and the amount of excavation, and Alternative 2 does not include the engineered cap containment. Therefore, the following discussion of excavation and placement under the engineered cap applies only to Alternatives 1 and 3.

Excavation and Soil Placement

Details of the mass excavation and soil placement were presented previously in Chapter 2. Elements of these activities that would potentially impact surface water include:

- Vegetation clearing
- Temporary haul route building
- Mass excavation and placement of soils
- Soil stockpiling

Clearing Vegetation

The clearing of existing vegetation and ground cover would significantly decrease the stability of site soils for all three action alternatives. Clearing activity such as equipment movement, haul route building, and timber cutting would be an initial mechanism for erosion and sedimentation. The resultant lack of vegetation would expose soil to further degradation by eliminating foliage protection, the evapotranspiration process, and the physical stability provided by plant root systems. Without this protection, and depending on topography and location of erosive areas, the potential for sedimentation and/or siltation in onsite and adjacent surface water would increase. If there is a significant time lapse between clearing vegetation and scraping contaminated soil, the potential for contaminant transport via sedimentation would also increase.

Overall, impact to surface water from clearing vegetation would be low under Alternative 1 (the proposed action) because the majority of the project site is relatively flat. In addition, clearing would not take place on adjacent steep slopes parallel to Puget Sound and Sequalitchew Creek and in the Old Fort Lake setback. Remedial scraping at the site will frequently remove the overlying humus and soils, exposing the high permeability Steilacoom Gravels, or leave a thin layer of overlying soil. This will result in rapid infiltration of precipitation and reduce any ponding on the surface. The potential for contaminant migration after clearing would be reduced by the hot spot removal action (discussed in Chapter 2).

Two areas have a slightly higher potential to be impacted due to vegetation clearing: a slope just inside the western boundary of the project site and a large swale on the left bank, looking upstream, of Sequalitchew Creek, approximately 3,000 feet upstream from the creek outlet. Just inside the western boundary of the site, east of the adjacent steep slope, the ground surface descends toward the steep slope with a grade up to 30 percent. The swale above the left bank of Sequalitchew Creek drains from a location approximately 1,000 feet southwest of the creek. Clearing vegetation in these areas would subject the slopes to erosion, formation of rills and gullies, and increased sheet flow. Storm water drainage on these slopes could increase sedimentation in Puget Sound and in the lower reaches of Sequalitchew Creek. Sequalitchew Creek could also be impacted by increased siltation. However, no remediation activities are anticipated in either area.

An indirect impact resulting from vegetation clearing would arise from decontamination and maintenance of equipment. The proposed project would require the construction of decontamination pads and all necessary facilities for handling decontamination and maintenance waste. The impact to surface water would be nonexistent or low if best management practices (BMPs) were followed in locating, constructing, and maintaining these facilities.

Scraping and Placement of Soil

All three action alternatives would include mass excavation. Mass excavation would include scraping, grading, pushing, and transporting soil. Soil placement activities would consist of transporting, pushing, and placing soil with lead and arsenic concentrations below golf course remediation levels into PAs. These activities would loosen surface soil, destabilize slopes, create dust and involve filling in kettles. Loosening surface soil and destabilizing slopes increase the potential for erosion, thereby increasing the potential for sedimentation and contaminant transport. Siltation and elevated contaminant levels in surface water could result, although as

noted above, the exposed gravels will result in rapid infiltration. During dry periods, dust and associated contaminants could migrate to surface water via wind action. Soil placement into kettles would modify natural surface water collection areas.

A significant impact to surface water would not be likely from excavation activities on the relatively flat portion of the project site. Overall, a long-term enhancement of surface water could result from removal of contaminated soils. The potential for stormwater and wind transporting dust and contaminants to surface water on and adjacent to the site would be significantly decreased as a result of the proposed project.

If remediation efforts occur in these areas, some potential exists for erosion, sediment movement, or slope failure along the western boundary and in the swale at the bend in Sequalitchew Creek. These conditions may impact Puget Sound, water in Sequalitchew Creek downstream of the swale, and water in the Nisqually mudflats. If the slopes are scraped or left exposed during the wet season (October to April), sediment and contaminant transport toward surface water and/or mass failure could occur. A temporary erosion and sediment control plan (TESCP) would be implemented in accordance to the Pierce County Stormwater Management Manual (Pierce County, 1997) to prevent or minimize these occurrences. In addition, the roads inside and outside the perimeter fence provide additional protection against erosion by providing a barrier to transport of sediments and contaminants. No remediation is anticipated in these areas.

Temporary Haul Route Building

Haul routes would be constructed or repaired prior to initiation of the scraping program under all three action alternatives. Impacts to surface water from route construction would be similar to impacts from soil excavation. Equipment traveling on the route may transport contaminants across the site and create dust. Because soils in hot spots have been cleared prior to scraping, the potential for contaminant transport would be reduced. The impact to surface water from road dust would also be minimal. Roads left in place during the wet season (October to April) may be pathways for stormwater drainage and sediment movement. Depending on topography and the proximity of the road to surface water, the impact of the roads as flow paths would be variable.

Stockpiling Soils

Temporary stockpiles would be created under Alternatives 2 and 3. Alternative 1 would minimize stockpile development by moving soils with lead and arsenic concentrations below golf course remediation levels directly into PAs. Including soils developed during the hot spot removal program, there are currently over 110,000 cubic yards of stockpiled soils on the site. Soil stockpiles are especially vulnerable to wind and stormwater erosion because of low stability and steep surfaces. Mitigation measures such as visqueen covers are difficult to maintain and soil is easily exposed. If stockpiles are left uncovered or remain onsite for extended periods of time, the potential for surface water impact by sedimentation and contaminant transport would be high in areas near surface water. However, there are no stockpiles near any surface water body. Historically, actions associated with this project have not impacted surface water from stockpiles. A beneficial impact would result from moving stockpile soil offsite, soil washing/dry screening, or placing existing stockpiles into PAs or disposal by other means.

Cap Construction

Impacts to surface water from cap construction activities would be minimal. Soils placed in the footprint of the cap would be temporarily subject to wind and stormwater. However, by following BMPs it is unlikely that drainage from the site would transport sediment or contaminants from the PAs to surface water. Overall, the completed cap would have a beneficial impact by covering contaminated soils that are currently exposed.

Alternative 1

The two primary potential sources of surface water quality impacts from Alternative 1 would be sediment movement and contaminant transport via wind and stormwater drainage. Clearing vegetation, scraping, and placing soils with lead and arsenic concentrations below golf course remediation levels into PAs would erode or expose soils to erosion. These effects would be short-lived, and cap construction would have an overall beneficial impact to surface water because surface water would no longer be in contact with contaminated soils and the water would be directed in defined drainage pathways. Groundwater from onsite irrigation wells, which contains low levels of dinitrotoluene, would be used to maintain the grass cover over the cap/containment facility. Use of that water would not cause adverse impacts to surface water quality via either infiltration or direct runoff to surface water.

Alternatives 2 and 3

Alternatives 2 and 3 differ from Alternative 1 only in that excavated soils would be disposed of offsite or treated onsite by soil washing. Impacts to surface water from these activities would be similar to impacts from Alternative 1. An additional difference would be the minimization of stockpiles under Alternative 1.

3.1.3 Impacts of Alternative 4

The site and the existing water quality would remain as they currently exist for the foreseeable future under Alternative 4. The remediation studies of the site are focused on elevated concentrations of lead and arsenic in soils at specific locations and have not identified surface water quality concerns that require remediation. Considering that this option would not be allowed under MTCA, there is a low likelihood that any existing condition would exist as it currently is for the foreseeable future.

3.1.4 Mitigation Measures

Certain mitigation measures would be required for the remedial action, while others would be recommended but not mandatory. Measures in each category for construction and operation are summarized below.

In general, determination of needed mitigation measures related to surface water considerations would be the responsibility of Ecology. Mitigation measures would be accomplished through required compliance with a Best Management Practices (BMP) manual. The BMP would address the substantive requirements of local ordinances that typically apply to development activities. Consequently, the following discussion addresses measures that would typically be

required by the City of DuPont, some of which would presumably be incorporated into Ecology's requirements.

The City of DuPont requires all new development to follow the *Pierce County Stormwater Management Manual* (Pierce County 1997) minimum requirements for stormwater control, which include erosion and sediment control provision (Section 18C.30.040 of Site Development Title 18C) during the construction phase of development. Such measures include sediment ponds, silt fences, gravel filters, and vegetated interceptor swales as warranted by water velocities and site slopes. The Pierce County manual is based on Ecology's stormwater manual, and it is assumed that Ecology would require the same or equivalent measures through its BMP manual for the remediation. Stormwater control mitigation may include the following:

- A TESCP would be submitted to Ecology as part of construction-level applications.
- A pollution prevention plan would be submitted to Ecology as part of a National Pollutant Discharge Elimination System (NPDES) permit application for construction on the site.
- Soil stockpiles or exposed slopes may require mulch or cover as required in the Pierce County (1997) manual. However, current site stockpiles have been without cover for many years without any erosional damage.

In addition to the above elements for an erosion and sediment control plan, the following mitigation measures are recommended for the construction phase of the proposed golf course footprint:

- Construction runoff (e.g., concrete wastes, equipment oils) would be collected in sumps and disposed of in approved offsite facilities.
- A water quality/TESCP inspector would be present during site preparation activities as part of the TESCP (this function might be undertaken by onsite Ecology personnel).
- Sediment ponds would be finished to or above final grade elevation during construction to retain/infiltrate runoff during construction, allowing for cleanout of ponds to finish grade elevation after site stabilization.
- Accidental spill response cleanup and notification procedures would be included in construction contractor agreements.
- Wet ponds (golf course footprint area) would be lined, providing dead storage for particulate/contaminant settling prior to discharge to infiltration systems constructed in conjunction with the golf course footprint (Alternative 1).
- The natural recovery of vegetation scraped areas will reduce surface water quality/quantity impacts after construction.

3.1.5 Significant Unavoidable Adverse Impacts

Based on the assumption that BMPs would be adhered to during the proposed project, no significant unavoidable adverse impacts to surface water are anticipated.

3.2 GROUNDWATER

Groundwater information discussed below for the proposed remediation is summarized from the draft RI prepared for the site (DuPont Environmental Remediation Services and Hart Crowser, 1994b) and from a draft environmental document for the golf course (Huckell/Weinman 1998). These documents provide a more comprehensive presentation of hydrogeology and groundwater conditions at the site.

3.2.1 Affected Environment

Site Hydrogeology

Two aquifers comprise the relevant hydrogeologic system beneath the project area. These aquifers are:

- The Water Table Aquifer, a shallow unconfined aquifer in the Vashon Drift sediments
- The Sea Level Aquifer, a deeper, semi-confined aquifer in the Salmon Springs Formation and the Steilacoom Gravel

The Water Table Aquifer occurs within the saturated portions of the Steilacoom Gravel and Advance Outwash units within the Vashon Glacial Drift. The aquifer is recharged by precipitation infiltrating through overlying permeable soil. Groundwater in the Water Table Aquifer is encountered at depths of approximately 20 to 30 feet bgs at elevations of about 190 to 220 mean sea level (msl) in the eastern portion of the site, and approximately 110 to 120 feet below ground surface (elevations of 90 to 100 feet msl) near the western termination of the Kitsap Formation.

Groundwater flow in the Water Table Aquifer is generally to the west-northwest, toward Puget Sound. Groundwater from this aquifer discharges into the Steilacoom Gravel at the western edge of the aquifer, flowing over the Kitsap Formation and into groundwater within the unconfined portion of the Sea Level Aquifer (DuPont Environmental Remediation Services and Hart Crowser, 1994b). The groundwater flow rate in the Water Table Aquifer beneath the site is approximately 1 to 22 feet/day or about 400 to 8,200 feet/year. Aquifer tests indicated that lower gradients (and correspondingly 5 to 20 percent lower flow rates) occurred in December 1992 compared to April 1992.

The Sea Level Aquifer underlies the Water Table Aquifer. The two aquifers are separated by the Kitsap Aquitard, a low-permeability unit that extends across most of the site (DuPont Environmental Remediation Services and Hart Crowser, 1994b). The Sea Level Aquifer is divided into two distinct portions, based on location east or west of the western edge of the Kitsap Formation.

The east (upgradient) portion of the Sea Level Aquifer is in the permeable deposits of the Salmon Springs Formation, located immediately below the Kitsap Aquitard. Depths to this portion of the aquifer range from 150 to 170 feet bgs (DuPont Environmental Remediation Services and Hart Crowser, 1994b). For the most part, the Sea Level Aquifer is regionally confined. However, near the western edge of the Kitsap Formation, the artesian pressure of the aquifer is dissipated and the aquifer becomes unconfined, reflecting semi-confined or water table

conditions. Therefore, this aquifer is considered to be semi-confined beneath the site. The groundwater flow rate in this portion of the Sea Level Aquifer is approximately 0.3 to 2 feet/day, or 120 to 600 feet/year. Aquifer tests indicated that groundwater velocities were approximately 10 percent lower in December 1992 than in April 1992, due to lower gradients at the time (DuPont Environmental Remediation Services and Hart Crowser, 1994b).

The west (downgradient and unconfined) portion of the Sea Level Aquifer is within saturated delta materials of the Steilacoom Gravel. The water table within this portion of the aquifer is approximately 160 to 200 feet bgs. The unconfined portion of the aquifer receives discharge from the Water Table Aquifer and the semi-confined eastern portion of the Sea Level Aquifer. The groundwater then continues its westward flow until it is discharged to Puget Sound via seeps in the deltaic materials, which terminate in the Sound. Groundwater flow velocities in the unconfined portion of the Sea Level Aquifer range from approximately 2 to 200 feet/day, or about 800 to 80,000 feet/year. Similar to the Water Table Aquifer, aquifer testing indicated that lower groundwater gradients (and 5 to 20 percent lower groundwater flow rates) occurred in December 1992 compared to April 1992.

The Sea Level Aquifer is highly productive in terms of groundwater yield (Brown and Caldwell, 1985). Upgradient portions of this aquifer are the source of drinking water for many Puget Sound municipalities, including Tacoma, DuPont, and other municipalities in Pierce County. Three production wells formerly used by the DuPont Works are located in the northwestern portion of the site. These wells are screened in the Sea Level Aquifer. Ecology recently completed negotiations with Weyerhaeuser to consolidate water rights and issue permits that would allow Weyerhaeuser to use up to a total of 1,250 gallons per minute (or 695 acre-feet per year) to meet the irrigation needs of the approximately 200-acre golf course (Walsh, 1997). This aquifer has been assessed by Ecology as being sufficient to provide this demand, given the relatively high productivity of the aquifer in the project area.

Groundwater Quality

Groundwater Investigation

Initial sampling episodes at the site, referred to as the pre-RI investigations, commenced with the collection of samples from seeps and surface water at the site in December 1986. Investigators installed 17 initial monitoring wells in late 1987 and early 1988, and sampled these wells and nearby springs and fire protection wells. Nine additional wells were added to the program during the RI process. Groundwater monitoring wells at the site were screened in both the Sea Level and Water Table Aquifers. Groundwater quality data collected at the site from December 1988 through October 1994 are presented and analyzed in the draft RI for the site (DuPont Environmental Remediation Services and Hart Crowser, 1994b).

Quarterly groundwater sampling continued at selected wells for one analysis (Nitroamine Explosives or NAX) through October 1997. In March 1998, following receipt of an assessment indicating the lack of seasonal changes in the groundwater quality at the site, Ecology agreed to a request by the Weyerhaeuser and DuPont companies to reduce the periodicity of groundwater sampling from quarterly to annual (Blum, personal communication 1997). Annual groundwater sampling events were performed in March 1998 and March 1999. Groundwater monitoring at

selected wells for NAX only is scheduled to be performed until Ecology determines concentrations of dinitrotoluene (DNT) in the selected wells are below drinking water levels.

Background groundwater quality results (DuPont Environmental Remediation Services and Hart Crowser, 1994b) indicated the presence of constituents in one or more of the samples taken from the background wells that included several metals (total and dissolved aluminum, cadmium, and zinc; dissolved antimony; total lead); nitrate; and phenanthrene (a noncarcinogenic PAH). Total and dissolved aluminum were the only constituents detected in one or more background wells that were above the MTCA drinking water screening level. In this case, the exceeded level was the 0.05 mg/L secondary drinking water standard for aluminum, which (like all secondary drinking water standards) is established for aesthetic conditions (such as taste, odor, and color), rather than on human health risk.

A statistical screening evaluation of site groundwater quality data collected during the RI indicated that only DNT, nitrate, and the carcinogenic PAH (cPAH) chrysene were detected above the MTCA screening level for drinking water in one or more locations (DuPont Environmental Remediation Services and Hart Crowser, 1994b). Concentrations of DNT in groundwater at the site during the March 1999 sampling round did not exceed MTCA drinking water standards in any of the seven currently monitored groundwater monitoring wells. DNT concentrations are expected to gradually decrease over time as a result of source removal activities that have been completed at the site. Data collected in March 1999 showed decreases in DNT for the groundwater monitoring wells compared to previous years. However, trends are difficult to determine because DNT fluctuations have been only a few parts per billion or less. DNT concentrations measured throughout all of the monitoring period have been below levels of concern for the protection of the receptor surface waters of Puget Sound.

Nitrate also was detected in 1988 in three monitoring wells; nitrate concentrations were below the screening level in the eight subsequent rounds of monitoring. Ecology has agreed that nitrate in groundwater is not a constituent of concern at the site.

One cPAH (chrysene) was detected inconsistently in 15 of the 128 RI groundwater samples, and no cPAH concentration was above the 0.1 micrograms per liter (µg/L) MTCA screening level for total cPAHs (excluding one unconfirmed sampling concentration). Therefore, Ecology has agreed that PAHs in groundwater are not constituents of concern at the site.

Groundwater Remediation Activities

The interim source removal activities conducted from 1990 to 1994 eliminated many of the known discrete sources of potential contamination to groundwater at the site. According to Ecology (Blum, personal communication 1997), groundwater contamination levels are relatively low and the only constituent detected in groundwater that has been above screening levels is DNT. Dissolved lead or arsenic has not been detected in groundwater at concentrations above screening levels.

The planned remediation of contaminated soil (including treatment/offsite disposal of soil contaminated above risk-based levels and consolidation of lesser-contaminated soil under clean fill) will result in further limiting the potential for future groundwater quality degradation at the site, although the remediation activities are not being implemented to address groundwater contamination due to soil contamination. The purpose of the additional soil remediation is to

prevent direct contact with residual lead and arsenic in soils. On the basis of site-specific leaching studies using EPA protocols, the arsenic and lead in soil have been demonstrated to have limited or no potential to leach into groundwater (Hart Crowser, 1996). On the basis of a "substantial and disproportionate evaluation of cost and reduction in risk," Ecology has recommended that no additional remediation of groundwater at the site is necessary. Continued groundwater monitoring at selected locations for DNT will likely be continued as part of future site remediation.

3.2.2 Impacts of Alternatives 1, 2, and 3

The groundwater impact analysis is based on the proposed action and site cleanup that are described in Chapter 2.

Groundwater Quality

The proposed action would not be expected to cause significant adverse impacts to groundwater quality. Groundwater contamination at the site (based on ongoing post-RI quarterly sampling) remains relatively low. Concentrations of DNT measured in groundwater samples from the most recent groundwater monitoring event (March 1999) were below all screening criteria. In addition, the interim source removal activities conducted at the site from 1990 to 1994 were directed at eliminating many of the identified discrete sources of potential contamination to the groundwater. The interim hot spot removal and soil scraping outside of the golf course footprint (described in Chapter 2) would remove contaminated soils and dispose of them offsite or beneath the engineered cap underneath the golf course.

As a result, contaminant leaching (to groundwater or other media) following remediation would not result in impacts to human health or the environment. This is based on the RI and RA conclusions concerning sampled concentrations in surface water and groundwater, which resulted in the FS remediation alternatives focusing on arsenic and lead present in soil and debris only. The assumption is also based on site data that indicate that all media are in compliance with MTCA standards except for direct contact with soils and DNT in groundwater, and on site-specific studies demonstrating that there is little or no leaching potential for lead and arsenic (Hart Crowser, 1996).

Soil scraping activities associated with each action alternative would also be unlikely to cause impacts to groundwater quality. Remedial soil scraping and construction excavations would not likely extend to the Water Table Aquifer, which is generally 20 to 30 feet bgs at the site. Excavations might occasionally encounter perched groundwater; however, these impacts (sedimentation, possible carrydown of contaminants from surface soil) would be minimal due to the isolation of impacted groundwater from underlying aquifers and standard construction impact mitigation practices described below. Dust control measures involving wetting of exposed soil would not require sufficient water to cause infiltration of contamination to the underlying Water Table Aquifer.

Soil scraping associated with remediation would remove potential contaminants from soils located outside of the cap/containment area and would, therefore, not cause impacts to groundwater quality in these areas. Technical assessments indicate that leaching of lead and

arsenic from contaminated soil incorporated into the golf course design would not occur (Hart Crowser 1996; Blum, personal communication 1997).

Contaminants associated with future golf course construction and maintenance activities, including fertilizer, pesticides, and herbicides, have the potential to be carried down to the Water Table Aquifer via infiltrating irrigation water. Because of the depth to groundwater (greater than 30 feet), migration of contaminants from shallow depths downward via pathways resulting from burrowing organisms (e.g., worms) is unlikely.

No chemicals and/or petroleum hydrocarbon products would be handled in areas outside of the cap/containment facility during remediation activities. In the cap/containment facility area, Alternative 1 would increase the potential for groundwater quality to be degraded as a result of spills, leaks, or other releases of chemical and/or petroleum hydrocarbon products handled at the remediation staging area. Products that could be expected to be handled at the staging area during construction of the golf course footprint include fertilizers, pesticides, herbicides, gasoline, and lubricating oils.

The highest probability of release of these materials would occur during handling (such as transfer of products from containers to equipment or movement of products). Under Alternatives 1 and 3, management and handling of these materials would be in accordance with procedures that would be established in a management plan governing golf course construction, which would include waste-management requirements contained in the Washington State Dangerous Waste Regulations (WAC 173-303).

Stormwater also has the potential to impact groundwater quality if it transports contaminants and/or infiltrates through contaminated soil to groundwater. Contaminant transport by stormwater would not be a concern in areas of the site outside the golf course footprint because, under Alternatives 1 and 3, the contaminated soils above site-specific cleanup levels would have been removed (under Alternative 2, all contaminated soils above site-specific cleanup levels would have been removed). Under Alternatives 1 and 3, stormwater at the golf course footprint site would be managed by construction of temporary stormwater basins. Infiltration of stormwater would be accomplished through these basins.

After management of the property goes to WRECO/Northwest Landing, individual property owners would be responsible for controlling stormwater on their own sites. Management of stormwater runoff from a future golf course would be primarily through infiltration. Infiltration would occur during temporary ponding in depressions on the golf course and/or infiltration basins designed to accommodate up to a 100-year storm. Infiltration facilities would be located in areas or constructed in a manner where infiltration would not occur through contaminated soil. Treatment prior to infiltration is not expected to be necessary. Measures to control stormwater runoff and minimize runoff contamination are discussed in Section 3.1, Surface Water.

Groundwater Quantity

Groundwater would be used for dust control during remedial action and construction. After remedial action and construction, groundwater use for Alternatives 1 and 3 within the cap/containment facility area would be limited to irrigation. Drinking water would be provided by the City of DuPont from the City's drinking water resources. Groundwater for irrigation

would be pumped from existing production wells at the site that were formerly used to provide water to support explosives manufacturing. These wells are screened within the Sea Level Aquifer (Germiat, personal communication 1998).

Based on likely evapotranspiration rates for a future golf course (assuming that 60 percent, or 108.5 acres, of the total area of the golf course would be irrigated), approximately 37.1 million gallons of water would be required to irrigate the course. The need for irrigation would be limited to the months of May through September; normal rainfall would provide adequate irrigation in other months. Required irrigation water would range from a low of approximately 2.7 million gallons (or approximately 89,000 gallons per day) in May to a high of 10.1 million gallons (or approximately 338,000 gallons per day) in August. The 1,250 gallons per minute (gpm) permitted for irrigation use from the existing production wells would easily accommodate the maximum irrigation needs posed by a fully developed golf course. These required volumes might be further reduced by the extent to which surface water runoff could be impounded and recovered for supplemental use as irrigation water.

Typical yields inferred for the Sea Level Aquifer, particularly in areas close to Puget Sound, suggest that a proposed golf course's irrigation water demand could be met without adversely affecting either streamflow in Sequalitchew Creek or the productivity of the upgradient drinking water wells operated by the City of DuPont (Hart Crowser 1992), which are screened within the Sea Level Aquifer and/or the underlying undifferentiated materials of the deeper Lakewood Glacial Aquifer (Germiat, personal communication 1998). The Lakewood Aquifer underlies the Sea Level Aquifer and is not related to the hydrology of the site with respect to effects of the proposed action.

All three action alternatives include removal of contaminated soils from areas outside the golf course footprint at the project site. In addition, previous studies (Hart Crowser 1996; Blum, personal communication 1997) have demonstrated that there is little or no leaching potential of contaminants (lead and arsenic) from soil. Given these conditions, and the remedial and operational elements that are common to all three alternatives, there would be no significant differences in impacts to groundwater among the three action alternatives. The impacts of Alternative 2 or 3 on groundwater quality and quantity would be expected to be virtually identical to those identified above for the Alternative 1.

3.2.3 Impacts of Alternative 4

Under the no action alternative, the proposed project would not be implemented at present and the site would remain undeveloped in the near term. Impacts identified for the proposed action would generally not occur; that is, no changes would occur to existing groundwater resources. There would be no impacts to site topography, geology, or soil with the potential of impacting groundwater under the no action alternative. However, unidentified future projects that might be proposed for the site could result in modifications to these conditions.

The project site remediation measures include scraping and removal of contaminated soils from areas outside the golf course footprint at the site, and the use of the golf course footprint to consolidate, isolate, and cover contaminated soil from nearby areas as part of the project, as well as the mitigation measures pertaining to golf course development and operation, would not be implemented in the foreseeable future under this alternative. A remediation strategy for the site

would still need to be developed to address soil contamination at the site. Groundwater monitoring would most likely be continued as part of any site remediation undertaken in conjunction with adoption of the no action alternative. Any remedy undertaken at the site might have a net positive impact on groundwater quality compared to the failure to implement a remedy, although the site studies have not identified groundwater as a medium that is out of compliance with standards, except for DNT.

3.2.4 Mitigation Measures

Many effective mitigation measures designed to provide protection to groundwater resources at the project site have been assumed to be incorporated into the proposed action, or to occur as part of the planned site remediation, based on measures expected to be required by Ecology. For example, continued groundwater monitoring is planned for the site as part of the ultimate site remediation. Other mitigation measures incorporated into Alternatives 1 and 3 that would be directed at protecting groundwater resources include:

- All ponds within the golf course area footprint would be lined or sealed to minimize infiltration. No contaminated soils would be present in golf course footprint pond areas.
- Implement strict operational and spill control practices at the remediation staging area.
- A maintenance plan for the cap/containment facility would be prepared as part of the Cleanup Action Plan.
- Institute stormwater controls during project operation, and temporary erosion and sediment control plans during construction (as discussed in the Section 3.1).

Under Alternatives 1 and 3, the capping of contaminants with clean soil in the cap/containment facility would be undertaken to prevent direct contact to the contaminants but allow water infiltration. Ecology has determined that the principal contaminants present in the soil (arsenic and lead) are unlikely to leach and should not pose a risk of groundwater contamination.

Alternative 2 would only have the temporary potential for groundwater impacts during soil removal and offsite disposal and, therefore, would have the minimum potential impacts to groundwater due to the limited duration of the remedial actions.

Alternative 4, the no action alternative, would not create any new groundwater impacts and would not require any associated mitigation measures. Ecology has determined that the principal contaminants present in the soil (arsenic and lead) are unlikely to leach and should not pose a risk of groundwater contamination.

3.2.5 Significant Unavoidable Adverse Impacts

The net impact of remediation activities and construction activities on local groundwater resources would be very low, and perhaps negligible, for any of the three action alternatives. Under Alternatives 1 and 3, activities at the remediation staging area would increase the risk that new contaminants would be introduced to groundwater through spills or accidents. However, the mitigation measures incorporated into the proposed action would reduce the net potential impact of these activities. No significant unavoidable adverse impacts to groundwater have been identified or are anticipated.

3.3 HISTORIC AND CULTURAL RESOURCES

3.3.1 Affected Environment

The project vicinity has figured importantly in Nisqually Indian prehistory and ethnography as well as Euroamerican history. Prehistoric occupation dates to as early as approximately 5,700 years Before Present, according to radiocarbon dates of a shell deposit in the project site vicinity area (Wessen 1989). The project area lies within the aboriginal territory of the Nisqually Indian people, which encompassed the drainage of the Nisqually River system and adjacent Puget Sound shoreline (Smith 1940; Spier 1936). Villages often were located at the confluences of larger streams and where larger streams emptied into Puget Sound. Many of these villages occurred along the streams in the Nisqually River drainage. The village closest to the project area was located along Sequalitchew Creek (Smith 1940:13).

The project vicinity was the setting of the earliest Euroamerican structure on Puget Sound when the Hudson's Bay Company built a storehouse in 1832 and Fort Nisqually in 1833 for fur trading with the Indians, followed by the Hudson's Bay Company's Puget Sound Agricultural Company in 1839 for farming to support the Company's international trade.

From 1906 to 1976, the E.I. du Pont de Nemours & Company owned the property and developed it for industrial use. DuPont's powder works produced explosives that were subsequently used in construction and resource extraction. In recent years, site remediation activities have occurred within the Consent Decree boundary. A detailed discussion of the prehistory and history of the site is contained in a separate document entitled *A Cultural Overview and Comprehensive Management Plan for the DuPont Property, Pierce County, Washington* (Western Heritage Inc., 1989).

Since Weyerhaeuser acquired the property in 1976, numerous archaeological and historical surveys, investigations, excavations, and studies have been conducted pertaining to the property. The studies are listed in Appendix A.

The project area and adjoining property have also been extensively investigated for archaeological and historic sites. The project area and adjoining property include sites listed or eligible for listing in the National Register of Historic Places (National Register) as well as other sites, many of which are not eligible for listing on the National Register.

In addition, a memorandum of understanding (MOU) and two memoranda of agreements (MOA) have been signed among Weyerhaeuser and several affected parties. Copies of these documents are included in Appendix B.

For reference purposes, there are only a few remaining buildings (DuPont Powder Works) onsite. The sites described below do not exist as structures.

The following is a summary of the archaeological and historic sites located within the project area or adjoining property and potential impacts to such sites. The sites are shown on Figure 6.

- **Site 45-PI-54 (Nisqually House/Sequalitchew Village Site).** Site 45-PI-54 is listed on the National Register. The site is located just outside the northwest project area boundary in a sensitive buffer area. This site will not be affected by the remediation activities.

- **Site 45-PI-55 (Hudson's Bay Company's 1833 Fort Nisqually Site).** Site 45-PI-55 is listed on the National Register. The site is located within the project area. The site, however, is located within an area that will not be scraped as part of the remediation and is surrounded by wood post barriers and a buffer to prevent disturbance.
- **Site 45-PI-56 (Hudson's Bay Company's 1843 Fort Nisqually Site).** Site 45-PI-56 (Fort Nisqually and possibly some agricultural infrastructure) has been nominated and recommended for listing on the National Register. The site is located outside the project area, and will not be affected by the remediation activities.
- **Site 45-PI-63 (Railroad Dump No. 3 Site).** Site 45-PI-63 is located in the project area. The site, which has been vandalized extensively over the years by relic collectors, has been determined not to be eligible for the National Register (no historic integrity) by the State Office of Archaeology and Historic Preservation (OAHP). The site will not be affected by the remediation activities.
- **Site 45-PI-66 (Methodist Episcopal Mission Site).** Site 45-PI-66 is located within the project area. A monument marker has been established in the general vicinity of the former site. Nearby, there was also an encampment of Buffalo Soldiers. The area will not be affected by the remediation activities. The site may be eligible for the National Register.
- **Site 45-PI-67 (Wilkes Observatory Site).** Although Site 45-PI-67 has not been located, the site's general vicinity is located outside of the project area. This site will not be affected by the remediation activities. There is an open question as to its eligibility for the National Register.
- **Site 45-PI-70 (DuPont Powder Works Site).** Site 45-PI-70 is located within the project area. The site has been and will be impacted by remediation activities. The site has been determined not to be eligible for the National Register by the OAHP.
- **Site 45-PI-72 (DuPont Southwest Site).** Site 45-PI-72 is located within the project area. However, the site is located within a bluff-edge greenbelt area that will not be affected by the remediation activities. The site is likely to be eligible for the National Register.
- **Site 45-PI-73 (Indian House Site).** Site 45-PI-73 is located within the project area. This site has lost its historic integrity (destroyed by DuPont era facility construction). This site has been surveyed and inventoried but, apparently, no cultural remains were found. This site could be further affected by the remediation activities. The site may be eligible for listing on the National Register.
- **Site 45-PI-74 (Mens' Dwelling Houses).** Site 45-PI-74 is located outside the project area and will not be affected by the remediation activities. A portion of the site has lost its historic integrity. Further evaluation to determine historic integrity and its eligibility for the historic register may be necessary.
- **Site 45-PI-75 (Crystallizer Site).** Site 45-PI-75 is located within the project area. The site, however, is within an area of open space and may or may not be affected by the remediation activities. The site has been determined not to be eligible for the National Register by the OAHP.

- **Site 45-PI-77 (Old Fort Lake Grave Site).** Site 45-PI-77, which was supposedly located in the project area, was alleged to contain the graves of the McAllister family members and others; however, a survey and inventory was conducted and no graves or other cultural materials around Old Fort Lake were located. Subsequent research revealed that the graves of McAllister family members and others are in the Tumwater Masonic Cemetery.
- **Site 45-PI-404 (Nisqually Burial Site).** Site 45-PI-404 is located within the project area. This site, however, is located in an area that may or may not be scraped. This former grave site probably has lost its historic integrity (the remains have been reinterred in the Sequalitchew Indian Cemetery). The site is not eligible for listing on the National Register.
- **Site 45-PI-405 (Nisqually Village Site).** Site 45-PI-405 is located outside the project area. The site will not be affected by the remediation activities. The site may be eligible for the National Register.
- **Site 45-PI-452 (Ox Road Site).** Site 45-PI-452 is located outside the project area. This site will not be affected by the remediation activities. The site may be eligible for the National Register.

In addition, there has been a proposal to list a portion of the project area on the National Register as an historic district. This proposal was considered by the State Advisory Council on Historic Preservation at their January 28, 2000, meeting. The Council has recommended that the OAHP forward the proposed district to the U.S. Department of Interior – National Park Service for their consideration. Final determination of eligibility for listing has not yet occurred. This proposal was not supported by the landowner. Accordingly, pursuant to federal law, no such historic district may be established or listed on the National Register.

3.3.2 Impacts of Alternatives 1, 2, 3, and 4

The potential impacts of the project alternatives on historic and cultural resources could be either direct or indirect, depending on the timing and location of activities associated with the alternatives. The potential project impacts are summarized below for each cultural site – including sites that are listed or have been nominated and recommended for listing on the National Register as well as sites that are not eligible for listing on the National Register. Under Alternative 4 (the no action alternative), there are no anticipated impacts to historic and cultural resources although the contamination in Parcel 1 will be left unremediated. All of the project alternatives (1, 2, and 3) would generally have the same potential effects on each site. In addition, it is possible that historic or cultural materials not associated with any of the sites could exist within the project area. Those sites or artifacts that are deeply buried could be uncovered during construction activities or buried deeper during construction of the cap/containment facility.

- **Site 45-PI-54 (Nisqually House/Sequalitchew Village Site).** This site is outside the project area boundary and would not be affected by construction under any of the alternatives. Therefore, no project impacts are anticipated.
- **Site 45-PI-55 (1833 Fort Nisqually Site).** This site is within a Weyerhaeuser "protected area," including a wood-post barrier and an additional 63-foot buffer zone. Weyerhaeuser and the DuPont Company are committed to taking extra precautions when work is under way

or will occur in the vicinity of the site. All of the project alternatives would maintain the site's protected status. Therefore, no project impacts are anticipated.

- **Site 45-PI-56 (1843 Fort Nisqually Site).** This site is outside the project area boundary and would not be affected by construction under any of the alternatives. Therefore, no project impacts are anticipated.
- **Site 45-PI-63 (Railroad Dump No. 3 Site).** This site, which is not eligible for the National Register (lost integrity), is located within the project area. Under the alternatives, the site could receive some impacts without mitigation.
- **Site 45-PI-66 (Methodist Episcopal Mission Site).** Excavations completed to date in the vicinity are over 150 feet from the existing monument marker. Further excavations may occur along the railroad corridor in this area, but no further excavations are planned in the vicinity of the marker. With construction monitoring around the marker, no project impacts are anticipated.
- **Site 45-PI-67 (Wilkes Observatory Site).** This site is outside the project area boundary and would not be affected by construction under any of the alternatives. Thus, no project impacts are anticipated.
- **Site 45-PI-70 (DuPont Powder Works Site).** This site is located within the project area. The few remaining DuPont Works buildings are to be demolished and properly disposed of as part of the site cleanup. There are concerns about the structural integrity of the buildings and there are also concerns regarding hazardous substances such as asbestos, lead-based paint, and contaminated soil surrounding the buildings. The former DuPont Powder Works site has been and will be impacted by remediation activities.
- **Site 45-PI-72 (DuPont Southwest Site).** This site is presently located in a bluff-edge greenbelt, which would remain as dedicated open space under each of the project alternatives. Thus, no project impacts are anticipated.
- **Site 45-PI-73 (Indian House Site).** If portions of this site remain (most likely destroyed by DuPont era facility construction), they could lie within or adjacent to the golf course footprint (Alternatives 1 and 3). Under the action alternatives, the site could receive construction impacts without mitigation.
- **Site 45-PI-74 (Mens' Dwelling Houses).** This site is located well outside the project area boundary and would not be affected by construction under any of the alternatives. Therefore, no project impacts are anticipated.
- **Site 45-PI-75 (Crystallizer Site).** This site, which is not eligible for the National Register, is located within the project area. Because the site is located in an area where some scraping could occur, there may or may not be impacts during construction.
- **Site 45-PI-77 (Old Fort Lake Grave Site).** This site, which is likely not eligible for the National Register, is located within the project area. At one time, it was believed the site was located near Old Fort Lake. Because the purported graves actually were not located within the project area (they are located in the Tumwater Masonic Cemetery), no project impacts are anticipated. Because the graves are not at this site, the site is not mapped on Figure 7.

- **Site 45-PI-404 (Nisqually Burial Site).** Although this site is located within the project area, it is located in an area that may or may not be scraped. Thus, there could be impacts even though the site probably has lost its historic integrity.
- **Site 45-PI-405 (Nisqually Village Site).** This site is located outside the project area and would not be affected by construction under any of the alternatives. Therefore, no project impacts are anticipated.
- **Site 45-PI-452 (Ox Road Site).** This site is outside the project area boundary and would not be affected by construction under any of the alternatives. Thus, no project impacts are anticipated.

3.3.3 Mitigation Measures

Proposed mitigation for impacts identified above are summarized as follows:

- Develop an investigative/survey plan for locations/areas/sites to be excavated/cleared. An archaeological and cultural resources protection plan is being prepared and will be implemented prior to construction. In general, the procedures include an archaeological survey of the area before logging or brush removal (already completed); a re-survey after logging; a re-survey after brush removal (if further testing is necessary, it will occur at this time); and finally, monitoring of surface scraping activities.
- Because of the potential for disturbance of known or unknown sites, a Professional Archaeologist (in accordance with Chapter 25-48-WAC) would monitor construction activities that would clear vegetation or disturb the soil.
- All construction and field personnel would be trained (for example, in the identification of potential cultural resources) prior to work beginning. This includes equipment operators and ground personnel who will be directing the equipment operators.
- In order to minimize potential impacts, construction scraping activities will occur in lifts (6 to 8 inches of soil at a time) to a depth of approximately 12 to18 inches. Each lift will be examined for potential artifacts.
- If monitoring reveals any grave site or human remains, work in that area would stop and the OAHP, Ecology, and the Nisqually Tribe would be notified.
- If monitoring reveals any significant cultural or historic site, OAHP and Ecology would be notified. Work in that area would stop until a decision is made.
- Weyerhaeuser will maintain a wood-post barrier around Site 45-PI-55 and have the site noted as off-limits in construction documents. Extra precautions will be taken for any construction activities in the vicinity of the site as well as other sites that may have cultural resources. In addition, to be certain no other human remains are in the vicinity of Site 45-PI-404, additional archaeological research will be scheduled in this area prior to the beginning of remediation work.
- The existing MOU and MOAs would be followed and/or amended as appropriate (existing MOU and MOAs are included in Appendix C).

- Ecology would ensure documentation on prehistoric and historic sites is forwarded to OAHP on a regular basis, as needed. Documents and review processes will be updated or established respectively, as necessary. Disposition of artifacts will be managed in accordance with existing agreements. Weyerhaeuser has ongoing efforts to catalog and protect artifacts.

3.3.4 Significant Unavoidable Adverse Impacts

Some historic and cultural resources and/or artifacts may be buried under the proposed cap/ containment facility or elsewhere. However, if the mitigation measures proposed above are followed, no significant unavoidable adverse impacts to historic and cultural resources are anticipated.

3.4 ENVIRONMENTAL HEALTH

3.4.1 Affected Environment

The interim source removal activities conducted at the site from 1990 to 1994 represented approximately 75 percent of the former DuPont Works site cleanup (Blum 1997). These activities resulted in the removal of substantial hazardous and dangerous waste from the site in the form of soil potentially contaminated with metals (lead, arsenic, mercury), petroleum, and chemicals associated with explosives manufacturing (DNT and TNT); drums; pipelines; underground storage tanks; and miscellaneous debris associated with manufacturing facilities and disposal areas.

Currently, approximately 35,000 cubic yards of relocated, stockpiled soil and an undetermined volume of undisturbed contaminated soil remain on the project site (Blum, personal communications 1997 and 1999). These soils are contaminated with lead, arsenic, mercury, TNT, MMAN, and petroleum constituents (petroleum hydrocarbons and cPAHs) at concentrations above screening levels. The contaminated soil is generally located within the top 1 foot of soil at former production and disposal areas located in the northwestern, central, and south-central portion of the project site.

Extensive air monitoring was done on both workers and within the work zone during interim source removal activities conducted between 1991 and 1994. The results of the monitoring allowed for a "downgrade" in worker protective equipment (from respirators to no respirators). In addition, there was no detectable impact to the soils immediately adjacent to the work area. This work, conducted in areas of high contaminant levels, indicates that there is little risk of exposure to contaminants from fugitive dust.

Concentrations of DNT in groundwater collected at the project site during the March 1999 sampling event did not exceed MTCA drinking water standards in any of the seven currently monitored groundwater monitoring wells. The concentrations have also been below the surface water screening level and, therefore, pose little to no risk to the environment. Minor exceedances of naturally occurring aluminum also occur in site groundwater and background (upgradient) groundwater. Nitrate exceedances of the drinking water standard were previously observed in some wells, although the source may have been offsite agricultural uses; recent samples (since 1988) from all monitoring wells have been below the drinking water standard.

Based on a "substantial and disproportionate evaluation of cost and reduction in risk," Ecology has recommended that no additional remediation of groundwater at the site is necessary. Continued groundwater monitoring at selected locations for DNT will likely be continued as part of future site remediation.

3.4.2 Impacts of Alternatives 1, 2, 3, and 4

Ecology has established a conceptual plan for future remediation to address soils that have contamination at concentrations higher than cleanup levels (Blum, personal communication 1997). The approach is based on minimizing direct human contact to contaminants. Elements of Alternative 1 to address this pathway of concern, and their associated environmental impacts, are presented below.

- A hot spot excavation program was conducted from the fall of 1999 through July 2000. During this interim action, soils containing lead or arsenic concentrations exceeding site-specific remediation levels were excavated and stockpiled. Excavated locations were primarily areas outside the proposed golf course footprint, and some localized areas were inside the golf course footprint. Hot spots have been removed to minimize the potential for direct contact by denying human and animal receptors access to contaminated soil through removal, cover, and/or location to all but remediation workers. Additional worker exposure to contaminated soil could occur under Alternative 3 during soil washing treatment.
- Locations to be scraped would be cleared and grubbed of existing vegetation, and soil would be removed to a depth of 1 to 1.5 feet. Removal of vegetation and soil would reduce available habitat for local plants and animals, until the site develops. In addition, it is possible that noxious weeds onsite could be spread over the site and possibly offsite.
- During construction or scraping activities, dust will be generated.
- Haul routes for the scraping program would be constructed or repaired. Construction of the haul routes and truck traffic may interfere with migratory patterns of local animals.
- Excavated soils less than the golf course remediation level would be placed in placement/consolidation areas (PA) in the golf course footprint and rough-graded to match the golf course design. These PAs would be entirely within the golf course footprint. The golf course would then be constructed as an engineered cover (cap) for contaminated soils and debris. The cap would consist of either 18 inches of clean soil over a geosynthetic layer or a 12-inch-thick "human health exposure" soil cap over a 6-inch gravel "eco-cap." Impacts to human health and the environment from construction of the golf course would include potential exposure to contaminated soils.
- For some open space land use areas (e.g., along railroad tracks), hot spots may need to be remediated. In other areas, lead detections occur in some open space areas that are ecologically sensitive: the Sequalitchew Creek Canyon (excluding railroad tracks), the bluff along Puget Sound, and the open space setback surrounding Old Fort Lake. These detections are low and below site-specific human health remediation levels. No remediation is planned for these areas.

Implementation of Alternative 2 or 3 would result in essentially the same consequences for human health and the environment as those discussed for Alternative 1. Alternative 4, the no action alternative, would result in the continuation of existing human health and environmental risks to those contaminants left in place.

3.4.3 Mitigation Measures

Under Alternative 1, the site remediation approach assumed by Ecology (which includes the placement of clean cover over contaminated soil, institutional controls, and other measures), in combination with land use design features, would provide adequate long-term human and environmental health protection. The following elements within the approach are designed to mitigate potential impacts of the remediation identified above.

- The time of exposure to these soils with elevated concentrations of contaminants would be short and workers would be wearing protective equipment, thereby mitigating human health impacts. Personal protective equipment (PPE) appropriate for the type of potential exposure would be worn to reduce worker exposure. Workers would be trained in the health and safety procedures appropriate for their respective tasks, and operation of equipment (trucks, backhoes, and other heavy equipment) would comply with appropriate safety regulations.
- Dust generation would be managed by wetting the soil during handling, paving the centralized treatment area, and/or covering stockpiles when not adding or removing material. Soil dampening will not be conducted on a 24-hour basis because the soil consists primarily of coarse-grained materials. To protect against changes in conditions during remediation activities, limited air monitoring will conducted in the work zone and surrounding areas. It is anticipated that after remediation, no soils exceeding cleanup levels will remain, and therefore, air monitoring would not be required.
- For open space areas with detections occurring in ecologically sensitive areas (the Sequalitchew Creek Canyon, the bluff along Puget Sound, and the open space setback surrounding Old Fort Lake), remediation may not occur, pending an evaluation of net environmental benefit, in order to maintain existing habitat.
- Precautionary measures would be taken to ensure noxious weeds are not spread over the site or offsite during construction.
- The area outside of the golf course footprint would be allowed to revegetate naturally because this land will be sold to companies who will develop the properties individually with structures, paved areas, and landscaped areas.
- A health and safety plan would be maintained during construction, and contaminated soils would be managed to reduce or eliminate human health and ecological risks.
- BMPs such as erosion and sedimentation control measures would be left in place after construction and monitored until no longer needed.

3.4.4 Significant Unavoidable Adverse Impacts

To prevent erosion and other impacts as noted in previous chapters, control measures would be left in place in the interim until full development of the site. A significant unavoidable adverse impact to habitat would occur until the site is developed.

3.5 LAND USE

3.5.1 Affected Environment

Existing land use conditions are described below for the site and the area surrounding the site. Figure 7 shows the existing land use in the project vicinity. The following land use discussion was adapted from the land use analysis conducted by Huckell/Weinman Associates, Inc. for a previous environmental document (unpublished).

The City of DuPont encompasses approximately 5.8 square miles (3,736 acres) of land within southwestern Pierce County. The City incorporation boundaries are generally defined by the Puget Sound shoreline along the northwest, DuPont-Steilacoom Road on the east, and Interstate 5 (I-5) and the Fort Lewis Golf Course on the south. The Fort Lewis Military Reservation, which includes approximately 86,000 acres, borders the City on the northeast, east, and south. The Nisqually National Wildlife Refuge is located on the tidal flats just south and west of the DuPont shoreline along Puget Sound. The communities of Steilacoom and Lakewood are located approximately 5 miles to the north and northeast of the City, respectively.

Existing developed land uses account for a small proportion of the total area within the City. Until 1994, virtually all development within the City was confined to the original historic village, and a small subdivision, El Rancho Madrona, on the southwest side of the City. Most of the City is undeveloped and remains partially forested and is held by several large property owners. Weyerhaeuser Company and its subsidiary WRECO own the majority of the 3,000 acres within Northwest Landing, which is in the City of DuPont, and includes the former DuPont Works site. Other large ownerships include approximately 200 acres in two parcels north of Sequalitchew Creek that are owned by Glacier Northwest; approximately 285 acres north of Sequalitchew Creek that are within the Fort Lewis Military Reservation, and are operated by the U.S. Army as a sanitary landfill; 185 acres owned by the Intel Corporation; and 52 acres adjacent to I-5, along the southern edge of the City, that are owned by the State Farm Insurance Company.

In 1988, WRECO initiated construction of a major mixed-use development known as Northwest Landing. The development eventually will extend over approximately 3,000 acres (including the former DuPont Works site and the proposed golf course location). In 1994, WRECO completed construction of the first residential subdivision (Palisade Divisions 1 and 2) in a location adjacent to the original village area. Other components of Northwest Landing for which construction has begun include Divisions 3 through 8, and the first phase of the Yehle Park Village. In 1995, State Farm completed construction of a major regional headquarters facility on its parcel adjacent to I-5. Intel Corporation completed its first building in 1996. A small retail center opened in 1998.

The former DuPont Works site is bordered to the west by the double-tracked Burlington Northern Santa Fe Railroad mainline, which is situated near water level at the base of the bluff along Puget Sound. Sequalitchew Creek runs along the north side of the site. To the north of the

creek are undeveloped industrial lands, a portion of which are being used for a sand and gravel mining operation and an associated processing plant (nearest to Puget Sound) and industrial lands for sale. Undeveloped areas within the Northwest Landing project abut the site to the east, south, and north.

Land Use and Zoning Provisions

The proposed golf course site and surrounding area is within the planning and zoning jurisdiction of the City of DuPont. The current zoning of the area (according to the City Interim Zoning Map) includes planned neighborhood (most of site) and manufacturing/research park in the northeast corner of the site generally north of Sequalitchew Creek. Provisions of the City's comprehensive planning document that apply to the proposal are summarized below. The City is currently in the process of amending the 1995 Comprehensive Plan. An updated plan is expected to be published in late 2000.

The proposed project has been reviewed for consistency with the 1995 Comprehensive Plan. Pertinent land use designations and goals prescribed in the 1995 plan are summarized on the following pages.

1995 Comprehensive Plan

The City adopted its current Comprehensive Plan on July 25, 1995. The 1995 Plan adds policies to help DuPont develop as a town with an effective pedestrian environment and to avoid a suburban pattern of excessive separation of people and land uses. Key features that the City sought to establish through the 1995 Comprehensive Plan include the following (City of DuPont, 1995):

- A recognizable and functionally diverse town center near a major thoroughfare.
- Neighborhood areas small enough to allow residents and workers to walk or ride bikes if they choose.
- A hierarchy of street sizes, and a generally regular, geometric street pattern to provide comprehensible routes of travel.
- Dwellings, shops, and workplaces generally located close to each other.
- Well-configured squares, parks, and open spaces woven into street and block patterns and dedicated to social activity, recreation, and visual enjoyment.

To achieve these objectives, the Comprehensive Plan designated a town center area surrounded by multiple villages or neighborhood areas, and used existing natural and developed features to help delineate the village locations. The northern sector of the City would continue as an area for industry. The Comprehensive Plan assumed that development of these distinct land areas would occur in sequence with the numerous designations of the respective villages (Villages I through IV, plus the already-developed Historic Village).

Village III

Parcel 1 of the former DuPont Works site includes all of the areas designated as Village III by the 1995 Comprehensive Plan, as well as most (approximately the western three-quarters) of the

Town Center area. Village III is generally bounded on the west by Puget Sound, on the north by Sequalitchew Creek, and on the east by Old Fort Lake and identified open space corridors north and south from the lake; the southern boundary of Village III is the same as the southern boundary of the Consent Decree area. The generalized land use map for the 1995 Comprehensive Plan shows most of Village III as mixed residential use; the Plan text indicates that this would be mostly single-family development, with smaller-scale multi-family housing dispersed throughout the area. Other features include a sensitive area buffer along the Puget Sound bluff; three park areas near the western edge of the village; and open space or sensitive areas long Sequalitchew Creek, between the creek and Old Fort Lake, and around the original Fort Nisqually site.

Golf Course

The 1995 Comprehensive Plan notes the remediation program for the former DuPont Works site and the concept of using golf course development as a means of implementing cleanup for the site. The Comprehensive Plan indicates that "the most contaminated soils have been removed and the remaining areas are proposed to be treated in a combination of soil washing on-site and placement under a proposed golf course" (City of DuPont, 1995). The Comprehensive Plan allocates approximately one-third of the area of Village III (nominally, 150 acres) to a golf course. This acreage estimate was based on the average size of a typical municipal golf course and was not reflective of the specific acreage that might be used in remediation and subsequent golf course development. The Comprehensive Plan does not specify where the course would be located within the village boundaries. Golf course characteristics prescribed in the Plan include the following:

- The course should provide an exciting golf experience.
- The course should provide a community benefit, which may be achieved by maintaining a significant amount of trees and natural vegetation and locating the holes such that the public can drive between some parts of the course to experience the open space.
- Public play should be allowed on the course.
- Location of housing around the course is encouraged, with a mix of lot sizes and housing types.
- Housing areas around the course should be connected by neighborhood streets, rather than being isolated by cul-de-sacs.

Town Center

The Town Center area defined in the 1995 Comprehensive Plan is bounded on the west by Village III (with the boundary along Old Fort Lake and associated open space corridors); on the north by Sequalitchew Creek; and is generally east of the Consent Decree area, although the west portion overlaps the Consent Decree area. The Town Center area is centrally located with convenient access to most of the City, and is intended to be the administrative and cultural center of the City.

Land uses allocated to the western portion of the Town Center (the portion within the Consent Decree area) include a central Town Square, civic buildings, office and commercial uses, mixed

single-family and multi-family residential uses, and a large open-space buffer and park surrounding Old Fort Lake and extending down to the southern boundary of the neighborhood. None of the Town Center within the Consent Decree area was allocated to golf course use. The Comprehensive Plan indicates that there is to be public access to Old Fort Lake for passive recreation, and a community-scale park adjacent to the south side of the lake (in the same location as the park shown in the 1985 Comprehensive Plan). An open-space corridor with a trail would also connect Old Fort Lake with the Town Square to the east.

Land uses identified for the eastern portion of the Town Center (outside of the Consent Decree area) include a middle school, office use, several park areas, open space near Sequalitchew Creek and in an oak savannah area near Strickland Lake, and single-family and mixed single-and multi-family residential uses.

City-Wide

In addition to the land use designations and associated prescriptions for the Town Center and villages, the 1995 Comprehensive Plan established a number of general goals and policies that would be applied city-wide or to specific areas. The topical coverage of the goals and policies includes land use, environmental systems, open space, parks and recreation, transportation, housing, capital facilities, and utilities. The land use goals and policies are subdivided among urban form, design, street system, residential development, town center, commercial and office development, industrial development, and mineral resources aspects of land use.

3.5.2 Impacts of Alternatives 1, 2, and 3

The project site is an approximately 636-acre tract of land (Parcel 1) in the west-central portion of the City of DuPont. Approximately 30 percent of the total acreage of Parcel 1 would actually be devoted to the golf course footprint under Alternatives 1 and 3. Other uses would be developed on the remaining acreage, based on post-remediation development plans.

There are inconsistencies between the 1995 Comprehensive Plan and the proposed actions under Alternatives 1, 2 and 3. Under Alternatives 1, 2 and 3, the golf course footprint cap/containment facility (Alternatives 1 and 3) or area excavated (Alternative 2) is larger in size than the golf course area proposed in the 1995 Comprehensive Plan. In addition, part of the golf course footprint (or area excavated) would extend into the Town Center area rather than being confined to the Village III area. The golf course footprint area (or area excavated) would also displace a portion of the area proposed for Town Center use and a community-scale park, and would occupy some of the area designated for commercial use. Finally, as noted earlier in Section 2.1.3, a restrictive covenant has been filed by Weyerhaeuser with Pierce County that precludes residential use within all of Parcel 1, which includes the golf course footprint area. The restrictive covenant also precludes schools, daycares, parks, and recreational uses—except for golf courses and related amenities.

3.5.3 Impacts of Alternative 4

Alternative 4 (No Action) would not be inconsistent with the 1995 Comprehensive Plan. However, without cleanup, the soil in Parcel 1 would remain contaminated and, therefore, there will be exposure risks (human and ecological health) associated with any proposed residential,

recreational or commercial uses. As a result, under MTCA, this would not be an acceptable alternative.

3.5.4 Mitigation Measures

The Mitigation Measures outlined below pertain in some degree to Alternatives 1, 2, and 3. The measures applicable only to certain alternatives are designated.

- Any future golf course developed over the cap/containment facility will need to undergo SEPA review and permitting processes that include coordination with the City of DuPont (Alternatives 1 and 3).
- The proposed cap/containment facility should be described in the updated (circa 2000) City Comprehensive Plan (Alternatives 1 and 3).
- The revised land use and associated use restrictions for Parcel 1 should be described in the updated Comprehensive Plan.
- Weyerhaeuser and the City should continue to coordinate planning for Parcel 1 as well as properties outside Parcel 1.

3.5.5 Significant Unavoidable Adverse Impacts

The proposed alternatives (Alternatives 1, 2, 3) would not result in a significant unavoidable adverse impact to land use if the mitigation measures above are implemented.

4.1 RESPONSIVENESS SUMMARY INTRODUCTION

The Department of Ecology (Ecology) issued the Draft Environmental Impact Statement (DEIS) for the cleanup of the former DuPont Works site on February 18, 2000. The proposed action described in the DEIS and FEIS for the 636-acre Parcel 1 property is construction of a golf course cap/containment facility. The proposed action also involves soil scraping (excavation) and placement of the contaminated soils under selected golf course footprint areas.

The formal 45-day comment period for the DEIS ended on April 3, 2000, but the comment period was informally extended an additional 14 days. Written and oral comments were accepted until April 17. Approximately 310 written comments (from approximately 63 letters) were received. Written comments included personal letters, form letters, and one petition, and these comments were received via U.S. mail, electronic-mail, and hand delivery. A public meeting was held at DuPont City Hall on March 21, which provided an opportunity for questions and answers and public comment. Approximately 80 people attended the March 21 public meeting, and oral and written comments were received. Only one oral comment was received outside of the public meeting. The public meeting was recorded on audiocassettes and three people took notes. The written comments and questions, as well as the oral comments and questions, are summarized in Tables 4-1 and 4-2, respectively. Copies of the written comments are included with this FEIS; however, a transcript of the public meeting was not generated, so is not included here.

How is this Responsiveness Summary organized and how do you find your comments and/or questions and Ecology's responses and/or answers? Following this section, you will find a list of commentors. The list is divided into agencies/organizations/businesses and private individuals. You will find a number associated with your name/group. When you read through Table 4-1, look for your "number" in the appropriate column. As noted above, the comments and questions contained in this document are not verbatim but, rather, summarized versions of what was said or written. If numerous people made the same comment, especially in the case of the form letters that were received, only one response was provided. When reading Table 4-2, note that not every question or comment made at the public meeting is attributed to an individual or agency representative. Meeting participants were requested to identify themselves when they spoke, but that was not strictly adhered to. A small number of questions and or comments raised during the public meeting may not have been captured and included here. At the public meeting, Ecology attempted to respond immediately to all the comments and questions raised and those responses are included in this document. Ecology has also included additional written responses to the oral comments where no response or an incomplete response was given at the public meeting if the necessary information to respond immediately wasn't available that evening.

Was there any one general category or concern raised by the public? The greatest number of comments received related to protection of the historic and cultural resources located on or near the cleanup site—more than comments relating to the actual cleanup action itself. There were comments opposed to the proposed action as well as in favor of it. Some wanted Ecology and the companies (Weyerhaeuser and DuPont) to move faster while others wanted the project or process to slow down or stop completely. Some wanted the cleanup and development of the property to proceed with the desire for a future golf course, and others wanted the site left in a natural state, believing that another golf course was not needed. Comments were received from

near and far, including local City of DuPont residents (historic village and the Northwest Landing development), others in the general western Washington region, as well as comments from out of state (Oregon, California, Idaho, Utah, and Kentucky) and even outside the country (Canada and Australia).

Based on the public comment received, Ecology has made changes to the DEIS that are incorporated in the FEIS. However, the basic list of alternatives and the proposed action have not significantly changed. Additional detail has been provided in the historic and cultural resources section of the document, and an additional section on land use (expanded from land use analysis in DEIS) has been added. Much of the detail about the cleanup process and decision-making requested in the comments will also be provided in future documents, which will be available for review and comment. Those documents include the remedial investigation, feasibility study, risk assessment, cleanup action plan, and the final Consent Decree. The major decision document from Ecology, using information in the FEIS, will be the issuance of the Draft Cleanup Action Plan. As noted above, that and the other documents mentioned above will be made available for formal public review and comment and are predicted to be released in early 2001.

Ecology wishes to acknowledge the time and energy invested by the public in attending meetings, reading documents, participating in site tours, and providing comments on this cleanup project. While Ecology is unable to meet the needs and desires of each and every person who provided input, as noted by the wide range of diverse and often opposing comments that were expressed, Ecology and others involved in the project do receive both direct or indirect benefit from that input. The DEIS and discussions about final cleanup actions has helped initiate discussions between Weyerhaeuser Real Estate Company, Weyerhaeuser Company, and various citizen groups interested in preservation of historic sites on the property. It has triggered more direct discussions with the Nisqually Indian Tribe about site cleanup activities and concerns over potential burial sites. It has begun to get communications back on track with the State Office of Archaeology and Historic Preservation. It has caused Weyerhaeuser Company to evaluate some of their old memoranda of agreements and develop an Archeological and Cultural Resources Protection Plan that is specific to Parcel 1 (the prior plan, completed in 1988, covered the entire 3,000-plus acre Northwest Landing development). It has helped to raise a new appreciation for the history of the area and helped to galvanize those interested in its preservation and recognition. The DEIS has also brought into focus more clearly the differences between groups, such as Ecology and the City of DuPont, and their respective goals and authorities.

The DEIS "signaled the alarm" that cleanup of the Parcel 1 property was just around the corner and that many years of study and planning were soon coming to a close. That alarm has triggered many discussions and brought them out into the open where they can be addressed. Again, while everyone probably does not agree with the evaluations made in the DEIS and FEIS, Ecology feels that the input received and the energy invested by the public makes this a better project in the end. Ecology wishes to acknowledge the assistance of URS in assembling the DEIS and FEIS for the DuPont Works cleanup site.

LIST OF DEIS COMMENTORS WITH COMMENTS APPEARING IN TABLE 4-1

ID #	Agencies/Organizations/Businesses	Representative
A-1	Active Construction, Inc.	(Walter Smith)
A-2	DuPont, City of	(Judy Krill)
A-3	DuPont Toxics Citizens Oversight Project (DTCOP)	(Tom Skjervold/Ed Kenney)
A-4	Lacey Museum	(Drew Crooks)
A-5	Nisqually Indian Tribe	(Bill Tobin)
A-6	Nisqually Point Defense Fund (NPDF)	(Patrick Steel)
A-7	Nisqually-Sequalitchew Historic District (NSHD)	(James Edgren)
A-8	Tacoma/Pierce County Economic Development Board (TPCEDB)	(Bruce Kendall)
A-9	Tacoma/Pierce County Health Department (TPCHD)	(Robert McElroy)
A-10	Tahoma Research Service (TRS)	(Cecelia Carpenter)
A-11	Washington State Office of Archaeology and Historic Preservation (OAHP)	(Allyson Brooks)
A-12	Weyerhaeuser Real Estate Company (WRECO)	(David Brentlinger)
ID #	**Individuals**	
I-1	Paula Anderton, et. al. (Petition signed by 56 people)	
I-2	David Axe	
I-3	Clayton Balch and Zoe Green	
I-4	Lee Bennett	
I-5	Kalan Brunink	
I-6	Roy Coffey	
I-7	Richard Daniels	
I-8	Doug and Barbara Frampton	
I-9	Pat Goodhind	
I-10	Karen and Patrick Haas	
I-11	James Hills	
I-12	John Jackson	
I-13	Lisbeth Johnson	
I-14	Edward Johnstone	
I-15	Elizabeth Miller	
I-16	Eric Ness	
I-17	Lorraine Overmyer	
I-18	Calvin Page	
I-19	Laura Page	
I-20	Marilyn Rasmussen, State Senator	
I-21	Gary Fuller Reese	
I-22	Scott Schenck	
I-23	Linda Smith and Harold Schmidt	
I-24	William and Betty Sprague	
I-25	James Stephenson	
I-26	M. Leland Stilson	
I-27	Johnny Stoner	
I-28	Penny Sweem	
I-29	Charles Wilkinson	
I-30	Roxanne Woodruff (2 letters)	

ID #	Form Letters	
F-1	Submitted by: Charlotte Chriswisser, Luana Faye, Alice and Douglas Harrison, Sheila Hostetler, Elizabeth Millner, Chris Newman, Roger Newman, Garry Qualman, Kenneth Ross, Michelle Ross, Robin Ross, Allan Smith, Edith St. Martin, and Marreillaise St. Martin	
F-2	Submitted by: Robert and Dorothy Abbott, George Brown, Linda Pittner, and Roxanne, Sandra, and Floyd Woodruff	
F-3	Customized and submitted by: Judy Bridges, Kay Reichel Hecox, and Callista Lillard	

Table 4-1

RESPONSIVENESS SUMMARY

ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
1	Historical and Cultural Resources		
1-1	I-27	• Have appropriate management plans ever been developed for preservation of historical sites since investigations started in 1977? (Johnny Stoner)	A Cultural Resources Plan has been in place since 1986. This plan, plus Memoranda of Agreements, has guided site activities to date. Work is now under way for a *Former DuPont Works Site Parcel 1 Archaeological and Cultural Resources Protection Plan* for remediation activities. See Appendices A and B of this FEIS.
	A-4	• Need more than one archaeologist to monitor work. Statement in DEIS is inadequate. (Lacey Museum)	Specifics as to the number of professionals needed to monitor remediation work will be determined in the final detailed Cleanup Action Plan (CAP) from Ecology.
	A-7	• Independent archaeologist brought in to meet remediation protection requirements as established by law. Archaeological investigations should take place prior to clear cutting and scraping. (NSHD)	Weyerhaeuser Company and Weyerhaeuser Real Estate Company (WRECO) plan to find appropriate owners for all cultural properties as they have done in giving the 1843 Fort Nisqually site to the Archaeological Conservancy. A third party archaeological consultant is working on the cleanup project to meet the plan requirements.
1-2	I-4	• Invite the public to participate in data recovery and create a positive public relations opportunity. (Lee Bennett)	Both the *Archaeological and Cultural Resources Protection Plan* and the Ecology Cleanup Action Plan (CAP) will be available to the public for review and comment. All site activity will follow existing agreements and the plan referenced above, when completed and reviewed. While Ecology, Weyerhaeuser, and the DuPont Company recognize the public's interest, it needs to be noted that the area is a hazardous waste site and anyone working in the area must have undergone state/federally mandated Health and Safety Training. Therefore, the level of public access will continue to be restricted. If people wish to obtain the required training and volunteer their time, that possibility can be discussed with the property owner, as control over the site access is their role and responsibility.
1-3	I-8, I-25	• Demand all graves near 1833 Fort be located and if necessary the bodies relocated in a protected and honored place. (Doug and Barbara Frampton, James Stephenson)	Ecology, Weyerhaeuser, and the DuPont Company are committed to making every effort to find graves and relocating remains in dedicated areas, as required in existing agreements.
	A-10	• Additional burials in 45-PI-404 have not been located. (TRS)	Additional archaeological research is planned at site 45-PI-404, the 1833 Fort Nisqually cemetery prior to and during any remediation in that area. (See also the response to issue 1-19 below regarding mitigation measures.)

Table 4-1
RESPONSIVENESS SUMMARY

ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	I-17	• Location of the 1833 cemetery must be found and the remains of those buried there relocated to a protected site. (Lorraine Overmyer)	See response above.
	A-5, F-2	• There are sites other than those few that have been identified and/or destroyed and it is likely that graves or artifacts will be uncovered during the excavation. Much greater detail needs to go into the DEIS to address this issue. (Nisqually Indian Tribe, Form Letters)	Anyone with specific information is invited to present that data to Ecology (Mike Blum at 360-407-6262) or directly to Weyerhaeuser Company (Jim Odendahl at 253-924-7063). This will be helpful in developing a final plan for protection. If new sites are discovered during the remediation process, work will stop in those areas until appropriate investigations are conducted per *the Memoranda of Agreements* and *Archaeological and Cultural Resources Protection Plan*. (See also the response to issue 1-19 below.)
	I-13	• The site is part of our history; a delay shouldn't make that much difference when so much history could be lost. (Lisbeth Johnson)	Many of the sites are outside the Consent Decree area and will not be affected by construction activities. The FEIS includes a revised and expanded discussion of mitigating measures.
1-4	I-7	• Repeated use of "no historic integrity" and "has not been located" are used too much. The US Coast & Geodetic Survey Mapping of Southern Puget Sound in 1876 to 1877 will help locate Wilkes Observatory and Indian Villages. Failure to identify location of sites shows a lack of research. (Richard Daniels)	Ecology, Weyerhaeuser, and the DuPont Companies invites anyone with specific site information to submit it for use in expanding data about any sites. Specifically, Wilkes Observatory is marked with a monument and is outside the area to be remediated (Parcel 1). (See map – Figure 6 in the DEIS). The terms "no historic integrity", or "has lost integrity" are those used by the Washington State Office of Archaeology and Historic Preservation (OAHP) in explaining why a site is not eligible for the National Register, following a submittal of a Determination of Eligibility form for a site. "Not been located" means that site work to date has not shown sufficient physical evidence of a specific location. The Wilkes Observatory is a case in point. There is some evidence that the construction of the Northern Pacific Railroad may have destroyed the site. The Wilkes Observatory is not in the Consent Decree area.
1-5	I-8, I-14	• Need to expand area so history of workers, traders and natives who lived outside preserved area can be evaluated. (Doug and Barbara Frampton, Edward Johnstone)	Presumably this refers to the 1833 Fort Nisqually. The areas to the North, West, and East have been thoroughly examined. To the south lies an area with trees and brush. Although this has been tested, the existence of the vegetation increases the possibility that something may have been missed. Therefore, the area will be examined again after it has been logged and again after the brush has been removed and before any surface removal takes place. (See also the response to issue 1-6 below.)

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RESPONSIVENESS SUMMARY

ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
1-6	I-10, I-26, I-30, F-1, F-2	• (1833 Fort Nisqually) Need to expand the physical boundaries of the 1833 Fort. It is likely that more exterior structures will be identified during future excavations. Initiate systematic shovel testing program. Stop cleanup around site until Kittson graves are found and knowledge of lifestyles of early settlers who lived and worked nearby are determined. (Karen and Patrick Haas, Lee Stilson, Roxanne Woodruff, Form Letters)	The known physical boundary of the fort is outlined by a log barrier. In addition, there is a 63-foot buffer strip beyond the logs. None of this area will be disturbed during remediation. The decision to expand the boundaries of the land set aside for the 1833 Fort Nisqually will be made if and when additional structures are found.
	A-10	• Area outside 1833 Fort should be carefully monitored since Indian camps were located there. (TRS)	Comment noted. (See response to issue 1-5 above.)
	I-29	• Proposed plans to protect historic and archaeological remains around fort are inadequate. Need to perform archaeological surveys. (Charles Wilkinson)	Comment noted. (See response to issue 1-5 above.)
1-7	I-10, I-26, I-29	• The 63' buffer may be inadequate to protect significant archaeological deposits at the 1833 Fort. (Karen and Patrick Haas, Lee Stilson, Charles Wilkinson)	Ecology, Weyerhaeuser, and the DuPont Company are aware of this concern and are committed to taking extra precautions when work is under way in the vicinity of the 63' buffer. The exact boundaries of any areas of concern are to be defined prior to forestry activity or remediation. (See also the responses to issues1-6 above and 1-19 below.)
1-8	I-26	• (Methodist Episcopal Mission) Draft states that the exact mission foundation or 'footprint' has not been located. That is incorrect. (Lee Stilson)	Comment noted. Please note that there will not be remediation (scraping) required in the area north of the creek, except possibly along the railroad corridor. The current "hot spot" program of interim action will address this area. The excavations completed are over 150 feet from the existing marker.
	A-7	• Request that maps be revised to show Methodist-Episcopal Mission as an historical site as well as other non-listed (register) historical sites. (NSHD)	Comment noted. The DEIS Map (Figure 6) does identify the Mission location as a historic/cultural site location.
1-9	I-26	• (Indian House Site) Page 3-17 states "This site has lost its historic integrity…" Page 3-19 of the Draft states "If portions of this site remain…" If site is even partially intact, it is potentially eligible to be nominated to the National Register. (Lee Stilson)	Comment noted. (See response to issue 1-4 above.)
1-10	I-26	• DEIS statement that site (men's dwelling house) has been determined to be not eligible for Natural Register is based on inaccurate information. (Lee Stilson)	Comment noted. The site is not in the cleanup site boundary and has been referred to WRECO.
1-11	I-26	• Draft does not mention agricultural infrastructure associated with 1843 Fort. (Lee Stilson)	The concern at this time is the location of cultural resources and whether or not any unidentified ones exist in the Consent Decree (CD) area and, if they exist, will they be adversely impacted. Virtually all, if not all of the barns, sheds, and outbuildings, are located outside of the

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RESPONSIVENESS SUMMARY

ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			CD area. No construction activities are planned outside the CD area (Parcel 1). Sites located north of the creek are no longer in danger from remediation work (scraping), except possibly along the railroad corridor. Monitoring the removal of hot spot material from an area just inside the fence on the north side of the creek showed no evidence of Hudson Bay Company/ Puget Sound Agricultural Company (HBC/PSAC) material or structures. (See also the response to 1-10 above.)
	F-1	• Consider delicate nature of artifacts found near 1843 site and difficulty of seeing artifacts from seat of bulldozer. (Form Letters)	Comment noted. Guarantees cannot be made that artifacts will not be damaged or overlooked (not seen) during the remediation process. See also responses to issues 1-19 and 1-24 below.
1-12	I-26	• DEIS states there is an open question as to the site's (Nisqually Village) eligibility for National Register. Statement reflects lack of understanding of areas cultural and archeological resources. No construction on site without extensive data recovery excavations. (Lee Stilson)	Site 45-PI-405 lies outside the Consent Decree area. (See also the response to issue 1-10 above.)
1-13	I-26	• Draft (page 3-18) states, "This former grave site has lost its historic integrity (the remains have been re-interred in the Sequalitchew Indian Cemetery)." On page 3-20 the Draft states "However, the site has lost its historic integrity. During design the site would have to be evaluated." How was the determination made that it had lost its historic integrity without an evaluation? This should be explained. (Lee Stilson)	Comment noted. This issue is clarified in the FEIS (Section 3.3). This is an OAHP determination. (See also the response to issue 1-4 above.)
1-14	I-26	• Section on Historic and Cultural Resources (pages 3-16 to 3-18) and Impacts of Alternatives 1, 2, and 3 (pages 3-18 to 3-20) should be rewritten to take into account the chronological and geographic gap in Northwest history and Archaeology that took place on the site. (Lee Stilson)	Comment noted. There is no argument as to the importance of the HBC/PSAC sites in Northwest history. The report entitled *A Cultural Overview and Comprehensive Management Plan for the DuPont Property, Pierce County Washington* (1989) has a detailed discussion of the prehistory and history of the site.
1-15	I-2	• The mission site should be defined as a circle with a radius of 700 feet centered on the 1989 location of the mission marker. (David Axe)	(See response to issue 1-8 above.)
1-16	I-2	• Reasonable site access be provided for purpose of planning and executing independent archaeological investigation. (David Axe)	Site is a hazardous waste site with access limited to trained personnel. (See also the response to issue 1-2 above.)
1-17	A-6	• A professional evaluation and assessment of the artifacts previously collected is essential prior to any survey or mitigation strategy. (NPDF)	Comment noted. Additional work is planned to address this concern. (See also the responses to issues 1-1 & 1-2 above). Most artifacts recovered have been donated to museums (Washington State History Museum or DuPont Museum) or the Nisqually Indian Tribe. The only recovered artifacts, still in the possession of Weyerhaeuser, are those

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			from the Mission Site. They will stay with Weyerhaeuser until an appropriate or qualified organization can be identified.
	A-6	• A qualified, independent historic archaeologist provide a review of the work that has been done to this point and also conduct additional archaeological testing of critical locations prior to logging and scraping. (NPDF)	Comment noted. (See the responses to issues 1-1 above and 1-19 below.)
	A-10	• Page 3-20 under section 3.3.3., Mitigation Measures, Unit 5, should read in the following way: "If monitoring reveals any significant cultural or historic site, OAHP, Ecology and the Nisqually Tribe should be notified." (TRS).	The 1983 Memorandum of Agreement between Weyerhaeuser, OAHP, the Nisqually Tribe, the City of DuPont, and the U.S. Army Corp of Engineers identifies who is contacted and the actions to be taken when cultural resources are discovered. Ecology is not part of the agreement. However, Ecology has been notified by the Weyerhaeuser and DuPont companies whenever sites or artifacts are discovered on the cleanup site.
1-18	I-2	• No further activity at mission site until independent archaeological investigation is completed. (David Axe)	The mission site is in an area not subject to further remediation scraping. (See also the response to issue 1-8 above).
	I-2	• Independent investigation be under direction of a professional or academic archaeologist. (David Axe)	Comment noted. (See response to issue 1-1 above.)
	A-4	• Archaeologist needs to be trained in prehistoric and historic archaeology and work closely with Nisqually Tribe and OAHP. (Lacey Museum)	Comment noted. (See response to issue 1-1 above.)
	I-10	• Skeptical of doing archaeology from a bulldozer. (Karen and Patrick Haas)	Comment noted. (See response to issue 1-1 above.)
	I-2	• Independent Archaeologist chooses dig locations. (David Axe)	Comment noted. (See response to issue 1-1 above.)
1-19	A-6	• Request that mitigation measures listed at 3.3.3 on page 3-20 be changed to include additional review and survey work being done prior to clearing being initiated in the area. (NPDF)	Comment noted. (See also responses to issues 1-1 and 1-2 above). The mitigation measures in the Consent Decree area will be the same as the successful ones developed over the years at Northwest Landing: • An archaeological survey of the area before any logging or brush removal takes place (this has already been done). • A re-survey after logging. • A re-survey after brush removal. At this point further testing etc. can be employed, if necessary. • Monitoring removal of surface by scrapers.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	I-26	• Mitigation Measures on page 3-20 should stipulate that a competent historic archaeologist will develop and implement the investigative/survey plan for locations/areas/sites to be excavated/cleared. (Lee Stilson)	Comment noted. (See response above.)
	A-4	• Proposed mitigation measures to safeguard the historic and cultural resources are inadequate. (Lacey Museum)	(See response above.)
	A-4	• A program of systematic shovel testing by archaeologists will be needed to effectively locate and mitigate resources in the area. (Lacey Museum)	(See response above.)
	A-4	• The FEIS should include strong mitigation measures to help protect site. (Lacey Museum)	(See response above.)
	A-3	• The DEIS evaluation of impacts on historic cultural resources needs to be revised and expanded. (DTCOP)	(See response above.)
1-20	I-2	• If pre-1906 structures or occupation areas are discovered outside defined mission area, boundaries will be moved to include these areas, or landowner agree to accommodate recovery. (Suggested a review committee of Owner, Independent Archaeologist, Ecology, Committee member for Preservation of Nisqually Mission, and City) (David Axe)	Comment noted. (See also the response to issue 1-8 above.)
1-21	I-2	• A 3 acre permanent protected area be defined based on findings. This would include outline of mission building, outbuildings, stockade line, area for interpretive center & mission marker, findings related to July 1841 celebration, public access, and private or public road easement. (David Axe)	Comment noted. (See also the response issue 1-8.)
1-22	I-2	• All artifacts recovered be donated to the DuPont Museum. (David Axe)	Disposition of artifacts will be managed in accordance with existing agreements. For example, all Native American artifacts must be turned over to the Nisqually Tribe. DuPont Company era artifacts are turned over to the DuPont Museum and the Hudson Bay Company era artifacts to the Washington State History Museum.
	A-3	• DEIS discussions should include how monitoring to detect artifacts would occur, who would be notified, how the significance of the discoveries would be evaluated, how long construction activities would be delayed and what opportunities for expanded investigations and recovery actions would be provided. (DTCOP)	The *Archaeological and Cultural Resources Protection Plan* is being prepared which will detail issues associated with monitoring, notification, significance, further investigation, etc. (See also the responses to issues 1-1 and 1-19 above.)

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
1-23	A-11	• Site 45-PI-74 is listed as not eligible in the DEIS. Only a portion of the site has lost integrity. Please edit document to reflect that portions of site are significant. (OAHP)	Comments noted. Specifically, the FEIS notes that 45-PI-74 will be further evaluated to determine if any site integrity exists. OAHP will be notified of findings. Site 45-PI-74 is outside of Consent Decree area.
	A-11	• Need mitigation proposals for both the DuPont Works and the Buffalo Soldiers. (OAHP)	The few remaining structures associated with the former DuPont Works, except for the stone guard house/entrance gate, are scheduled to be demolished due to contamination (lead-based paint) and/or structural concerns. Mitigation is provided in the FEIS for the Buffalo Soldiers site.
	A-11	• DEIS should reflect that nomination of the Nisqually-Sequalitchew Historic District & 1843 Fort to the National Register, affords them a higher level of protection under state law. (OAHP).	Comments regarding the 1843 Fort have been referred to WRECO as this area is outside of Parcel 1. (See also the responses to issues 1-1 and 1-2 above regarding the site-specific plan and the proposed nomination of the Nisqually-Sequalitchew Historic District.) This site-specific plan will be reviewed by experts, including OAHP.
	A-11	• Need to establish a working and ongoing relationship with OAHP to assure cultural resources are recognized and protected resource under the Consent Decree. (OAHP)	Comment noted. Quarterly progress reports are being submitted by Weyerhaeuser to OAHP and will continue through site cleanup activities.
	A-11	• Review and update MOU between OAHP, Weyerhaeuser and City. Explore feasibility of including Ecology and the Nisqually Tribe. (OAHP)	The signatories to the Memorandum of Understanding (MOU) are the ones to initiate updates, not Ecology. Should they desire to include Ecology and/or the Nisqually Tribe in a revised MOU, that is a decision of the signatories. The Tribe already has an MOU with Weyerhaeuser.
	A-3	• DEIS needs to review and summarize existing MOA with respect to actions that would result if additional artifacts and sites are discovered. (DTCOP)	Comment noted. Copies of the three agreements are included in the FEIS as an appendix. (See also the response to issue 1-1 regarding the *Archaeological and Cultural Resources Protection Plan* which will address actions taken in additional artifacts and sites are discovered.)
	A-11	• Request a "value archaeological review" of current cultural resource activities at the site. Bring in an outside archaeologist to manage and oversee work of the contract field archaeologist and act as liaison with other concerned parties. (OAHP).	Comment noted. A "value archaeological review" will not be conducted. (See also the responses to issues 1-1, 1-2 and 1-9 above.)
	A-11	• Re-establish the Peer Review Process to review the past cultural resource work and provide direction & oversight for the Value Archaeological Review Process. (OAHP)	Comment noted. See response above.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	A-11	• Review and revise the Cultural Resources Management Plan to reflect current standards and research goals, and treatment and protection protocols. (OAHP)	Comment noted. See response above.
1-24	I-2, I-23, F-1, F-2, F-3	• Concern that historical artifacts may be damaged. Mitigation or review to minimize damage. (David Axe, Linda Smith and Harold Schmidt, Form Letters)	Comment noted. Weyerhaeuser Co. has ongoing efforts to catalog and protect artifacts. This will continue. Guarantees cannot be made that artifacts will not be damaged during the remediation process as noted in the response to issue 1-19. The multiple level surveys prior to and following the scraping of the surface by heavy equipment should locate all archaeological sites. From that point on, all excavation will be done by hand.
1-25	A-2	• Regarding cultural and historic resources, mitigation needs to include a screening-level field survey in an expanded area around historic sites and in areas to be used for consolidation so that salvage archaeology can take place. (City of DuPont)	Comment noted. Extra care will be taken around known sites. (See also the response to issues 1-1, 1-2, and 1-19 above.)
	A-3	• A screening-level field survey for historic and cultural resources of all areas to be used for consolidation and capping needs to be done. (DTCOP)	Comment noted. See above.
	I-17	• Need for an additional archaeological survey outside the 1833 Fort Nisqually site. A systematic, shovel testing program should be initiated to search for remains of HBC and Native American features that existed during occupation of the Fort. (Lorraine Overmyer)	Comment noted. See above and the responses to issues 1-6 and 1-7 above.
	A-5, I-12, I-14, I-25, F-2	• Extensive archaeological surveys should be done on the entire area before excavation begins. (Nisqually Indian Tribe, John Jackson, Edward Johnstone, James Stephenson, Form Letters)	Comment noted. See above.
1-26	I-16	• Do state, local & municipalities have to follow the same level of care and regulations, especially with historic issues, that is being proposed at Weyerhaeuser's site? (Eric Ness)	All private and public entities should be complying with the same laws and regulations relating to Archaeological Sites and Resources (27.53 RCW and 25.48 WAC). The laws governing archaeology were passed in the mid-1970's. Development of the historic village of DuPont occurred before that time, so those properties have probably not been investigated for artifacts. Site 45-PI-65, the early Town of DuPont Dump, was surveyed, tested, and evaluated in 1977 and 1988. Further evaluation and testing of the former town dump and the historic village would be the responsibility of the City of DuPont, as they are located

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			outside the Consent Decree area as well as outside the Northwest Landing Development.
	I-16	• Have the parks and residential areas in village of DuPont been investigated for historic artifacts? (Eric Ness)	See above.
1-27	I-16	• Have there been any meetings during the past decade where residents of DuPont were invited to discuss the cleanup? (Eric Ness)	Yes. There have been several Ecology public meetings, numerous round table public meetings, and public meetings conducted by the DuPont Toxics Citizen Oversight Project. There have also been DuPont City Council meetings where cleanup issues have been discussed.
	I-16	• Have there ever been any questions brought up about the historical concerns during all these years? (Eric Ness)	Yes. Questions on historical issues have primarily occurred within the last two years.
1-28	I-16	• Has Weyerhaeuser donated one of the old forts to a protective agency? (Eric Ness)	Weyerhaeuser Company has donated no property within the Consent Decree area to a historic group. WRECO has donated one property outside the Consent Decree area and within the Northwest Landing development. WRECO transferred the 6.6-acres of the 1843 Fort Nisqually Site to the Archaeological Conservancy in 1993.
1-29	I-17	• The total obliteration of the DuPont Site is wiping out an important and undocumented area of the industrial history of our State. (Lorraine Overmyer)	Comment noted. The "obliteration" of the DuPont Works began when the DuPont Company decommissioned most of the facilities/buildings when they closed down the plant. It has continued over the years as hazardous materials associated with or adjacent to the remaining buildings and foundations were cleaned up.
	I-17	• To state there is lead paint and asbestos in the buildings and therefore they must be torn down is ridiculous. (Lorraine Overmyer)	Each of the buildings that remained on the site after 1991 has been tested for asbestos and lead paint. Neither Weyerhaeuser nor the DuPont Company wants the liability of having this material left onsite. At the request of the citizen "historic sites" groups, the former blacksmith shop was recently evaluated for structural integrity to see if it could be saved. It was found to be in poor condition and has been greatly modified over the years from its original design.
1-30	A-5	• The DEIS states that there will be no unavoidable significant impacts to cultural resources if mitigation measure are followed. This is clearly inaccurate. (Nisqually Indian Tribe)	Comment noted. With mitigation recommended, no significant unavoidable adverse impacts are anticipated. (See also the responses to issues 1-1, 1-2, and 1-19 above.)
	A-5	• Impact should not be determined according to how many artifacts it is predicted the archaeologists would find. (Nisqually Indian Tribe)	Comment noted.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	A-5	• The DEIS incorrectly states that the alternatives are the same in regard to historical and cultural impacts. A golf course will have a much greater impact than allowing site to return to natural state. (Nisqually Indian Tribe)	True. The no action alternative will have less impact on cultural and historic resources. Choosing the no action alternative also means the contamination is left unremediated. A cleanup with no golf course cap/ containment facility would likely have a greater impact, especially if scraping is done over the entire site rather than just scraping the area outside the golf course cap/ containment footprint.
1-31	A-5	• At a minimum, Weyerhaeuser should be required to provide funds for Nisqually representatives to be on site during the entire project. (Nisqually Indian Tribe)	Comment noted. Ecology cannot require the Weyerhaeuser and DuPont companies to do this. They have hired an archaeological consultant at their own expense. (See also the responses to issues 1-1 and 1-19 above.)
1-32	A-1	• There will be trained ground level personnel present at all times during all excavation processes to observe and watch for artifacts. (Active Construction)	Comment noted.
1-33	I-2	• Need more safeguard and access to the archaeological sites. Current property owners have shown serious disregard for cultural resources. (David Axe)	Comment noted. See the responses to issues 1-2 and 1-6 above.
1-34	F-2	• Concern about graves, especially the Kittson children. (Form Letters)	Comment noted. See the response to issue 1-3 above.
	F-2	• Don't allow cleanup, it will destroy artifacts and loss of knowledge about the past. (Form Letters)	Comment noted. See multiple responses in Section 1 (Historic and Cultural Resources)
	F-1	• Don't bulldoze our history. (Form Letters)	Comment noted.
1-35	F-2	• Stop Weyerhaeuser and DuPont from their overzealous cleanup of the proposed Nisqually Historic District until more thorough search can be made for graveyard and artifacts. (Form Letters)	Comment noted. See multiple responses in Section 1.
	F-1	• Delicate environment of whole area should be inviolable. (Form Letters)	Comment noted.
	F-2	• Hard to believe Weyerhaeuser would risk desecration of children's graves and cultural heritage of the Nisqually people. (Form Letters)	Comment noted. See multiple responses in Section 1.
1-36	I-8	• Shock, horror and dismay that bulldozing is being considered around the 1833 Fort Nisqually. (Doug and Barbara Frampton)	Comment noted. See responses to issues 1-3, 1-5, 1-6, 1-7, 1-19 and others.
	I-8	• Devastated at the knowledge that you intend to desecrate this most sacred of areas and lodge the strongest protest against such a proposal. (Doug and Barbara Frampton)	Comment noted. See the response to issue 1-3.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	I-8	• Remain unconvinced the two Kittson children and Christopher Frampton have been located. (Doug and Barbara Frampton)	Comment noted. See the response to issue 1-3.
	I-8	• Our ancestor would have been wearing naval uniform and only had one hand. Dr. Daugherty seemed to have little awareness of military traditions surrounding burial of sailors. (Doug and Barbara Frampton)	Comment noted.
	I-8	• Seems to be gross criminal negligence not to do an in-depth study to learn about workers living outside the Fort. (Doug and Barbara Frampton)	Comment noted.
1-37	I-10	• By allowing only 63' buffer around 1833 Fort, countless artifacts will be lost forever. (Karen and Patrick Haas)	Comment noted. See the response to issue 1-7 above.
	I-10	• We decry loss of past, desecration of graves and habitat. (Karen and Patrick Haas)	Comment noted. See numerous responses in Sections 1 and 12.
1-38	I-14	• Request that the archaeological survey be expanded before the bulldozers destroy what remnants of physical history still remains at the area surrounding the original site. (Edward Johnstone)	Comment noted. See responses to issues 1-1, 1-5, 1-6, 1-19, and others.
1-39	I-15	• Important historical evidence of Washington State History will be lost forever if Weyerhaeuser succeeds in blocking citizen efforts to thoroughly research the site before scraping begins. (Elizabeth Miller)	Comment noted. See numerous comments in Section 1.
	I-15	• "You must ask yourself, given tax dollars to support Ecology and your mission to uphold the public good, what would truly be in the BEST interest of the people of Washington?" (Elizabeth Miller)	Comment noted.
	I-15	• "I am sick of hearing how much time and money Weyerhaeuser has spent on the cleanup." (Elizabeth Miller)	Comment noted.
	I-15	• "Do you want to help them rob us of our history as well?" (Elizabeth Miller)	Comment noted.
1-40	I-18	Commendable that you and the property owner have incorporated a concern for the preservation of truly historic artifacts. (Calvin Page)	Comment noted.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
1-41	I-19	• Work done by the Northwest Landing developer has significantly exceeded the works in other national areas regarding historic preservation. (Laura Page)	Comment noted.
	I-19	• I look forward to the completion of this process so we can enter and visit those sites currently not accessible to the public. (Laura Page)	Comment noted.
1-42	I-9	• Professional and costly attention has already been given to historical and cultural preservation. (Pat Goodhind)	Comment noted.
1-43	I-21	• The idea of Nisqually being the Plymouth Rock of the Northwest is incorrect. Developments of the same kind occurred at Fort Vancouver before those at Nisqually, and the government has recognized this primacy by spending millions of dollars on commemorating events there. (Gary Reese)	Comment noted.
1-44	I-28	• I believe Weyerhaeuser and DuPont are good stewards in protecting the history of the area. (Penny Sweem)	Comment noted.
1-45	I-1	• All pre-industrial historic sites have been identified. (Petition signed by 56 people)	Comment noted.
	I-1	• Native American relics, American pioneer relics and human remains might exist at any location in the United States. (Petition signed by 56 people)	Comment noted.
1-46	I-20	• Weyerhaeuser should work with OAHP, the Nisqually Tribe and other interested stakeholders on a final plan for protection of archaeological sites. (Senator Rasmussen)	Comment noted. See the responses to issues 1-1, 1-3, 1-17, 1-23 (above), and issue 2-9 (below).
	I-20	• It is time the site is cleaned up. Weyerhaeuser has demonstrated its commitment to clean up the site in a responsible manner, while protecting sensitive historic and archaeological sites. (Senator Rasmussen)	Comment noted.
1-47	I-21	• Richmond Mission Site did not have the first American Settlers. They were missionaries and did not stay and settle. (Gary Reese)	Comment noted.
	I-21	• The Mission Site was merely a cabin with a fence around it, like hundreds of other early cabins. Farm sites of the Hudson's Bay Co., the Red River settlers and Puget's Sound Agricultural Co. which dot the region are much more valuable to history as many of them bore "fruit". (Gary Reese)	Comment noted.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
2	Golf Course Configuration and Land Use Issues		
2-1	I-27	• If Ecology is only concerned with the cleanup, why are they willing to accept scraping and arranging contaminated soil into a golf course configuration? (Johnny Stoner)	Ecology's main mission is the protection of human health and the environment. Our regulation, the Model Toxics Control Act (MTCA), is specific in the criteria Ecology has to look at to select the best cleanup option for each site. These criteria include the short and long-term effectiveness of the technology in reducing or eliminating site risks, the degree of implementability of the technology, and cost of the technology. These criteria are judged against the unique characteristics and complexity of each site and a list of possible solutions is developed. For sites that are as large and complex as the DuPont Site, there are very few technologies that meet these criteria. Creating a containment system is one of those technologies. The containment system is effective at reducing or eliminating long- and short-term risks, it is easy to implement, and passes Ecology disproportionate cost test. As such, it is a viable remedy under MTCA. Once that decision was made, it was the landowner's decision to create the containment system in the shape of a golf course. Once the land is transferred from Weyerhaeuser to WRECO, it will be their responsibility, or the next buyer, to apply for the appropriate permits from the City of DuPont.
2-2	I-27	• Doesn't the golf course configuration pre-determine land use before permits are ever requested from the City of DuPont? (Johnny Stoner)	To a certain extent, the golf course would limit the future land use options for the area. However, the presence of contamination in the soils within the 600-plus acre area is probably more limiting than the golf course itself. As a result of those conditions, with the added factor that Weyerhaeuser has determined to voluntarily impose a deed restriction that prohibits future residential uses in the area where contamination will remain in the soils, the remediation itself is not responsible for the limitations to future land use. Any proposals for future operation of the golf course and any development that potential landowners propose will have environmental impacts evaluated in compliance with SEPA at that time. It is not presently known what development may occur or who will be proposing them. Those future uses are not predetermined.
2-3	I-27	• When was land use changed to a golf course and was Weyerhaeuser under any obligation to advise the residents in writing? (Johnny Stoner)	The development plans for Northwest Landing have shown a golf course since the mid-1980's. The City of DuPont 1995 Comprehensive Plan shows the location of the golf course in the Consent Decree area. The Comp Plan is a public document for all citizens to review. Ecology is unaware of any requirements for Weyerhaeuser to inform residents in writing of land use changes.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
2-4	I-1	• Comments made by City officials at Public Meeting may constitute a violation of Public Trust & not be construed as the will of the people. (Petition signed by 56 people)	Comment noted.
2-5	I-22	• How will golf course be designed? (Scott Schenck)	Please note that the EIS is for remediation work. While it is true that the concept is for the contaminated soil to be placed in selected areas and capped with a professionally designed "golf course" layout, the remediation will result in the construction of a Ecology-approved cap designed to protect human health and the environment. The result will be a nearly completed 18-hole course, absent of any clubhouse or maintenance facility. The golf course configuration was designed to cover as much of the in-place contamination near building foundations from the DuPont Works and along the narrow gauge railroad as possible. The Project's golf course designer has developed 22 different golf course designs. The majority of the changes were due to requests by the City of DuPont. Approval of the use of the cap as a golf course rests with the City of DuPont. There will be no cost to citizens of DuPont for construction or operation of the cap (or golf course).
	I-22	• How will the golf course be developed? (Scott Schenck)	See response above.
	N/A	• Will there be any cost to the residents of DuPont?	There will be no cost to the residents of DuPont.
2-6	I-23	• Describe the long term ownership and maintenance of the facility. (Linda Smith and Harold Schmidt)	Tentative plans are to have the golf course (assumes permitting by City) privately owned and open to the public. A deed restriction would preclude violating the cap/ containment facility.
2-7	I-23	• Does Ecology need to obtain permits from the City before the golf course is built? (Linda Smith and Harold Schmidt)	No. The construction of the cap over the contaminated material is subject to review and approval by Ecology. As noted above, the City has final say on the golf course permitting and operation.
	A-2	• DEIS should not consider cleanup activities related to land uses that may not be permitted by the City. (City of DuPont)	Weyerhaeuser and DuPont companies are making business decisions based on cleanup requirements. Since the golf course was presented in both the 1985 and 1995 comprehensive land use plans, the companies feel confident the land use will be permitted and are proceeding under that assumption. However, as noted above, the City has final approval on golf course permits and operation. See also response above.
	A-2	• DOE does not have ability to exempt Weyerhaeuser from City's substantive regulations relating to land use. (City of DuPont)	The City's Comprehensive Land Use Plan is not an applicable or relevant and appropriate requirement (ARAR) under the Model Toxics Control Act (Chapter 70.105D.090 RCW). Therefore, Ecology does not

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			have an obligation to require Weyerhaeuser to meet the substantive requirements contained in the City's Comprehensive Plan.
2-8	I-23	• What is Weyerhaeuser's business plan for this land? (Linda Smith and Harold Schmidt)	When the site is cleaned up and released, Weyerhaeuser Company will transfer the Consent Decree area to Weyerhaeuser Real Estate Company (WRECO). WRECO anticipates a Business and Technology Park integrated with a golf course. Permitted uses in the area would also include a hotel, civic buildings, and small scale retail uses that support the other uses. There would be buffer areas around Old Fort Lake, the Puget Sound bluff, Sequalitchew Creek, and the south and east boundaries of the property. In April of 1999, a comprehensive plan and zoning code amendment that would allow these uses and features was submitted to the City of DuPont by WRECO.
	I-23	• What has happened to Weyerhaeuser's vision of a quality lifestyle in a creative community? (Linda Smith and Harold Schmidt)	Northwest Landing continues to embody all the elements of the original vision making it one of the most respected master-planned communities in the country. Northwest Landing has a balance of housing, open space and business. A full 37 percent of Northwest Landing is proposed for parks, recreation, and sensitive areas that will include more than 20 miles of trails when completed. Northwest Landing protects historical elements of the area's Native American and European American heritage. The housing continues a theme of pedestrian orientation through the use of front porches, alley-serviced homes or de-emphasized garages and neighborhood greens.
2-9	A-3	• DEIS inappropriately omits any analysis of land use impacts. (DTCOP)	Although land use planning is not an ARAR (applicable or relevant and appropriate requirement) under MTCA and thus does not have to be considered when making cleanup decisions, Ecology and the companies involved the City for almost 4 years. The companies attempted to work with the City.
	A-5	• A more complete analysis of the impact of the planned future activities should still be done. (Nisqually Indian Tribe)	To a certain extent, almost any remediation involves a land use action. Given the nature of the contamination at this site and the size of the parcel, the proposal's development aspects are greatly complicated. Under MTCA, remediation techniques known for soils containing metals are limited, with containment being preferred after consideration of the substantial and disproportionate test. Therefore, a containment of this magnitude will naturally appear more like a development action than other more typical cleanups may.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	I-29	• Land use limitations related to golf course. Citizens of DuPont will be forced to either approve the eventual construction of a golf course footprint with no options for road construction or any other alternatives. (Charles Wilkinson)	This is not, however, a development proposal. It is not known at this time who will be the future owner of the property after it is remediated and transferred to WRECO. Local permits are not required for remedial action. RCW 70.105D.090 requires that cleanup actions conducted under MTCA comply with the substantive, but not procedural, requirements of each applicable law or regulation, including local requirements. This exemption applies to the Washington Clean Air Act, Solid Waste Management Reduction and Recycling, Hazardous Waste Management Laws, Shoreline Management Act of 1971, and all local permits and approvals. Thus, an action that normally requires a permit can take place without issuance of the permit, but the action must be performed in general compliance with the regulatory program. Agencies, which are tasked with implementing the applicable laws and regulations, will have an opportunity to comment on the proposed MTCA cleanup action. Containment facilities are allowed under MTCA as a cleanup action. The proposed facility meets or will meet Ecology and Tacoma-Pierce County Health Department requirements. The golf course cap/containment facility will be constructed with some of the infrastructure needed to operate as a golf course. The reasoning behind this is as follows; When created, the protective cap covering the contaminated soils cannot be breached or changed. As such, development of features that require secondary excavation (greens, tees, planting of trees, all water and drainage lines, etc.) within or immediately adjacent to the placement areas will have to be done during the remediation process under Ecology's oversight. Certain golf course features are being constructed specifically to address either areas of contamination or cleanup requirements. A grass cover will have to be established on the cap and maintained as part of the remediation. Weyerhaeuser and DuPont will choose what type of grass is used. This, and any additional work, is being done at the sole risk of Weyerhaeuser and DuPont. Ecology does not have land use authority and cannot authorize or deny this proposal based on land use and certainly cannot authorize the operation of a golf course.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			The golf course is not a foregone conclusion if it is never permitted to operate. It is at the risk of the landowner that they build this containment facility (golf course infrastructure) without an operating permit. The golf course cap/containment option was developed to accomplish the following: a. Create a remedy that will be protective of human health and the environment. b. Act as a containment facility for soils with contaminant concentrations above the cleanup goals set for the site. c. Create a remedy that meets the requirements of MTCA, in particular, the criterion that the remedy should be permanent to the maximum extent practical. d. Create a remedy that would, by its nature, be maintained long term. e. Create a remedy that would put the property back into productive use. f. Create a remedy that had some commercial value. The golf course cap/containment option will meet: a. all MTCA requirements. b. all the applicable or relevant and appropriate requirements (ARAR) required under MTCA including: c. Shoreline and Wetlands Protection Requirements. The preferred alternatives will not include any actions within 200 feet of a shoreline or wetland. d. Federal and State Requirements for Protection of Native American Cultural Sites. The Federal Native American Graves Protection and Repatriation Act (25 USC 3001-3013) and Washington's Indian Graves and Records laws (Chapter 27.44 RCW) prohibit the destruction or removal of Native American graves, cairns, pictographs, glyptics, or other painted records. The Site was used historically by Native American tribes. Remediation activities may uncover Native American graves or other protected items. There is a Memorandum of Agreement in place to protect and address these resources. e. Federal and State Wildlife Protection Requirements. The Washington State Department of Natural Resources (DNR) did not report any threatened or endangered species within the Consent

ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			Decree Boundary. Although relevant, these regulations are not considered an applicable location-specific ARAR. f. Federal Hazardous and State Dangerous Waste Management Standards. g. State and Federal Solid Waste Management Standards. h. State Water Quality Protection Programs. i. Federal, State, and Local Air Quality Protection Programs. With regard to the City of DuPont's local land use laws, there is an inherent tension between MTCA and local land use laws at this site. It is not possible to achieve both compliance with the City's current land use codes and have a cleanup that meets the requirements of MTCA. Because the City's Plan is not an ARAR, MTCA does not mandate compliance with procedural or substantive provisions of the City's Plan. Given that the City's Plan must be revised to address the property owner's voluntary deed restriction against residential development, Ecology believes that MTCA takes precedence and, therefore, the golf course remediation is entirely consistent with it. The City must determine how to develop its urban area within the confines of the property owner's voluntary restriction. Because the area "within the fence" is so large and is yet undeveloped, the City has many opportunities to reconcile its land use policies with the cleanup. Nonetheless, the fact that this proposal will result in significant impacts to the land use environment is discussed in the document to the fullest extent necessary to disclose those potentials.
2-10	A-3	• DEIS appears to confound a golf course development project with a MTCA cleanup process. Without a golf course development proposal, it is hard to understand why "golf course remediation levels" used for hot spot removals and treatment of stockpiled soils would be relevant. (DTCOP)	Briefly, the remedial action described in this FEIS is part of what the landowner hopes is a future operating golf course. There will be a future development plan and supplemental SEPA analysis after the cleanup is completed. The term "golf course remediation levels" was used simply to describe the unique exposure scenario used in developing site-specific remediation levels and to aid the public in understanding their meaning. They could have as easily been termed "cap/containment remediation levels." As such, the golf course risk scenario and its associated remediation level is more protective than a remediation level developed strictly based on a cap/containment exposure scenario.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			The hot spot remediation program is not part of this EIS and was done as an interim action to remove those soils that will, under any scenario, require offsite disposal. The "golf course remediation levels" were simply a target concentration for this program. (See also responses to issues 2-2, 2-7, and 2-9 above.)
2-11	A-2	• DOE does not have the ability to ignore the City's zoning and Comprehensive Plan in its review and approval of the cleanup activities. DOE required to comply with "substantive provisions of any laws requiring or authorizing local government permits or approvals, "consult with" the local government during the cleanup operations and "to notify and seek comment from" the local government prior to establishment of deed restriction on the property. (City of DuPont)	Weyerhaeuser voluntarily placed a deed restriction on Parcel 1. The 1997 deed restriction placed on Parcel 2 was to limit future land use to industrial, in compliance with the DuPont's zoning for that portion of the city. The voluntarily imposed deed restriction on Parcel 1 is not in compliance with the City's Comprehensive Plan, an action that neither Ecology nor the City can prohibit. In addition, a city's comp plan is not identified as an applicable or relevant and appropriate requirement (ARAR) under MTCA and, therefore, compliance with that plan is not required of the property owner (Weyerhaeuser) nor is there a requirement for Ecology to enforce compliance. (See also the response to issue 2-9 above.)
2-12	A-2	• DEIS p. 1-3 land use is integrated with cleanup activity, golf course fairways, roughs, tees, greens…geomembrane layer and water collection system…. This demonstrates DOE's impermissible "piecemealing" of SEPA review and deferral of land use issues to a point where development of a golf course is a foregone conclusion. (City of DuPont)	Weyerhaeuser and DuPont companies are building a cap/containment facility to address soil contamination. (See also the response to issue 2-9 above.)
	A-2	• DOE has failed to comply with SEPA in its lack of consideration of other alternatives, particularly the impacts the location of golf course will have on the environment, on adjacent land uses. (City of DuPont)	Comment noted. See responses to issues 2-16 above and Section 4 below.
2-13	A-2	• If DOE believes that there will be no adverse environmental effects of the remediation on the adjacent land uses, analysis should be provided. (City of DuPont)	After cleanup, there will be no adverse effects on adjacent land use. As far as future land use issues and potential impacts of an operational golf course, which will be evaluated in future SEPA document (s), most likely a supplemental EIS. The City of DuPont will be the lead agency for that SEPA analysis and determination.
2-14	A-2	• Nothing in the DEIS indicates that the property owner could make any use of the property other than to develop it as a golf course after consolidation and containment of contaminated soils on site. (City of DuPont)	Future use of the cap/containment facility is a land use issue. The future use of the cap/containment facility will be evaluated in a supplemental SEPA document(s). In addition to a golf course, future uses could include open space, construction of commercial or industrial buildings on top of the cap, etc., as long as the integrity of the cap is maintained.
2-15	A-2	• Adverse impacts of a landfill on the community need to be evaluated now. (City of DuPont)	The safety of the public is of foremost importance to Ecology. This proposal would not have been considered if it was not safe. Ecology

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			does have to meet solid waste requirements. However, the cap/containment facility is not a landfill (in the traditional sense of a landfill).
2-16	A-2	• A containment facility could be designed that covers the landfill southeast of Old Fort Lake and along east side of lake that may make land use and access more practical. (City of DuPont)	Comment noted. In the past, the City requested that the golf course cap/containment facility not be located along the east side of Old Fort Lake. Weyerhaeuser and DuPont companies had redesigned the layout to accommodate that request, one of 22 different golf course cap/containment facility layouts.
2-17	A-5	• DEIS designates certain areas as "industrial", but does not describe what industrial activities will be taking place. These activities and the impacts they will create should be described in more detail. (Nisqually Indian Tribe)	The uses for the industrial area north of the creek will be those approved under the City's Comprehensive Plan. Land use issues, in general, will be dealt with in a supplemental SEPA analysis after remediation is complete. Those proposals will be made to the City by the future land owners, either WRECO or the next buyer(s) of the property(s).
2-18	I-3	• Golf course cap seems to be an enlightened method to rectify the problems created by stuff left behind by DuPont and would be a facility of great recreational and aesthetic value to the community (Clayton Balch/Zoe Green)	Comment noted.
2-19	I-9	• Cap/containment facility under golf course is a good idea (Pat Goodhind)	Comment noted.
2-20	I-22	• I am in full support of the proposed action to utilize a golf course to act as a cap/containment for on site cleanup. The golf course proposal is a progressive approach to costly environmental cleanup. (Scott Schenck)	Comment noted.
2-21	A-8	• Support the preferred cleanup option for the former DuPont Works. It is time to put this land back into productive use. (TPCEDB)	Comment noted.
2-22	I-1	• We eagerly await the completion of the cleanup in the Consent Decree area and would like the owner to proceed with the golf course. (Petition signed by 56 people)	Comment noted.
2-23	I-20	• City of DuPont has sole authority to make land use decisions and can take action on that at the appropriate time. (Senator Rasmussen)	Comment noted.
	I-20	• The cleanup plan leaves City with options and does not force a golf course on the City. (Senator Rasmussen)	Comment noted.
3	**Construction and Contractors**		
3-1	A-9	• DEIS should describe how the contaminated soils will be placed, how the contaminated soils from the landfill areas will be	These specifics will be described in the Feasibility Study and in even greater detail in the Engineering Design Report (the appropriate

ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
		contained to prevent equipment tracking or erosion by wind during the excavation and placement activities, how these activities will be monitored, how the extent of contaminated soils will be documented, marked or surveyed for future knowledge, and what components will make up the permeable cap, e.g., geotextile, or drain rock. (TPCHD)	location for these details). The Tacoma-Pierce County Health Department will be invited to review the applicable draft documents to ensure that all applicable solid waste requirements are met.
3-2	A-5	• Type of training to be provided to equipment operators should be detailed in the DEIS and a plan be included which details the actions which will be taken when cultural resources are uncovered. (Nisqually Indian Tribe)	Comment noted. The *Archaeological and Cultural Resources Protection Plan* will provide detail as to the actions to be taken when and if cultural resources are uncovered during the remediation process. The same document will discuss training for onsite workers, including equipment operators.
3-3	A-1	• Active Construction has been selected to perform the remediation at the cleanup site. (Active Construction)	Comment noted.
	A-1	• Workers will be trained in handling Hazardous materials and Emergency response. (Active Construction)	Comment noted.
	A-1	• Workers will attend an orientation in archaeology and general history of the site. (Active Construction)	Comment noted.
	A-1	• Active Construction has previous experience working on the site and handling the uncovering of artifacts. (Active Construction)	Comment noted.
	A-1	• There will be trained ground personnel walking along beside the scrapers, monitoring the activity. Only small lifts of 4" to 8" at a time will be removed. (Active Construction)	Comment noted.
4	**DEIS and SEPA Processes**		
4-1	A-3	• The Draft RI/RA/FS documents should be revised and updated to reflect current status of site cleanup. (DTCOP)	Revisions of the site's RI, RA, and FS will be under development in 2000 and will be issued to the public for review and comment by the later part of this coming winter. This FEIS will allow site preparatory work to commence while the document creation and review process is being completed, eliminating over a year in the project schedule.
	A-2	• Phased review is not appropriate where it would segment and avoid present consideration of proposals and their impacts that are required to be evaluated in a single environmental document. (City of DuPont)	Typically an EIS is not required for a MTCA cleanup. The DEIS was done only to complete the cleanup sections of the process started with the City of DuPont in 1995. Because this process has delayed the cleanup for over five years, it is important that we accelerate the cleanup process. The separation of the site EIS into two phases is one such means.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	A-3	• Draft RI/RA/FS documents are being summarized and presented within the DEIS. The MTCA and SEPA documents should be reviewed concurrently. (DTCOP)	See the two responses above.
	A-3	• Alternative 1 lacks important detailed information necessary for an adequate evaluation of impacts. The DEIS is limited to a "programmatic" or "conceptual" level and is incomplete. (DTCOP)	Detailed information is usually developed in the engineering design report after the cleanup action plan is issued. This is after SEPA issues are typically addressed in the FS (WAC 173-340-350). Descriptions of the details of the selected alternative in the FS are usually in the same degree of completeness as that listed in the DEIS.
4-2	A-3	• Separation of SEPA into two EIS documents is a "separation in name only." It is inconsistent with agency policy. (DTCOP)	It is the opinion of the SEPA section of Ecology and the attorney general's office that this process is appropriate in this case.
	A-2	• EIS states this is not to be viewed as a SEPA analysis for a golf course, yet p. 1-2 makes reference that it is a foregone conclusion that a golf course will be eventual development of the property. (City of DuPont)	The DEIS states, "This plan includes consolidating and capping/containing contaminated soil into specific locations that would be suitable for future development as an operational golf course." The City and the future property owner(s), in subsequent environmental analyses under SEPA, will evaluate the eventual development of the property.
4-3	A-3	• Analysis of a "no golf course option" is conspicuously lacking. Less extensive actions may be sufficient to accomplish the "remediation only" portion of the proposed actions. (DTCOP)	A complete evaluation of alternatives was conducted in the draft FS issued to Ecology and reviewed by the DTCOP in 1994. Over 50 different technologies or combination of technologies were evaluated in the draft FS. Only four remained after the detailed screening. These four alternatives, with modification, are those listed in the FEIS. Scraping of the non-golf course areas was added to each option (other than no action) in response to comments about the "probability of missing hot spots" made by the DTCOP during their review of the draft FS and followup discussions.
4-4	A-3	• SEPA process has been separated into two parts, first for remedial action and second for golf course development and operations. Development actions and cleanup actions appear to be combined in the proposal. (DTCOP)	See responses to issues 4-1, 4-2, and 4-3 above.
4-5	A-3	• Ecology should include a visual timeline showing schedules and relationships for all relevant components of the MTCA and SEPA processes and the proposed action. (DTCOP)	The SEPA schedule will be related to preparation and issuance of the FEIS. The FEIS involves revisions to the DEIS, as appropriate. A Responsiveness Summary (this table) has been prepared, which is included in Chapter 4 of this FEIS. From the closing date of the comment period (April 17) and depending on the final number, organization, and issue resolution of comments, the FEIS is expected to be completed approximately 3 to 4 months from April 17. The RI/FS

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			document to be issued for public comment in early 2001 will include a schedule.
4-6	A-3	• Based on public comments, when draft RI, FS, RA reports are released, significant changes are possible. Additional SEPA evaluations in a Supplemental EIS may be required. (DTCOP)	Comment noted. Preliminary draft documents were released and reviewed by the DuPont Toxic Citizen Oversight Project (DTCOP). As stated in response 4-3, scraping was added as a remedial alternative to respond to DTCOP's public comment.
4-7	A-2	• Ecology has failed to comply with SEPA in its lack of consideration of other alternatives. (City of DuPont)	Comment noted. See response to issue 4-3 above.
4-8	A-3	• Set of alternatives evaluated in DEIS is too limited. (DTCOP)	Comment noted. (See response to issue 4-3 above.)
5	**Cleanup Levels and Sampling**		
5-1	A-9	• DEIS should explain how soils were contaminated. (TPCHD)	More explanation is provided in the FEIS with regard to the source of the arsenic and lead contamination in the soils. Briefly, arsenic-containing herbicides were sprayed in the along sections of the narrow gauge rail and in the other areas to prevent growth of weeds and potential for fires. The lead is present in surface soils where buildings lined with lead sheeting were burned during demolition, or were painted with lead-based paint.
	A-9	• Glossary should provide arsenic and lead concentrations associated with the following definitions: "remediation level", "golf course remediation level", "commercial remediation level" and "industrial remediation level." (TPCHD)	Arsenic and lead concentrations relating to various "remediation levels" as defined in the glossary are under evaluation while the finalization of the risk assessment and feasibility study are in progress. Numeric definition of each of the "remediation levels" will be provided in the Cleanup Action Plan.
5-2	I-11	• Why didn't Ecology have test information with them at the Public Meeting in order to share with the public? Ecology did not provide definitive information. Meeting run poorly. (Jim Hills)	This information was shared in numerous previous meetings, and will be again in the future during public review and comment on the final draft RI/RA/FS documents. The hope was that the EIS meeting would stay focused on the EIS issues and, of course, an opportunity for receiving public comments.
5-3	A-9	• DEIS should outline how the chosen cleanup alternative complies with the substantive requirements of applicable regulations. (TPCHD)	This work was done in the preliminary draft FS issued to Ecology and the DTCOP in December of 1994. These draft documents will be updated during the summer and fall of 2000 and reissued during the coming winter. The draft FS, which will address this comment, will be made available for public review and comment once completed.
5-4	I-22	• Provide a comparison of the risks associated with the toxic level of contaminants found in the Consent Decree area. (Scott Schenck)	The risks associated with the site contaminants will be evaluated in the draft Risk Assessment and made available for public review and comment by later this winter (2001).
	I-22	• Provide examples of similar levels of arsenic and lead in common household items or mixtures. (Scott Schenck)	The concentrations of lead and arsenic found at the former DuPont Works site vary greatly. It is not possible to provide comparisons to

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	I-22	• Compare background levels (of arsenic & lead) in various parts of the world (Scott Schenck)	common household items. Ecology has published natural background concentrations for metals in soils in Washington State (publication #94-115). Statewide 90th percentile values for arsenic and lead are 7 milligrams per kilogram (mg/kg) and 17 mg/kg, respectively. Puget Sound area 90th percentile values for arsenic and lead are 7 mg/kg and 24 mg/kg, respectively. Other areas of the world may be higher or lower depending on the geology of the area and the degree of metal enrichment. Mining districts in western North America and throughout the world frequently have much higher natural background levels of arsenic, lead, and other metals. See additional response (summary table) at the end of this Responsiveness Summary. The table identifies the range of arsenic and lead found onsite in comparison to background concentrations, as well as other information.
5-5	I-23	• What soil sampling will be done during cleanup and after cleanup? (Linda Smith and Harold Schmidt)	Confirmation sampling will be done during cleanup activities to make sure that the cleanup meets the standards established by Ecology. The method of sampling will follow methods described in Ecology guidance documents and will follow established laboratory protocols.
5-6	I-23	• Ecology has been pursuing a policy to eliminate all bioaccumulative chemicals of concern at cleanup sites by 2025. If Ecology is serious about this, why are you allowing lead and arsenic to be left in the area for future residents of DuPont to take care of? (Linda Smith and Harold Schmidt)	Ecology is evaluating a policy to eliminate human and environmental exposure to persistent, bioaccumulative and toxic (PBT) chemicals. The proposal to remediate Parcel 1 by capping the lead and arsenic contaminated soils with an engineered cap will achieve this goal. However, lead and arsenic are not included in the Ecology list of PBT chemicals. For more information see *Questions & Answers on the Ecology Initiative on Persistent, Bioaccumulative, and Toxic Chemicals (PBTs)* http://www.wa.gov/ecology/eils/bcc/bccfaq.html
5-7	A-2 A-2	• In order to conduct adequate evaluation of the proposed cleanup, we request that maps be added to the document that show areas which are most impacted by the cleanup. (City of DuPont) • Maps should indicate where concentrations are at background levels, tying these maps to charts that estimate the depth of soil to be cleaned and the volumes produced in quadrants across the site. (City of DuPont)	The Remedial Investigation (RI) and the Cleanup Action Plan (CAP) will provide maps showing the concentrations and distributions (vertical and lateral) of the soil chemicals of concern. The Feasibility Study (FS) and the CAP will describe anticipated depths of cleanup and volumes.
5-8	A-2	• Document needs to reflect standards of cleanup for residential use, not commercial standards. (City of DuPont)	Deed restrictions voluntarily placed on Parcel 1 by Weyerhaeuser prevents residential land use, as well as daycare facilities, schools, and parks. The cleanup action plan will identify the applicable cleanup standards, as well as site-specific remediation levels, for the various

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			land uses that are anticipated as well as allowed for based on the deed restriction for the site. For reference purposes, the lead and arsenic soil cleanup standards for the DuPont site would be 450 parts per million (ppm) and 20 ppm, respectively, if residential land use was allowed/anticipated.
5-9	A-3	• Need a detailed discussion of why clean soils should be considered part of a remedial action under MTCA. (DTCOP)	Everyone prefers not to scrape clean soils. The DTCOP's earlier comments (1995), regarding the high probability of missing hot spots, convinced Weyerhaeuser and DuPont companies to pursue the site-wide soil scraping proposal. (See responses to issues 4-3 and 4-7 above.)
5-10	A-3	• Sampling requirements as part of remedial actions should be discussed more fully in the DEIS. (DTCOP)	Sampling requirements will be discussed in detail in the CAP. The CAP will include discussions of the procedures for confirmation soil sampling of the scraped areas with specifics on the number and locations of samples per unit area scraped and number and locations of samples per unit volume of stockpiled soil. This sampling will follow procedures outlined in Ecology's sampling guidance. The CAP will also address post-remedial monitoring procedures for soil and groundwater.
	A-3	• Will there be opportunities to provide public comment regarding proposals to perform or avoid additional sampling? (DTCOP)	Yes, the public will have the opportunity to review and comment on the draft CAP.
	A-3	• The role of pre-remedial action sampling and post-remedial action sampling needs to be discussed in the DEIS. (DTCOP)	Comment noted. As noted above, those details will be provided in the CAP.
5-11	A-3	• Compliance monitoring should be added to the description of the proposed action on page 2-5. (DTCOP)	A general discussion of monitoring is included in the DEIS ad FEIS. A more detailed discussion of compliance monitoring will be provided in the CAP.
5-12	A-3	• Document has confused presentation regarding area to be scraped which is an important factor determining environmental impacts. Description of hot spot removal program is cursory. (DTCOP)	Hot spot soils (above applicable human health protection values) have already been excavated and will be disposed offsite, and will not be covered by the cap/ containment facility.
6	**Surface and Groundwater Issues**		
6-1	I-7	• Lack of sampling since 1994 (which misses the rainy 1996-1998 period) is a concern. (Richard Daniels)	Quarterly groundwater sampling and analysis was performed between 1992 and 1997. Annual groundwater sampling was performed in 1998, 1999, and 2000. Until the 1999 sampling, the results have been largely consistent during these sampling rounds. In the 1999 sampling, all groundwater tested was below drinking water standards.
6-2	I-7	• What are the long-term exposure risks as people start living and playing next to (and in) the lake? (Richard Daniels)	An extensive sampling program was performed between 1986 and 1992 to evaluate whether lake water and sediments had been adversely impacted by site activities. The results from this program indicated no adverse impacts to lake water, sediments, or biota.

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			The remedial action is designed to remove surficial and subsurface site-related chemicals, and either dispose of them offsite or contain and isolate them beneath the cap/ containment facility. These actions should further prevent site-related chemicals from migrating to the lake via groundwater or surface water runoff or wind-blown dust. Therefore, long-term exposure risks to people living and playing next to and in the lake are not considered likely. The deed restriction on Parcel 1 precludes residential development, which includes next to Old Fort Lake. The property surrounding the lake is identified as open space; however, the deed restriction precludes the development of a park next to the lake or anywhere else within Parcel 1.
6-3	I-23	• How will water runoff from dampening soil be handled? (Linda Smith and Harold Schmidt)	Water used for dampening soil will be applied in a manner that avoids or greatly minimizes water runoff. This requirement will be incorporated into the Best Management Practices manual for the cleanup/ construction work.
	I-7	• Issues regarding contaminated surface runoff into Old Fort Lake have not been addressed. (Richard Daniels)	As described in response issue 6-2 above, a previous sampling program indicated no adverse impacts to Old Fort Lake had occurred. Because the remedial measures are designed to remove or isolate surficial contaminants, the potential for future impacts to Old Fort Lake from surface water runoff will be further decreased.
	I-23	• How will Old Fort Lake and Sequalitchew Creek be affected by rain runoff after scraping? (Linda Smith and Harold Schmidt)	A temporary erosion and sediment control plan (TESCP) would be implemented in accordance with the Pierce County Stormwater Management Manual to prevent or minimize transport of sediments and potential contaminants during and immediately after scraping. Subsequent natural re-vegetation of large parts of the scraped areas, in conjunction with golf course cap/ containment construction and associated drainage, will prevent or minimize impacts to surface water by rain runoff. In addition, site soils are very permeable which will further reduce rain runoff.
	A-3	• DEIS needs to evaluate the impacts of changes in Old Fort Lake water levels on lake access, amenity uses of the lake and biological resources. (DTCOP)	Impacts to water levels in Old Fort Lake due to cleanup activities resulting from scraping are unlikely. The natural seasonal fluctuation in Old Fort Lake water levels are generally eight feet.
	A-3	• Conceptual models used to date to estimate impacts on shallow groundwater of contaminants leaching from soils…can be based on top 10 feet of groundwater. The DEIS should examine	The leaching studies examined potential impacts of lead and arsenic on groundwater. Based on analytical data obtained from the groundwater

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		relevance of this assumption with respect to potential impacts on Old Fort Lake surface water quality. (DTCOP)	monitoring that has been performed since 1992, groundwater beneath the site has not been impacted by those chemicals in soils. Therefore, groundwater into Old Fort will not adversely impact lake surface water quality.
6-4	I-23	• What monitoring of groundwater will be done during cleanup and after scraping? (Linda Smith and Harold Schmidt)	The current monitoring program for Dinitrotoluene (DNT – the only groundwater contaminant above cleanup standards) will continue, if necessary, throughout cleanup and after scraping. Due to the relatively insoluble nature of the lead and arsenic contamination, it is unlikely that a monitoring program for these chemicals will be necessary. Determination of the need for long-term groundwater monitoring for lead and arsenic will be made in the Cleanup Action Plan.
6-5	A-3	• DEIS should include a map showing locations of existing groundwater monitoring wells as part of this evaluation. (DTCOP)	Comment noted – a map locating the Site's monitoring wells will be included in the RI and CAP.
6-6	A-3	• Impacts on existing and proposed long-term groundwater monitoring system, including physical loss of monitoring wells or reduced effectiveness for detecting contamination, need to be assessed. (DTCOP)	This issue will be addressed during the FS and CAP. All efforts will be made to protect the integrity of the monitoring wells used on the site. These wells will continue to be used throughout the monitoring program. However, if a monitoring well is damaged, see response to issue 6-7 below.
6-7	A-3	• DEIS should discuss how impacts on the groundwater monitoring system will be mitigated. (DTCOP)	Ecology does not anticipate any impacts to the groundwater monitoring system during or after remediation. Should groundwater monitoring wells be damaged during cleanup activities, an evaluation will be made in the CAP regarding abandonment and or replacement of wells.
6-8	A-3 A-3	• DEIS should include leachate monitoring data compiled from golf courses and turf farms in the area. (DTCOP) • DEIS should include proposals to monitor leachate and shallow groundwater quality in the vicinity of consolidation/containment areas, or existing soil hot spots to be covered by the golf course footprint. (DTCOP)	The monitoring of golf course chemicals will be developed as part of the supplemental EIS dealing with golf course operations if the City permits an operational golf course. Dinitrotoluene (DNT) is the only site contaminant that has caused significant groundwater contamination. No known DNT-contaminated soils will be placed in the consolidation areas. As noted above, the need for long-term groundwater monitoring will be evaluated in the Feasibility Study and a determination made in the CAP. Based on past groundwater monitoring data and site-specific contaminant leaching studies, lead and arsenic are not expected to impact groundwater. Hot spot soils (above applicable human health protection values) have been excavated and will be disposed offsite, and will not be covered by the cap/ containment facility. Groundwater will be monitored, as part of the long-term operation and maintenance of the site, due to the existence of DNT contamination in groundwater.

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6-9	A-5	• Preferred alternative involves maintaining a golf course, which means that large amounts of pesticides and weed killers will be used. In addition, the DEIS briefly discusses noxious weed control which might also involve chemicals. An analysis should be done of the impact of these chemicals on wildlife, native plants and surface waters. (Nisqually Indian Tribe)	The monitoring of golf course chemicals will be developed as part of the supplemental EIS dealing with golf course operations. No chemicals are expected to be used for noxious weed control during site remediation. The evaluation of golf course chemical impacts on wildlife, native plants, and surface water (and groundwater) will occur during the future SEPA analysis (most likely a supplemental EIS) for future golf course operations, if permitted by the City of DuPont.
6-10	A-5	Impacts to surface water caused by runoff and soil erosion has not been adequately addressed. (Nisqually Indian Tribe)	Comment noted. (See response to issue 6-3 above.)
	A-5	There will be an impact on rivers and lakes if surrounding area is cleared without an adequate buffer zone. (Nisqually Indian Tribe)	Comment Noted. There are buffer zones (open space areas) bordering Puget Sound, Sequalitchew Creek, and Old Fort Lake where vegetation will not be disturbed. (See also the response to issue 6-3 above.)
7	**Air Monitoring and Dust Control**		
7-1	A-9	• DEIS is inadequate in addressing the potential exposure and mitigation measures from fugitive dusts. Needs to describe potential receptors, potential exposure and mitigation measures. (TPCHD)	Extensive air monitoring was done on both workers and within the work zone during interim source removal activities conducted between 1991 and 1994. The results of this monitoring allowed for a "downgrade" in worker protective equipment (from respirators to no respirators) and no detectable impact to the soils immediately adjacent to the work area. This work, which was conducted in areas of high contaminant levels, indicated that there is little risk of exposure to contaminants from fugitive dust. During cleanup, watering of soils to prevent/ reduce dust will be conducted. Additional detail will be included in the EIS. (See also the response to issue 6-3 above.)
	I-23	• What monitoring of air will be done during and after scraping? (Linda Smith and Harold Schmidt)	To protect against changes in conditions, limited air monitoring will be done in the work zone and surrounding areas during remediation. Ecology does not expect that after remediation, soils exceeding cleanup levels will remain and, therefore, air monitoring would not be required.
7-2	I-23	• Will soil dampening be an ongoing process? Will dampening go on 24 hours a day? (Linda Smith and Harold Schmidt)	Soil dampening will be an ongoing process during the remediation/ construction phase when dust is present. Soil dampening will not be conducted on a 24-hour per day basis. Due to the nature of the soils (primarily course-grained materials) to be excavated, continuous dust suppression is not necessary.
7-3	A-5	• Impact on wildlife and surface water from the dust involved in excavation has not been adequately considered and mitigation measures have not been adequately addressed. (Nisqually Indian Tribe)	Comment noted. See responses to issues 7-1 and 7-2 above

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	A-5	Needs to be more detailed consideration of the watering plan for keeping the dust down and consideration given to the timing of the project to avoid activities during the dry season. (Nisqually Indian Tribe)	Comment noted. See responses to issues 7-1 and 7-2 above.
7-4	A-5	• Contaminated soil could blow into the water bodies during excavation. This is stated in the document, but it does not appear that the impact of that possibility has been evaluated. (Nisqually Indian Tribe)	Comment noted. See responses to issues 6-3, 6-10, 7-1, 7-2, and 7-3 above.
8	**Open Space, Buffers, and Trails**		
8-1	I-27	• May I assume that all trees will be left standing along the entire length of the banks on both sides of Sequalitchew Creek? (Johnny Stoner)	Yes. City of DuPont Municipal Ordinances require a 100-foot setback on each side of a streambank. (DuPont Municipal Code 25.152.130(1))
	I-27	• Is there any plan to leave any evergreens standing along Center Dr. to provide a buffer zone, and if so, how wide would it be? (Johnny Stoner)	Yes. The Consent Decree area abuts Center Drive at a very narrow angled point between Sequalitchew Creek and Palisade Blvd. A 65-foot buffer will be preserved along the Consent Decree boundary, except for a road right-of-way as part of the remediation.
	A-12	• Figures 3, 4, 5, & 6. An area north of Sequalitchew Creek within the project area is improperly labeled "areas to be left undisturbed" and "Open Space". Please correct in FEIS. (WRECO)	Comment noted. Corrections to the figures will be made. The open-space buffer ("areas to be left undisturbed" – shown in blue) is too big.
	I-23	• A buffer zone between the residential and the commercial sections would be attractive. (Linda Smith and Harold Schmidt)	A 65-foot buffer on the Consent Decree area adjacent to residential designated properties to the south and east has been proposed to the City of DuPont as part of a Comprehensive Plan change submitted in April of 1999 by WRECO.
8-2	A-5	• Greater setbacks and buffer zones should also be required for both known and unknown historical sites. (Nisqually Indian Tribe)	A 63-foot buffer exists around the 1833 Fort palisade. WRECO has been working with the Nisqually Tribe to establish buffers around a site known only to the tribe and not to the general public.
9	**Clean vs. Contaminated Areas**		
9-1	I-27	• Of the 640 acres, has Ecology determined which areas are clean and which are contaminated? (Johnny Stoner)	Yes. Based on data to date, heaviest contamination and highest concentrations are found around foundations and the narrow gauge railroad, with lesser impacts in other areas. Extensive sampling of the site has been completed and a lot of interim remedial work completed. All data will be evaluated and included in a final Remedial Investigation (RI) report. The RI along with a final Risk Assessment (RA), Feasibility Study (FS) and Cleanup Action Plan (CAP) will detail what areas need to be scraped and which may be able to be left. Areas designated as open space will not be scraped. The portion of Parcel 1 located north

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			of Sequalitchew Creek other than the narrow gauge railroad corridor will likely not be scraped based on verbal information from the companies. Final decisions will be made following receipt and evaluation of the data.
	I-27	• Is it possible to make a distinction between clean & contaminated soils? (Johnny Stoner)	Thousands of samples have been taken on the site. These samples have largely delineated the areas of the site that will require cleanup to protect human health. Due to new standards being implemented by Ecology for the protection of ecological receptors, more sampling would be necessary to delineate the contamination for these receptors.
	A-2	• Limit remedial action to only those areas that are contaminated. (City of DuPont)	Comment noted. If portions of the site can be determined to be un-contaminated (clean), with a high degree of certainty, there is no need for remediation in those areas. (See also the response 9-3 below.)
9-2	N/A	• Why does the soil need to be scraped on one side of the fence and not on the other? (Public Meeting)	Main production areas and railroad tracks were located away from the site fence (Parcel 1). Sampling data shows that the fence is a good demarcation between clean and contaminated or potentially contaminated areas.
9-3	I-11	• Why do some areas need to be scraped to same degree as those areas where buildings were burned or arsenic had been used to control weeds? (Jim Hills)	Ecology, Weyerhaeuser, and DuPont will be evaluating data to determine how we can differentiate areas that require more (deeper) soil removal than others, as well as areas that do not need any scraping. The final CAP will provide details. Scraping of the non-golf course areas is necessary for two reasons. The primary reason is the chance of missing "hot spots" – isolated locations with high contaminant concentrations. This issue was first pointed out by the DTCOP during their review of the 1994 draft RI/RA/FS. This concern stems from the very small size of some of the hot spots on the site versus the size of the site and the distances between sampling locations. This is particularly true for arsenic. These "hot spots" are particularly prevalent at levels slightly above the cleanup goal for arsenic where the randomness of the site background can make their location hard to predict. (Note: The higher concentrations are always located along the narrow gauge railroad tracks and are, thus, predictable.) Weyerhaeuser and DuPont have tried to develop a model that predicts where these arsenic exceedances slightly above the background level will occur. They have concluded that to be sure at least 95% of them have been found, it would be necessary to sample on a grid nearly as

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			small as the smallest known "hot spot." Ecology agrees that this is not a practical solution. A secondary reason is Ecology's new ecological cleanup standards , which for lead are more stringent than for the protection of human health. The goals of the sampling conducted on the site were done to evaluate lead concentrations that exceeded previous cleanup standards. This sampling was successful in isolating the lead contamination to areas associated with building foundations, debris or where lead paint was used or stored. This sampling does not, however, delineate the extent of contamination above the new ecological standards. It is Weyerhaeuser and DuPont's opinion that to redesign a sampling program that would delineate the contamination to these levels is not practical.
10	**Logging and Scraping**		
10-1	I-23	• How will the area be maintained after cleanup? (Linda Smith and Harold Schmidt)	The cap/ containment facility will require regular maintenance and will be grassed. The other areas will be left "open." Much of it will be exposed gravel and allowed to revegetate naturally until development occurs.
10-2	I-27	• Why is it necessary to cut down all the trees and scrape 18 inches? (Johnny Stoner)	As noted in response to issues 9-1 and 9-3 above, Ecology, Weyerhaeuser, and the DuPont Company will evaluate all data and scraping depth will be minimized. Post-scraping sampling will be required to ensure compliance with cleanup action levels. Also, it is not feasible to do soil cleanup around each and every tree.
10-3	A-9	• DEIS should estimate volume of land clearing debris that will be generated from removal of vegetation. (TPCHD).	The volume of material is estimated at 25 tons per acre cleared. The area for the Cap (golf course) is scheduled to be clearcut, but roots and stumps (cut at ground level) will be left.
	A-9	• DEIS should explain how the land clearing waste will be handled or disposed of. (TPCHD).	Weyerhaeuser plans to conduct forestry activities in areas to be remediated. Any material (logs, limbs, etc.) that has any value will be taken offsite and sold. The remaining debris will be piled onsite for future disposal under burning permits, chipping for site use as mulch, or taken offsite for use as fuel, mulch, etc. At this time, Weyerhaeuser does not plan to send debris to landfills.
	A-9	• If vegetative waste is transported off-site, the TPCHD must be notified and waste must go to a permitted solid waste facility. (TPCHD)	Comment noted. See above.
10-4	I-27	• What is the disposition of the logged trees? (Johnny Stoner)	They are taken to local sawmills or pulp mills.

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10-5	A-2	• Due to City's tree retention policy, only remediate those areas that are contaminated. (City of DuPont)	The cleanup will require the removal of vegetation prior to the excavation of contaminated soils. The amount of trees removed will be solely dependent upon the contamination present. Where possible, clusters of trees will be saved, as opposed to individual trees.
10-6	A-2 I-29	• Graded areas must be re-vegetated. (City of DuPont) • There are no plans for revegetation of scraped areas. (Charles Wilkinson)	Graded areas outside the cap/containment footprint will be allowed to naturally re-vegetate. (See also the responses above.)
10-7	A-3	• If multiple procedures for defining areas to be scraped are still being considered, the DEIS needs to describe and evaluate each of them. (DTCOP)	Comment noted. The multiple procedures for defining areas to be scraped will be further refined in the Feasibility Study and described in the Cleanup Action Plan.
10-8	A-7	• Strongly urge that any areas that do not have to be clear-cut and scraped, be left intact. (NSHD)	Comment noted. This is also the wish of Ecology and the Weyerhaeuser and DuPont Companies. (See also the responses to issues 9-1 and 9-3 above.)
10-9	I-29	• Try to salvage as many plants and native vegetation as possible and transplant them outside of project area. (Charles Wilkinson)	Comment noted.
10-10	A-3	• Better if scraping and consolidation activities were phased to correspond more closely to development actions at the site. (DTCOP)	This is not possible due to the change in property ownership necessary for development. Weyerhaeuser Company can only transfer Parcel 1 to WRECO after the entire site cleanup is completed. WRECO then sells or deeds the property, or portions of the property to individuals, corporations, and/or local government. There is also a cost savings by conducting a total cleanup versus numerous smaller cleanup actions.
10-11	I-17	• Total scraping of the entire site with desecration of the vegetation and lack of consideration to wildlife habitation are a great concern. (Lorraine Overmyer)	Cleanup is required to protect ecological concerns as well as human health. Short-term impacts are necessary for the long-term health of the local ecology. See also responses to issues 9-1 and 9-3 above.
10-12	I-21	• The proposed golf course is the closest thing to reproducing the community that was the parkland for centuries before the balance of nature was upset and the firs were allowed to grow. Perhaps Weyerhaeuser can be prevailed upon to reintroduce the special grasses on land around or outside the fairways of the course. (Gary Reese)	Comment noted. The companies will consider that option.
10-13	I-20	• Ecology should proceed with the Final EIS. Weyerhaeuser can then seek a forest practices permit to log and clear the site. The CAP will be prepared during this time. (Senator Rasmussen)	Comment noted.
11	**Public Meeting**		
11-1	I-11, I-27	• Was there any documentation of questions & comments made by citizens at the Meeting of March 21? (Jim Hills, Johnny Stoner)	Yes. There were both note takers and a tape recording of the public meeting. See also Part 2 of this Responsiveness Summary – Public Meeting Questions, Comments, and Responses (March 21, 2000).

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	I-27	• Is the record available to the public? (Johnny Stoner)	Yes. Contact Ecology (Mike Blum, Project Manager) at (360)407-6262.
	I-11, I-27	• Was the meeting recorded or were persons taking notes? (Jim Hills, Johnny Stoner)	Yes. See above.
11-2	I-6	• Compliment Mr. Blum for way the public meeting was conducted, and being attentive to all those with questions and comments. (Roy Coffey)	Comment noted.
11-3	I-11	• Public meeting done poorly. (Jim Hills)	Comment noted.
	I-11	• Ecology intended to influence & quite possibly present the WRECO point of view. (Jim Hills)	Comment noted.
	I-11	• Ecology not interested in hearing the comments from the audience as much as presenting their own point of view. (Jim Hills)	Comment noted.
11-4	I-28	• Commend Ecology on the public meeting and appreciated clarification on statements that were questionable. (Penny Sweem)	Comment noted.
	I-28	• Amazed that so many people outside of the City of DuPont can attend a public meeting and ask for so many handouts. These people are not the risk takers in this cleanup, nor do they have a financial stake in the process. (Penny Sweem)	Comment noted. Comments are accepted from the public, which include people who live outside the area of influence of the cleanup site.
12	**Ecological Issues**		
12-1	I-27	• Does Ecology consider the loss of 640 acres of wildlife habitat acceptable? (Johnny Stoner)	The removal of contaminated soils is necessary for the long-term health of the ecological community (as defined by Ecology's ecological cleanup standards). Unfortunately, most of the trees and vegetation must be removed to be able to excavate the contaminated soils. (See also the responses to issues 9-1 and 9-3 above.)
	I-16	• How does this proposal protect the wildlife and are the requirements as stringent for wildlife as they are for humans? (Eric Ness)	The cleanup requirements (ecological standards) for protection of wildlife and their exposure to lead-contaminated soil are more stringent than for protection of human health.
12-2	I-23	• Could a portion of land be left as a wild habitat? (Linda Smith and Harold Schmidt)	The Sequalitchew Creek canyon, the Puget Sound bluff, and the area surrounding Old Fort Lake will be left substantially in their natural state.
12-3	A-5	• DEIS does not adequately address the impact on wildlife, wildlife habitat and native plants. (Nisqually Indian Tribe)	Cleanup is required to protect ecological concerns as well as human health. Short-term impacts are necessary for the long-term health of the local ecology. (See also the responses to issues 9-1 and 9-3 above.)

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	A-5	• A study should be done to determine what wildlife exists in the area and whether there are any endangered species or native plants. (Nisqually Indian Tribe)	Multiple studies have been completed assessing wildlife and plants. The cleanup must assess cleanup options versus Federal and State Wildlife Protection requirements. The Washington State Department of Natural Resources (DNR) did not report any threatened or endangered species within the Consent Decree Boundary.
12-4	A-5	• Nisqually Tribe has treaty fishing rights in Sequalitchew Creek and the lakes in the area. The direct and indirect impacts to the fishery resource has not been addressed. (Nisqually Tribe)	There are no expected impacts to fishery resources from the proposed cleanup action. The golf course has been designed to capture all surface water runoff onsite. No impacts to Sequalitchew Creek are anticipated. There are no fish in Old Fort Lake and, unfortunately, due to low flows, very few fish in Sequalitchew Creek.
12-5	I-21	• Trees were not part of the natural landscape. Huggins writes of plowing ground that 50 years later was filled with fir trees. Only oaks grew on the prairies. (Gary Reese)	Comment noted.
	I-21	• The proposed golf course is the closest thing to reproducing the community that was the parkland for centuries before the balance of nature was upset and the firs were allowed to grow. (Gary Reese)	Comment noted.
13	**General Issues**		
13-1	I-7	• Site vicinity map (Figure 1) is out of date, does not indicate the presence of over 563 new residential homes within one mile of the site. (Richard Daniels)	Comment noted. The area referred to is outside of the area to be remediated.
	N/A	• The Site vicinity map (Figure 1), as well as the EIS cover should be corrected to show DuPont's zip code (not Ft Lewis) and a more accurate DuPont city limits boundary. (Fort Lewis Army Base – telephone comment)	Comment noted and maps/figures will be corrected.
13-2	I-22	• What is the significance of the DEIS? (Scott Schenck)	The DEIS needs to be prepared to satisfy SEPA compliance. It is being prepared in conjunction with other documents required by the agencies to complete the site remediation process.
	I-7	• Would help to have more graphics depicting the contamination by area. (Richard Daniels)	See response to issue 5-7 above.
13-3	N/A	• Confused about the process and timeline for cleanup.	The RI/FS will be issued for public comment in early 2001. A timeline for cleanup will be included in this document.
13-4	I-23	• Why are we in such a hurry if there are many options we haven't explored? (Linda Smith and Harold Schmidt)	Many, many site studies over the past 9 years have resulted in extensive interim remedial measures being completed. In addition, some 34 areas with potential elevated lead or arsenic levels have been excavated. The soils with the most elevated levels (some 25,000 cubic

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			yards) will be processed (screened) with the concentrated contaminants removed from the site. The remaining remediation recommendation has evolved after thorough review of options. In short, the proposed recommended alternative has undergone extensive agency reviews and external review by the DuPont Toxic Citizens Oversight Project as well as other public comment opportunities. Ecology does not consider the proposal rushed or drastic. (See also the responses to issues 9-1 and 9-3 above.)
	I-23	• Why have we picked such a drastic alternative for the cleanup process?(Linda Smith and Harold Schmidt)	See above.
	I-23	• Is it the bottom line economics on the part of Weyerhaeuser? (Linda Smith and Harold Schmidt)	Over 50 different technologies or combinations of technologies have been evaluated for site cleanup. Of these, only the four listed in the EIS meet the criteria listed in the MTCA for effectiveness, implementability and cost. Under MTCA, Ecology is required to assess effectiveness versus cost. The soil needs to be cleaned up to protect human health and for the long-term health of the ecological community. Unfortunately, this means that short-term impacts will occur.
	I-23	• Why was only ONE option put forward both during the DEIS and the Draft Scope of the EIS? (Linda Smith and Harold Schmidt)	See above.
13-5	I-23	• Why can't we all have some of what we want in the Consent Decree area? (Linda Smith and Harold Schmidt)	Ecology has final approval authority in selecting remedial requirements based on the State's MTCA Regulations. Within these requirements, Ecology, Weyerhaeuser, and the DuPont Company have to balance protection of human health and the environment against need to protect archaeological resources and land use. We believe the selected alternative accomplishes this goal to the maximum extent possible.
	I-23	• Why can't we all get what we want? "We" have 600+ acres, what is stopping us from getting together and dividing it up according to each group's needs? (Linda Smith and Harold Schmidt)	The land is currently owned by Weyerhaeuser Company. After cleanup, the land will be transferred to WRECO's ownership. Should groups or individuals wish to purchase portions or all of the property now or in the future, call WRECO.
13-6	A-3	• Although detailed information on proposed actions is absent, some of the analyses presented could be understood to include unwarranted data interpretations or assumptions (e.g., that limited additional soil sampling data will be required or that completed hot spot removal actions have addressed all hot spots rather than all *known* hot spots). (DTCOP)	Comment noted. An opportunity for public review and comment of detailed sampling data will be provided when the final draft RI and FS are released. Details about post-cleanup (confirmation) sampling will also be available for review and comment when the draft CAP is released. Ecology is aware that all hot spots have probably not been found. Weyerhaeuser and DuPont companies have proposed site-wide soil scraping, in addition to capping, to address this concern. This

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			concern was raised by the DTCOP during review of the preliminary draft RI and FS documents.
	A-3	• Considering comments, Table 1 of the DEIS should be revised to highlight the differences that exist. (DTCOP)	Comment noted and changes to Table 1 will be made, where necessary.
13-7	A-7	• Ecology not sign off on any actions to be taken in remediation that go beyond what is necessary to meet federal and state ecology standards. (NSHD)	Comment Noted
13-8	I-16	• What is Ecology's charge regarding the cleanup of sites? (Eric Ness)	In March of 1989, an innovative, citizen-mandated toxic waste cleanup law went into effect in Washington, changing the way hazardous waste sites in the state are cleaned up. Passed by voters as Initiative 97, this law is known as the Model Toxics Control Act (MTCA) (Chapter 70.105D RCW). A basic premise is that the polluter pays. In general, Ecology's charge regarding cleanup of hazardous waste sites is the protection of human health and the environment.
13-9	I-16	• What has the cleanup project cost so far? (Eric Ness)	The project's cost (as of April 2000) exceeds $ 46,000,000. These costs include those for interim cleanup actions, studies, sampling, project management, and Ecology oversight costs.
	I-16	• How much money will be saved by capping contaminated soils under the golf course? (Eric Ness)	The cost savings associated with the golf course cap/containment option could range between $137,600,000 (Alternative 3—excavation, onsite soil washing, and offsite disposal) and $ 240,000,000 (Alternative 2—excavation and offsite disposal).
	I-16	• Is Ecology required under MTCA to consider costs in making decisions? (Eric Ness)	Under the State cleanup regulation (MTCA) costs are a consideration in selecting the best cleanup option for each site. Other criteria Ecology needs to consider are the short- and long-term effectiveness of the technology in reducing or eliminating site risks, and the degree of implementability of the technology, the overall protectiveness of the remedy, permanence of the remedy, and community concerns.
13-10	I-16	• What restrictions will be put on the property? (Eric Ness)	Weyerhaeuser has already voluntarily placed a deed restriction on the property (Parcel 1), which eliminates future residential land use, parks, schools, and daycare facilities from the cleanup area. This restriction will remain on the property, in perpetuity, unless further cleanup is conducted and Weyerhaeuser is willing to allow those restrictions to be removed and/or reduced. At such time, Ecology would again become involved in the cleanup activities at the site.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	I-16	• Do private landowners have the right to determine how they will use or develop their own land? (Eric Ness)	Yes, unless it conflicts with local zoning regulations. Private land owners can place restrictive covenants on their property, which governs future land uses. They cannot, however, use their property in a manner that is in conflict with local zoning. In the specific case of the former DuPont Works cleanup site, Weyerhaeuser is the property owner. They have filed a deed restriction (also known as a restrictive covenant) with the Pierce County Assessor's Office that prohibits future residential development on the property, among other things. Weyerhaeuser is planning to build a golf course footprint, which will also serve as the cap/containment facility for contaminated soils onsite. Weyerhaeuser has the right to construct a golf course footprint on their property. They do not have the right to operate a golf course, i.e., accept paying customers, unless permitted by the City of DuPont. The City has the right and ability to deny an operating permit for a golf course, or conditioning a permit based on required changes, for example, reconfiguring a portion of a golf course layout. If Weyerhaeuser wishes to operate a golf course, they have to comply with the City requirements. A comprehensive land use plan is not a zoning regulation/law, although under GMA the two should be consistent.
13-11	I-16	• How long did the City work on the DEIS? (Eric Ness)	The City of DuPont worked on a DEIS approximately 4 years. Ecology was co-lead agency with the City for most of that time. That draft EIS was never released for public review and comment.
	I-16	• Why did Weyerhaeuser withdraw it from the City? (Eric Ness)	Weyerhaeuser withdrew their conditional land use permit from the City in December 1998. The reasons for the conditional use permit withdrawal are detailed in a December 16, 1998, letter from Weyerhaeuser to the City of DuPont. They first applied in 1995. The original plan was submitted to the City and Ecology to address both land use planning and remediation issues. There was a conflict between those two issues. Was the proposed golf course primarily for development purposes or was its function primarily remediation? The City, Ecology, and the companies were unable to resolve that conflict to the satisfaction of everyone. After withdrawing the conditional use permit from the City, the companies requested that Ecology become lead agency and that an EIS be prepared that addressed primarily remediation issues. That request, which was accepted, resulted in the February 2000 DEIS, which is the subject of this Responsiveness Summary.
	I-16	• Was Ecology involved with the DEIS at that time? (Eric Ness)	Yes. See the responses above.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
13-12	I-21	• Why wasn't the Tacoma Public Library provided with information about the project? (Gary Reese)	Ecology did not use the Tacoma Library as one of the three information repositories because we were looking for locations as close as possible to DuPont. Therefore, the Lakewood Branch Library was chosen as well as the South Puget Environmental Education Clearing House (SPEECH) in Olympia. The main repository for all site files is at Ecology's southwest regional office in Lacey. Should the public request a change in repository locations, that can be done. Copies can be requested from Weyerhaeuser Company by calling Geneva Smith at (253) 924-7063.
	I-21	• Could the Tacoma Public Library receive copies of the historical and cultural investigation done at DuPont so they can be matched with the records that are on file? (Gary Reese)	
13-13	A-1, A-8, A-12, I-1, I-3, I-6, I-9, I-18, I-19, I-20, I-22, I-24, I-28	• General statements supporting project or Weyerhaeuser/ Ecology efforts/methods. (Active Construction, TPCEDB, WRECO, Petition signed by 56 people, Clayton Balch, Zoe Green, Roy Coffey, Pat Goodhind, Calvin Page, Laura Page, Senator Rasmussen, Scott Schenck, William and Betty Sprague, Penny Sweem)	Comments noted.
13-15	I-3	• We approve of the remediation proposed in the DEIS. (Clayton Balch/Zoe Green)	Comment noted.
13-16	I-6	• I agree the area needs to be cleaned up with appropriate attention to preserving history and artifacts, but I believe that capping the area for a golf course is an excellent idea. (Roy Coffey)	Comment noted.
	I-6	• This will provide a perfect way to maintain the integrity of the area and provide recreation and income. (Roy Coffey)	Comment noted.
	I-6	• I am totally in favor of this proposal. (Roy Coffey)	Comment noted.
13-17	I-9	• Must be cost-effective for the land owner. (Pat Goodhind)	Comment noted. See the responses to issues 13-4 and 13-9 above.
	I-9	• Weyerhaeuser is exceptional steward of both land and resources. (Pat Goodhind)	Comment noted.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
13-18	I-11	• Mike Blum should be disqualified from making a decision in this case. (Jim Hills)	Comment noted.
13-19	A-8	• To delay risks this region's ability to take advantage of current strong market for new business development. (TPCEDB)	Comment noted.
	A-8	• Commend Dept. of Ecology for its work on this project to date and urges it to finalize document ASAP. (TPCEDB)	Comment noted.
13-20	I-13	• Once it is gone, it is gone. A delay shouldn't make that much difference when so much history could be lost. (Lisbeth Johnson).	Comment noted.
13-21	I-17	• Hope that the final EIS will give consideration to comments from the public and include resolutions that protect the interest of the environment and the public, as well as the landowners. (Lorraine Overmyer)	Comment noted.
13-22	I-18	• Impressed with the work accomplished by Ecology, Weyerhaeuser and DuPont. (Calvin Page)	Comment noted.
	I-18	• From a technical process, your primary approach to handling a long-standing environment problem is excellent and when fully implemented, will not only comply with mandates from your office, but will fully comply with intent of local and federal regulations. (Calvin Page)	Comment noted.
	I-18	• Delay is very costly in both financial and emotional terms. (Calvin Page)	Comment noted.
13-23	I-19	• Completion of this project will enhance the City of DuPont's ability to attract upscale businesses, thereby increasing our tax base. (Laura Page)	Comment noted.
13-24	I-1	• Ecology to be commended on public meeting. (Petition signed by 56 people)	Comment noted.
	I-1	• Major issue to consider is the environmental concerns associated with the Consent Decree. (Petition signed by 56 people)	Comment noted.
13-25	I-20	• Commend Ecology for their work on the DEIS. (Senator Rasmussen)	Comment noted.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
	I-20	• The well-planned, thoughtful development of this area is beneficial to the region, citizens and state. (Senator Rasmussen)	Comment noted.
	I-20	• Weyerhaeuser has been willing to work with concerned groups. (Senator Rasmussen)	Comment noted.
	I-20	• I endorse the cleanup plan proposed by Ecology and Weyerhaeuser Company, but have concerns that implementation could be delayed due to land use and archaeological issues. (Senator Rasmussen)	Comment noted.
13-26	I-22	• It is important to realize that what exists in the soil (arsenic and lead) is not natural or obvious to the public. Any claims of preserving nature are a faulty defense. (Scott Schenck)	Comment noted.
13-27	I-24	• Strongly support the DEIS as the preferred alternative. (William and Betty Sprague)	Comment noted.
13-28	I-27	• I endorse the cleanup plan proposed by Ecology needs to get this cleanup schedule on track and finished in a timely manner and move on. (Penny Sweem)	Comment noted.
14	**Post-Scraping Site Condition**		
14-1	I-23	• How will the site be maintained to avoid air and water pollution as well as spread of noxious weeds? (Linda Smith and Harold Schmidt)	Maintenance of the site after remediation will require noxious weed control, erosion controls, and dust suppression. Groundwater monitoring will continue. Some 40% of the area will be grassed after remediation either in the capped area (golf course) or in the green belts/open space areas, where no remediation is planned or necessary. The scraped area is expected to consist of large expanses of exposed ground, primarily sand and gravel, with limited concentrations of lead and arsenic (i.e., clean). In addition, natural re-vegetation is expected to occur over much of the remediated area, which will reduce windblown dust. The site will be maintained to prevent problems to the maximum extent practical. (See also the responses to issues 6-3, 6-4, 6-9, 6-10, 7-1, 7-3, and 7-4 above.)
14-2	I-23	• Will there be an ongoing commitment on behalf of Weyerhaeuser and DuPont to maintain and monitor the property according to prevailing environmental codes? (Linda Smith and Harold Schmidt)	Yes. The companies retain long-term liability for the contamination left onsite, such as beneath the golf course cap/containment facility. Ecology is required to review the cleanup remedy that was implemented, at least every 5 years, to determine if it is still protective. If it is determined to not be protective, the companies are responsible and liable for correcting the problems.

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
14-3	A-3	• Does not provide information on time until scraped areas will be redeveloped for commercial use. (DTCOP)	Comment noted. When the site cleanup work has been completed to Ecology's satisfaction, the time until redevelopment occurs is outside of Ecology's mission. Based on other areas of the cleanup site, as well as within other parts of the City, areas that have been scraped/disturbed naturally re-vegetate.
15	**Impacts**		
15-1	A-3	• Alternative 1 lacks important detailed information necessary for an adequate evaluation of impacts. The DEIS is limited to a "programmatic" or "conceptual" level and is incomplete. (DTCOP)	Comment noted. See the response to issue 4-1 above.
	A-3	• Evaluations of potential impacts in the DEIS are incorrect or incomplete. (DTCOP)	Preparation of the FEIS will require a review of impacts in light of the public comments, and modification as needed.
15-2	A-3	• Alternative 2 differs from Alternatives 1 and 3 in the designated areas to be scraped, suggesting a difference in potential impacts. (DTCOP)	Comment noted.
15-3	A-5	• If the preferred alternative involves the development of a golf course and other land uses, the impact of these future activities should be considered in this document. (Nisqually Indian Tribe)	Even though its infrastructure will be in place following remediation, it is uncertain that a golf course will ever be operated due to the following: • The cost to complete the course (additional course features, the clubhouse and maintenance facility), could reach over $1,000,000. • An operating permit would be required from the City of DuPont. As such, it is more appropriate to wait until the permits to complete the final development and the operation of the golf course are requested, to assess these impacts. The City of DuPont will evaluate those development impacts in a future SEPA analysis, probably a supplemental EIS. (See also the response to issue 2-9 above.)
15-4	A-5	• DEIS states that no probable significant adverse impacts were identified for the elements of earth, and land, and shoreline uses, primarily because the proposed action will be temporary and remediation actions are underway. This seems incorrect. Clearly there are adverse impacts to earth and land and shoreline uses when you clear an area and remove the soil and all vegetation. (Nisqually Indian Tribe)	Due to contamination levels exceeding the state cleanup standards, remediation is required on the site. Adverse impacts to the earth and vegetation are unavoidable during remedial activity. However, no significant unavoidable adverse impacts are anticipated with the mitigation measures proposed. (See also the responses to issues 9-1 and 9-3 above.) No remedial activity is planned along any shorelines. Sometimes there is an inherent tension between MTCA and local land use laws. Sometimes it is not possible to achieve both compliance with land use codes and have a cleanup that meets the requirements of MTCA. The fact that this proposal will result in significant impacts to the environment is discussed in the document to the fullest extent necessary to disclose those potentials. Mitigation measures for these

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
			impacts are also described.
16	**Environmental Cap/ Containment Area**		
16-1	A-3	• No analysis of thickness of consolidated areas, they could be any size. (DTCOP)	The golf course cap/containment facility footprint was designed to cover as much in-place contamination as possible to reduce the excavation and movement of soil. The volume of contaminated soil to be moved from other locations on the property, including in-place contamination, governs the aerial extent of the consolidation areas located within the golf course footprint. The desire of the companies is to limit the aerial extent of the consolidation areas, which in turn reduces the overall cost of the remediation. There are also aesthetic and design limitations as to how much soil can be relocated within a given area, and still have it fit into the landscape. There is no advantage to move clean soils to the cap/containment facility. There is the desire to ensure adequate cleanup, with a high degree of certainty, outside the golf course footprint. (See also the responses to issues 4-3, 5-9, and 9-3 above.)
16-2	A-3	• The likelihood of clean soils being included in cap/containment area should specifically be evaluated under each procedure. (DTCOP)	Comment noted. Ecology realizes that clean soil, along with contaminated soil, will be included in the cap/containment facility. As noted in previous responses, focusing soil removal and containment to just known "hot spot" locations does not ensure with a high degree of certainty that all areas of contamination have been remediated. (See also the responses to issues 4-3, 5-9, and 9-3 above.) As noted above (16-1), other than ensuring an adequate cleanup is conducted, which is of primary importance, there is no advantage to excavate and cap known clean soils.
16-3	A-3	• DEIS p. 2-8, suggests some areas of golf course may not require a clean cap. Ecology should review any proposals to omit a clean cap on portions of the golf course. (DTCOP)	Capping is not necessary within the golf course footprint where soils meet Ecology's cleanup standards.
	A-3	• DEIS should also define what is meant by clean soils to be used for a cap. (DTCOP)	Clean soils are defined as those that meet Ecology's residential and ecological cleanup standards.
16-4	A-3	• DEIS includes no discussion of how the extent of consolidation/containment areas was determined. (DTCOP)	This discussion will be part of the Remedial Investigation and Feasibility Study, the appropriate location. In general, the location of the consolidation/containment areas was for maximum coverage of in-place contamination. Site topography was also evaluated to determine containment areas. The aerial extent of the consolidation/containment area will be determined based on the volume of contaminated soils excavated from other parts of the site and in-place contamination. (See also the responses to issues 4-3, 5-9, 9-3, and 16-1 above.)

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ISSUE ID:	AUTHOR ID	QUESTIONS/CONCERNS:	RESPONSE:
16-5	A-3	• DEIS needs to discuss in greater detail what "debris" materials are to be consolidated in containment areas. Evaluate potential for debris to affect cover materials. (DTCOP)	The debris mentioned in the FEIS will not be placed directly under the cap material. This discussion will be part of the Feasibility Study. Debris material includes former building foundations, concrete rubble, bricks, piping material, etc. This debris will be located in areas where a sufficient thickness of cover materials will be placed, so as not to affect the integrity of the cap/containment layers.
17	**Alternatives**		
17-1	A-5	• The "no action" alternative is allowed by the Act if the land stays in its current state...the "no action" alternative should receive more consideration. (Nisqually Indian Tribe)	Due to contamination levels exceeding state standards, remediation is required on the site. Excavation appears to be the most viable option available for remediation on the site.
	A-5	• More consideration needs to be given to the "no action" alternative and the other alternatives on pages 2-10 and 2-11, that do not involve soil excavation. (Nisqually Indian Tribe)	See the response above.
	I-23	• Why have we picked such a drastic alternative? (Linda Smith and Harold Schmidt)	See the responses to issues 9-1 and 9-3 above.
	I-23	• Why has only one option been put forward during the draft EIS and draft of the Scope of the EIS? (Linda Smith and Harold Schmidt)	See the responses to issues 13-4 above.
17-2	I-9	• Keeping fence up is not an option. (Pat Goodhind)	Comment noted.
17-3	A-8	• Preferred alternative is very reasonable. (TPCEDB)	Comment noted.
17-4	I-22	• I do not support the "no action" option. (Scott Schenck)	Comment noted.
17-5	I-18	• Knowing the levels of contamination you are dealing with, I must conclude that the solution is either "cleanup as proposed" or "lock up." The latter would deny future generations a beautiful recreational facility. (Calvin Page)	Comment noted.

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Response to #5-4:

Summary of All Sampling Data within the Parcel 1 Consent Decree Boundary (mg/kg)

Chemical	Number of Samples	Range	Average[a]	Site-Specific Background[b]	Puget Sound Region Background[c]	State Wide Background[c]	MTCA Method A Cleanup Levels[d]
Arsenic	1,369	0.66 – 1,300	63	32	7	7	20
Lead	1,560	3.5 – 240,000	891	26[e]	24	17	250

[a] Represents the arithmetic average soil concentrations for all samples in the Parcel 1 Consent Decree boundary.
[b] Hart Crowser. 1994. *Draft Remedial Investigation Former DuPont Works Site DuPont, Washington*. Volume 1.
[c] Washington State Department of Ecology. 1994. *Natural Background Soil Metals Concentrations in Washington State*. Toxics Cleanup Program. Publication #94-115.
[d] Washington Administrative Code 713-24-740. The Model Toxics Control Act Cleanup Regulation. Method A Cleanup levels – Soil. Note: This regulation is currently undergoing review and significant revisions are expected.
[e] Represents the average of the area background lead concentrations.

#	Question/Comment Raised at Public Meeting	Initial Answer Provided at Public Meeting	Ac
1	Does Department of Ecology make all toxic waste sites into golf courses?	Mike Blum, Washington State Department of Ecology (MB): One other one in the State of Washington, Newcastle Landfill in King County, and then there is the Anaconda Smelter site in Montana where a golf course was constructed as part of the site cleanup.	No, most cleanup courses. It is hov capping/containm of low to moderat
2	How are we to know that you respond in a positive manner to other State agencies, like OAHP (Washington State Office of Archaeology and Historic Preservation)? How will we know you will do this?	MB: Another document we will produce is a Responsiveness Summary. It summarizes the questions and comments raised during this public comment period and gives the answers and responses from Ecology.	Over the last sev been held with O and to develop a needs.
3	You say you are going to scrape 18" in some areas where there was no production, like Shanty Town.	MB: If the companies have data to prove there is no contamination, we won't scrape it.	There are thousa throughout the si concentrations of building foundatio areas, areas of v where lead paint higher arsenic co primarily related t railroad tracks. T both contaminant less predictable a problem in the to Town was locate
4	You will scrape the top 18" and no one will know if there are artifacts in it. (Don Meyers)	MB: Extra caution will be taken in the areas where there have been identified sites with numbers or the sites are listed.	Soil removal will necessary to prot environment. Th to 18" depending contamination in During excavatio of 6" to 8" in dept be determined by along with the arc area for any sign significant artifac this area will stop Indian related, th contacted.
5	You started out saying we are lucky the residents are not paying for Ecology. We would be happier if you were paid by the public.	MB: The taxpayer money pays our (Ecology) salary. We keep track of our hours working on the project and the companies are billed and they reimburse the State to "recycle" Ecology's budget.	
6	(Ed Kenney) No measures being taken with these people doing scraping and taking samples in front of the bulldozer.	MB: There will be a training meeting with an archaeologist to train the operators/workers on the site. Also, the archaeologist will follow the grader. If something is uncovered, we will stop. There is a question about doing salvage archaeology. All 18" wouldn't be lifted up at once. A small amount at a time will be excavated, a small lift at a time.	Site monitoring fo and after logging scraping operatio removed, it will b artifacts. See #4 used for this activ
7	Do trees come down first? What damage will	MB: Some impact.	Yes, logging will

#	Question/Comment Raised at Public Meeting	Initial Answer Provided at Public Meeting	Ac
	be done to pull out stumps?		scraping. In area left, no scraping v be damage to art removal, but the limited. If potenti discovered, work appropriate inves
8	We had the preliminary scoping notice in June. Were those questions answered? We never got answers in a Responsiveness Summary.	MB: We reviewed the comments and decided not to respond. We took into consideration those comments when writing the DEIS.	The State Enviro requires the lead on the Draft EIS s written response during the public received were co writing of the DEI
9	I have concern about the dust. Dust of arsenic and lead.	MB: Currently there was some removal of hot spots, unacceptable to go in the golf course. Water was used to reduce dust, there is also perimeter air monitoring. The conclusion was no offsite impact and level of safety gear for workers was downgraded.	One of the last th Companies want additional land by dust. In addition, utmost importanc Companies. Air m the past to monit monitoring did no harmful amounts Since dust in the it is unlikely that c in property surrou will be taken to co
10	Could you put the map up and show where you are going to scrape? If I understand, you will take 18" off the white area (on the map). What will be done to that graded area?	MB: The graded areas will be left to re-vegetate naturally until sold and someone else wants to develop it. Then the City Comp Plan for 2000 kicks in and the developer will work with the City for permitting. The site use to be proposed is for mixed use. Weyerhaeuser and DuPont are no longer willing to take liability.	Weyerhaeuser ha restriction on the precludes reside schools, and park be used for comm development and
11	This is the quintessential preeminent place of South Puget Sound. You aren't going to put back any soil? There will be no trees put back?	MB: …the developer (like an Intel) would just end up scraping the topsoil back off to build.	The reality is that the site, and the not allow the site condition. Veget to excavate the c exposed soils wil naturally. Trees w the cleanup. Tre the subsequent c
12	Looks like you are putting a golf course in and there is no golf course approved. What's the difference?	MB: Our concern is if this cap is protective of human health and the environment. It is the companies choice how they do that.	The cap/containm a future golf cour role as a cleanup cap/containment City of DuPont pe future permit app include construct maintenance buil
13	(BJ Sprague, DuPont) What is the cost per unit to dispose of the soil offsite in Arlington,	Jeff King – representing DuPont Company: Estimated at $220 per cubic yard.	

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	Oregon?		
14	What is the total cost to scrape and dispose of all the soil?	MB: We'll have to answer that in the Responsiveness Summary.	The most conser excavation and d Oregon, a hazard $240,000,000.
15	You keep referring to town or city. Are we talking about the City of DuPont or the proposed City?	MB: All the boundaries are in the City of DuPont. Not being willing to take liability for residential development within the cleanup site has put a wrench in the system (land use planning) for the City. The companies just won't take the long-term liability.	The DuPont Wor boundary of the C Northwest Landir "proposed city," c within the DuPon cleanup site boun Company has de residential develo liability concerns restriction on the
16	There is strong sentiment in protecting the artifacts…need to expand a little. What is DOE role and expectation of public role to make sure qualified, experienced contractors are hired…pre-qualified process to make sure workers are safe and artifacts are protected?. What will DOE and Weyerhaeuser and DuPont do to make sure they hire qualified contractors?	MB: We are now working with OAHP. There are also specific requirements, WAC (Washington Administrative Code) code which gives what qualifications a contractor needs.	DuPont and Wey contractors. Eco and will notify the contractors have Ecology. As for p laboratories and specific qualificat individuals must cleanup must hav safety training an concerning histor located on the pr
17	I want to know if the contractor has worked in hazardous waste.	MB: Ecology will review the selected contractor and make sure the companies know if Ecology has concerns about their selected contractor.	The Companies contractors in the believe that this v has been happy worked on the sit selected by the c work at the site h waste cleanup si training. Also se
18	Does Weyerhaeuser and DuPont decide who is hired?	MB: If we have concerns about who they hire, we will let them know. Once in a while we have had to let companies know.	See #16 and #17
19	(Ray Miller, City Councilman DuPont) I appreciate the amount of time DuPont and Ecology and Weyerhaeuser, the citizens and DTCOPs have put toward this…Why wasn't City of DuPont the lead agency in doing the EIS?	MB: The City originally was the lead agency when Weyerhaeuser asked for a Conditional Land Use Permit to build a golf course. The City had the EIS lead because of land use impacts. The companies then asked Ecology to co-lead the EIS since it was also a remediation project. This lasted 4 years, working on the EIS. When Weyerhaeuser said, 4 years later, they were withdrawing the land use permit application, the City permit was not required and an EIS was not required. Virtually all other cleanup sites have no EIS required. Because many people know about this and the scoping in 1995 and if all of a sudden it would	Initially, the City w with Ecology for a Weyerhaeuser w use permit applic took over lead ag EIS would not be agreed to comple remediation and impacts associat development of t responsibility of t

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		disappear, they'd ask what was happening? So we decided to do an EIS. We took out nearly all the land use issues and said the EIS is remediation.	
20	(Teri Graves) Descendant of Ft. Nisqually employees and some Cowlitz and Nisqually…Concerned about area around 1833 Fort…can't say 63' buffer is where they lived. Lee Stilson has helped me locate where my great great grandfather's house was. I know there are two graves under Center Drive… wants all burial sites protected	MB: Gravesites have been found and some remains exhumed and re-buried, sometimes the Tribe said "no" to exhumation. Center Drive was realigned because of not wanting to disturb burials.	There is a MOA (in place between Weyerhaeuser. T MOA when grave foot buffer aroun site itself is off-lin (excavation, scra precautionary me any cleanup activ known historic or resources.
21	(Pam Gallagher and Joyce McCloud) Need to protect gravesites…If there was a cemetery down town, would you go scrape it and build a house on top of it?	MB: Ecology and Weyerhaeuser and DuPont have heard your ideas and suggestions and if you know of the location of grave sites, we'd like to hear about them, let us know.	Ecology and the learning about gr the specific locati willingly destroy k top of them.
22	Area you are going to scrape, what soil do you use for the cap? Why can't you cap with other soil until it is sold? More time to look for artifacts that way.	MB: …use soil from other areas, other material from offsite.	The material for t be a gravel layer followed by a min soil. The gravel a from offsite sourc The scraped soil capping layer. Th support turf grow sources. The Co complete the clea the final cleanup See also #4 and
23	If you are in charge, why don't you know what is contaminated?	MB: We have data, but it isn't here with me. A grid was done outside the most contaminated area, no reason for contamination to be there but we are finding high lead concentrations, like a giant game of connect the dots, do sampling points 100' apart and make a judgment, this point is high in lead and 19" deep, 20x20 will be scraped. Then sample outside the area to confirm. Some consideration of whether it is cost-effective to scrape whole area.	The specific deta chemical analyse Remedial Investig be available for r year. The scrapi address concerns Citizen Oversight probability of mis soils, especially s There is no way t removed all the c sampling on the g smallest contami
24	Is that information you spoke about (cultural and historic resource survey/ investigation reports) now available?	MB: The archaeological reports are located at the Lakewood Library, Ecology, SPEECH, and also City Hall. Also the preliminary draft RI/RA/FS documents in the information repositories. Those have been available since December 1994.	The three official Lakewood Librar Ecology's Southw Olympia.
25	Any sampling done in development of Intel and other offsite locations?	MB: Sampling was done at Intel. Survey done looking for contamination over whole property,	The investigation soil sampling to c

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		3,000 acres. It was done by Hart Crowser. They looked for obvious signs, any waste pits, walked over the entire area. People buying property routinely do an environmental assessment.	for historic and cu clearing and cons the Northwest La archaeological in
26	Projected schools next to the fenced property, but just across the fence no residential. Do you call that equal treatment?	MB: Somewhere you have to draw the line. Weyerhaeuser says no school inside the Consent Decree area.	Weyerhaeuser ha restriction on the land uses includi schools, daycare liability concerns small children. S applicable cleanu and associated w property, addition would be require another source w responsible party cleanup, as is the Works property.
27	Is Wilkes Observatory on the list for preservation? (Pat Steele)	The Wilkes Observatory marker isn't in the Consent Decree area, like the Oxen Road, no cleanup to be done (or necessary) outside the Consent Decree area.	The DuPont Wor the 1833 Fort site road will be block Mission marker w no further cleanu be necessary in t located north of S the mission site is along the railroad
28	How will we know if time is extended for comment? (Lorraine Overmyer)	MB: We'd let you know within a week	There was only o the public comme informal 14-day e comment period was notified via e the 14-day exten formal record. Th 30 days.
29	What does creating an historical district mean?	Pat Steele (citizen): It is a Historical District because it ties everything together. We are sensitive to the Work plant also. Buildings will be taken down. We want to create an interpretive center that shows what was down there. We want access, trails, walk from site to site… MB: Numerous sites are already on the Historic register. Others evaluated and determined not eligible. Historic District sent to Dept. of Interior, Park Service. Doesn't affect cleanup.	The application fo submitted to the consideration to for that designati the current lando a Historic District are currently neg Weyerhaeuser R Weyerhaeuser C concerned citizen establishment of National Park Se District applicatio requested additio

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		Pat Steele: If determined eligible, it will assist in raising money for preservation efforts and/or building of an interpretive center.	
30	Is there going to be any photographic documentation of what the site looks like right now?	MB: Photos already taken…some here in City Hall…Only 3 or 4 buildings remain. Guardhouse will remain. That structure is all the general public can see at this point in time.	Photo documenta in the DuPont Mu storage magazin additional photos remaining buildin
31	(John Littler – DTCOPs) There are a lot of questions coming up which stem from absence of detail. That kind of information is in the FS following MTCA decision-making process. We don't have it at this point. Lot of confusion without that process. …Seems to me, one option might be to have a fully complete FS analysis done and people have a chance to see it and have it included in the completed EIS process, instead of after the EIS. Suggest very strongly to get to the point of releasing the draft RI/FS, along with RA document as a basis for decision-making prior to deciding. So much information as part of those two steps and should be combined with technical support documents….	To do this would delay the project by one year. We have already been working on this cleanup since 1989 – 11 years. It is time to proceed.	
32	(Wes Westby, DuPont) The 1995 Comp Plan showed this area being cleaned up to residential standards and we were assured it would be. You told us that Weyerhaeuser has a deed restriction on that property. They changed their mind. Could Weyerhaeuser apply for removal of that restriction?	MB: Owners are only ones who can change the deed restriction.	The original plan for mixed uses, i toxic tort liability decided to prohib through the use is being cleaned residential. Char could be made in cleanup actions v compliance with Weyerhaeuser m changes to the d
33	Around your work with OAHP and they are giving you suggestions and you are letting them go. What about the wildlife?	MB: There will be impacts to habitat, to plants, and animals. When it is scraped, that is habitat that will be lost. Same in areas where I live, less space for deer or raccoons. They go to smaller piece of land.	As property gets of wildlife habitat changed. At a m for "urban" wildlif The designated cleanup site will
34	My ideal dream is to see the Fort brought back . If there was a major earthquake at Point Defiance, we need the fort brought back. Made into a park and Weyerhaeuser donate land to City for a park.	MB: 1943 Fort is owned by Archaeological Conservancy.	The 6-acre 1843 cleanup site, has Archaeological C site, located insid probably be dona conservancy grou
35	Question on golf course. You are saying once it is cleaned up, Weyerhaeuser is responsible for maintenance of golf course?	MB: Long-term liability and person who buys golf course or cap.	Weyerhaeuser a maintain long-ter cap/containment being left in place

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			maintain the cap, buyer is found. A responsible for th maintenance of t and its protective course.
36	If no one buys that land, is Weyerhaeuser liable to maintain it? Or can they pass that off to someone else?	MB: After cleanup, they will sell the land.	Weyerhaeuser ar maintain long-ter contamination lef the cap/containm else. If they are they will have the responsibility. Se
37	As a member of HOA (Home Owners Association), they go in and cleanup and can't sell lots, …they'll dump on the HOA to pay for and maintain it.	MB: No, if Weyerhaeuser and DuPont defaults, then goes to County.	The companies r the cleanup site. out of business b the burden would Washington and/ not the City of Du Association. If W property taxes, th See also #35 and
38	Under the cap, some artifacts may be buried now. Any restrictions in opening cap and searching?	MB: The cap is in place to protect human health and environment. If someone says we want to dig some archaeological investigation, can we do it? Up to Weyerhaeuser and DuPont or owner, if they have training or expertise.	Yes, the golf cou could be opened investigations, wi owner and the co people working to to have the appro training. After the completed, the pr barriers would ha
39	Sounds like blackmail to me. I am saying this as a resident. I bought property in 1997. All the brochures show Parcel 1 as residential, with housing and a future town center. It was a Peter Calthorpe plan I bought a house in.		Comment noted. with the property Real Estate Com
40	There is little concern about the 60' perimeter around the 1833 fort. … I found a cannonball in that area myself and there are things of significance outside the boundary.	MB: Trained people will be out there to watch what is going on. We recognize there needs to be more attention in known sites.	Professional arch during all phases observe for artifa cannonballs) disc given to the appr for cataloging an the integrity/signi is best to leave it professional can
41	But I found a cannonball in one of the placement areas…	Each placement area will be inspected by a qualified archaeologist following logging and clearing and before placement of soils.	See #40 above.
42	…Boundaries around archaeological sites need to be identified. The walls around the fort and beyond that. Lady saying she was disappointed. Would she build a home after scraping 18" off? I don't think a lot of people	MB: Most of the contamination is 6-10 inches, mostly surficial. Arsenic-based herbicide was used, primarily along narrow gauge railroad, to control weeds and potential for fires. Lead sheeting and machinery parts were used in	Prior to logging o known archaeolo marked as "off-lir currently being bu the routine constr

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	would want to build a house with 18" scraped off.	many of the buildings due to its non-sparking qualities. When buildings were decommissioned, they were burned, which caused aerial deposition of lead particles on the site.	the topsoil prior t construction is co returned (along w needed) and gras
43	Don't know what lady was told. I have lived here 3 years and from the first, I have talked to Vern Moore and the golf course has been in the works a long, long time.		Comment noted.
44	Drawback in doing it in a phase, don't look at all of it or involve the City. Not looked at with Comp Plan, big drawback. …Few comments on historical. …Dr. Daugherty did a previous archaeological project and we never saw a big bulldozer do an excavation at that site. That is not a method of doing archaeology study. I'm making a request to do a little more work in addressing that issue. I've said this all along, don't fault Weyerhaeuser, but bottom line, what I am having a problem with is the study you have done, DOE has gone along with issues of bottom line. You document it by referring to the golf course, instead of a capping system. It is suspect. Think you need to go to drawing board to see if this is how DOE does business in City of DuPont. Like to have a lot of these issues addressed.		The City of DuPo informed of plann provide its comm companies anytir When an archaeo heavy constructio used to do furthe equipment is ofte doing backhoe so In the draft and fi to the cap/contai course. The prop golf course. The designed and co golf course. The property is deper permits.
45	(Nisqually children came up and gave comment) Honor our ancestors; Don't destroy graves of ancestors and people who founded this land; we should all be thankful for Natives who owned land first.		Comment noted.
46	(Jim Edgren, Lakewood; Committee for Preservation of Nisqually-Sequalitchew Historical District) Since I first started talking to Mike Blum, there were historical and environmental concerns. He has been very sensitive to historical resources. My purpose in taking a couple of moments is to see citizen involvement and concern that ultimately, and I seriously believe, we will come to a place there will be happy resolution to the whole thing. The cleanup result doesn't recognize the historic sites. …We have to be part of solution when they go in to do what they have to do in there, to help them do it right. We are a part of this thing, as they are. Hope it will not be adversarial, but working together …both sides to be sensitive…. Like a command structure in the military, if you		Comments noted Various citizen gr cultural and histo establishing an h a Memorandum o Weyerhaeuser R Weyerhaeuser C already have a M with the Nisqually related sites and It is Ecology's ho parties can reach and practical solu cleaned up, while the cultural and h property.

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	argue, it is to your peril. Commend Mike Blum in doing a good job. …Need to keep landowners aware of our concerns. From our standpoint…we will see the day when the Historic District will be a powerful asset for the whole community and put us on the map like never done before. I think it's been done without a lot of blood on the risers…		
47	Where does Jim live?	Jim Edgren: Lakewood, is that a problem?	
48	(Judy Bridges, Pres. Of the Ft. Nisqually Employees Assoc.) I'm here to ask you and Weyerhaeuser to preserve and protect the historical and cultural area. Two children of Kittson are buried by the 1833 Fort…Horrible vision I have of bulldozers going over the bones of those children. I like the alternative method to be considered. Would like you to consider the historical nature of this area. Take your time, think about now, 10 years, 20 years, 30 years. Difficult for many to see how scraping off 18" of this historical and cultural area is necessary at this time…removing the chance of the future ever knowing about the past. Other comments I'd like to make: Adopted Senneca & Iroquois and also Cowlitz and I am here to support the Nisqually, the most impacted tribe in this area. My ancestors were employed at Fort Nisqually from 1838 to 1843. Married a Cowlitz and Iroquois. I have been researching these people for some time. Won't you do anything about the people of this area, the Nisquallies who lived here 8,000 years ago? Recent history is 1833 to 1859. Here we are in this century and everything going too fast. Slow down and consider alternative in this area.		Comments noted Cleanup is being health and the en effects of the con cleanup cannot b because of (1) th sell only cleaned of the Companies cleanup for the c parts of the clean desire of Ecology can begin work o When the soil scr smaller layers, no will allow the ons anything of signif artifacts are disco in that area will b construction equi A site-specific *Ar Resources Prote* which will detail h procedural steps found, etc. A sim since 1988; howe entire Northwest The cleanup and site have been on 1986. It would be work as "going to
49	(Lorraine Overmyer, DuPont resident) Last several weeks I have been reviewing documents that were the backup for EIS. I find it fascinating and have learned a lot. I wish they had been made available over the years. Maybe some issues tonight would have been avoided. Going through reports, 30 reports listed in the EIS. Only found 8 of them available. Several days went by and I was somewhat offended that they were listed in the EIS but not made available to the public. I'm presently reading Guy Moura's "Testing and Evaluation of the 1833 Fort Nisqually," and Cecelia Carpenter's	MB: EIS requires 30 days comment period, but we have extended it to 45 days.	The reports listed were not availabl repositories when started. The doc repositories withi comment period. The comment pe days, 15 days lon comment period additional 2 week to Ecology for an Ecology apprecia willingness to tak documents locate

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	"Information on the Known Deaths and/or Burials on the Ft. Nisqually, 1833-1887." They need to be available for the public to make an opinion. Certainly welcome you to take time to go through these documents. All these documents are available at the City. Comments period is 45 days as required by law. Would like to request an extension on the comment period…Because the documents are at City Hall and it closes at 5 PM, if you will call City Hall and want to read them during an evening or weekend, I will make sure the documents are at the Museum for you… Sideline: Judge Edward Huggins Johnston of Louisville, Kentucky, just visited and brought his two granddaughters (ages 14 and 17) to see where Edward Huggins lived…As we talked about the cleanup process, he cautioned, "be sure to move slowly, what you destroy can never be regained." In the east, historic sites are really protected. The scoping request went out last spring…I believe the outline of 1833 fort with logs around palisade and 63' buffer does not include the entire area on the National Register. The boundary is vague…Need to include more land. Don't think the text of Chapter 3 of EIS addresses cultural issues. Could not possibly be protected artifacts out there. I'm incensed at the disrespect of those who preceded in this land and what is being preserved for future generations.		individuals wishir Hall closes at 5 P were/are availabl the Pierce Count 5 PM and on wee Comments noted Original site nom states it is 200'x2 current marked a more than adequ area.
50	(Pat Steele, Steilacoom, Nisqually Point Defense Fund) We created a Historic District…rich history, some go back in history thousands of years…Hudson's Bay Co. 1833 Fort first American settlement, the Methodist Mission, the first Fourth of July in this part of the world, Wilkes Observatory…this is an incredible area…great area worthy of preservation. I'd like to thank Mike Blum and all the people participating. This is not the end, this is the beginning, I feel we need to do more archaeology around the 1833 fort. Thirty-three years ago, when I was Deputy Fort Commander at Fort Lewis, Dr. Daugherty visited me and told me I wasn't doing enough to protect sites at Fort Lewis…We have been meeting with Weyerhaeuser since the nomination was approved and sent off to Dept. of Interior. Jim Odendahl and I met with	MB: Not another draft for review or comment. We can meet and give you our final… MB: Plans at that time, we identify if there are other mitigation measures.	Comments noted

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	Greg and David (with WRECO) and are figuring out how to do salvage archaeology at the 1833 fort prior to scraping and logging. Our friends at OAHP wrote a 3-page letter and I endorse everything they said. People already on the payroll, Weyerhaeuser thinks we should pay and we think they should share the cost.		
	A lot of Ray Miller's comments about artifacts, I'd like him to write them down and send to Mike Blum. My hope, when you turn to cultural resources area, page 3-20, that mitigation measures portion will be expanded. Do we have another meeting? After you review all this?		Comments noted published, a notic mailing list for the FEIS (which inclu Summary) will be provided comme appropriate gove Ecology-sponsor however, a comm probably be held
	Pat Steele: My hope is that by working together we can accomplish things.		Comment noted.
	Pat Steele: If the process works, we come back together sometime. We will have another meeting and take another look at the mitigation.		Comment noted. sponsored meeti release of the fin
	Pat Steele: When we get back together, when you tell us it is time to look at final document, will that take place before Weyerhaeuser cuts trees and moves dirt?		See above. The logging permit (F Washington Depa prior to clearing a would occur, Eco following draft do comment: Remed Study, Cleanup A Decree.
51	(Dennis Clarke, City Planner) I don't think I could add to historic discussion. There are other issues the City thinks should be taken into consideration. We will be providing written comments. The cleanup action is creating a landfill for us. It has some definite constraints to it. As a result, some kind of relationship between buildings that egress in that particular area. Don't see any alternatives to particular shape of containment facility proposed at this time. Having this alternative shape is a difficulty. We recognize from early work in all areas have the railroad running through them, or golf course holes		Comments noted The Companies p which includes ca part of the remed determine if the p human health an proposed cap/co protective becaus could require it to Because the cap considered prote Ecology does not that it be redesig the property.

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	running through them. The decision was made that some areas were to be cleaned up totally and others not. We think that this points to flexibility and this is not shown in the document. It certainly affects all of this containment facility, or golf course, that isn't a golf course, and needs to be taken into consideration, instead of fragmentation later on. You have this area to cleanup and we think a massive amount of testing has been done and you used to talk cleanup in the area that needs to be cleaned …The City would like retention of natural vegetation and certain amount of trees per acre (City Ordinance on trees) to be maintained…One other correction, I understand you used the example of cleaning up 500 acres of land and not re-vegetate because of development coming right after it. We have areas available for nine years and no one is developing in that area yet. Don't necessarily agree with conclusion that developers come right after and no need to re-vegetate.		This EIS is for re very small discus Those impacts sh subsequent SEP for an operationa the City of DuPon to written comme In open space de Sequalitchew Cre and the Puget So activities (vegeta planned. A 65-fo as open-space al border of the clea Parcel 1 property as open space (i will be left undistu lakes will cover 2 and Mission sites are planned for th cap/containment cleanup, will be r 372.1 acres could and left to re-veg cleanup site, as w the city limits whe have naturally re- (the remaining 37 the trees will not be scraped as pa
52	My comments about what to do after scraping this place, land use, and someone buys it. People working on the historical district, you are sitting on the mother lode. In Washington State, the citizens of this City care very much about what this area looks like. When everything on a track and the EIS is done and final EIS comes out, everything is on the road…This could be the loveliest place when work is done and general says all are winners. We could end up with historical district and…look at big denuded place and not very appetizing and we need to all work together.		Comments noted The DuPont area which the Compa members of the p The eligibility or e district does not p future land uses, activities.
53	(Ben) I'm also thinking of a golf course in the middle of nothing. Wouldn't be very attractive.		Initially following cap/containment nothing." The ma cleanup site is pr development, exc space areas. In t

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			if permitted by th of nothing.
54	(Penny Sweem) Direct this to Dennis Clark and Ray Miller since they are speaking for the City. Problem with golf course is the solution. But haven't heard them suggest any other solution to the proposal. Would they like to blacktop, …what other solution to make something ugly look nice. The golf course will be green and have some look to it. Penny: Asking what your solution would be?	Dennis Clarke – City of DuPont: I'll respond. Nothing in my comments say we have a position about the golf course. Hope you don't mistake that. A particular plan that is the only plan that cuts off streets and is difficult for land use, needs alternatives. We haven't said the golf course would be particularly bad. Dennis: City not doing the kind of analysis to create a series of options. We will make comments about alternative we would like others to look at. What I understand, another look about what can be done other than a golf course. Alternative to golf course layout. Ray Miller: Nothing said not in favor or against the golf course. I thought DEIS as presented is inadequate. Other alternatives should be taken into consideration. I think more data in the history preservation and informed opinion about the golf course. MB: Regarding earlier EIS. There have been numerous golf course designs. It originally encircled the lake, and now this is the one the Companies have decided upon. There were all kinds of configurations and locations. Layouts were chosen to cover as much contamination as possible. Our responsibility is to cap it to make it protective of human health and the environment. Companies decide how much land to cover or not cover. If the chosen golf course is permitted, then someone is there to maintain the course and the cap/containment.	There have been golf course. The were done to try requests. The fir effective for the C course in the opi designer. It is "a attempt to meet a conflicting needs
55	(Ray Carlson, DuPont) Appreciate comments tonight. I lived in Butte, Montana, and I know Anaconda. Talk about Asarco. I spent years out there. I like to play golf. I'm very sensitive to native Americans, spend a lot of time with the Blackfoot tribe in Montana. This would be a nice mix together. You put a golf course here and as you go through the area, a nice interpretive area. Have some signs placed around the golf course and read about the historical things. I think this is a gold mine. Historically YES, stock earns stock. Who owns that ground?. Who has Consent Decree and see folks, this is what is going to happen to it. …They don't want to take tort liability in court. I own stock in Weyerhaeuser.		Comments noted The golf course b was used to cap/ historic smelter s course was built County. The pro "may make mone DuPont through v and/or other supp (restaurants, golf clothing stores, e generate money was to buy the ca operate it as a go

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	…Lawyers won't let them build houses there, work with them. Good way to cover dirt and you think you have arsenic here, 15 times more where I played golf in Anaconda. No houses, but they play golf and makes lots of money for the City. Golf course can make money for DuPont. Put Historical in and blend and work together.		

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Appendix A
Chronological Summary Table Of Historic Sites Research and Exploration at the Northwest Landing - DuPont Property

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Chronological Summary Table Of Historic Sites Research and Exploration at the Northwest Landing - DuPont Property

The following table provides a chronological summary of the published research and exploration that has been undertaken at the Northwest Landing – DuPont Property pertaining to historic and cultural resources. All research and exploration has either been funded by Weyerhaeuser Company and Weyerhaeuser Real Estate Company or has been conducted with their permission and assistance.

HISTORIC SITES RESEARCH AND EXPLORATION AT THE NORTHWEST LANDING – DUPONT PROPERTY

DATE	RESEARCH AND EXPLORATION
1977	Exploration Survey • Astrida R. Blukis Onat, Lee A. Bennett, and Timothy Riordan, *Survey of Archaeological and Ethnographical Resources at the DuPont Site* (1977)
1977	Historical Investigation • David H. Stratton and Glen W. Lindeman, *Cultural Resources Survey – DuPont Site: Survey of Historic Resources at the DuPont Site* (August 1, 1977)
1986	Archaeological Research • Caroline Gallacci and Michael G. Avey, *A Preliminary Research Investigation of Hudson's Bay Company/Puget's Sound Agricultural Company Sites Located in Pierce and Thurston Counties* (1986)
1987	Archaeological Research • Timothy Latas and Robert Weaver (Hart Crowser), *Archeological Screening, DuPont Powder Works, DuPont, Washington* (1987)
1988	Archaeological Research • Steven Anderson, *The Physical Structure of Fort Nisqually: A Preliminary Study on the Structural Development of a Hudson's Bay Company Site, 1843-1859* (1988)
1989	Archaeological Research • Richard D. Daugherty and Gary Wessen, *An Archaeological Excavation of Native American Skeletal Remains at DuPont, Pierce County, Washington* (1989) • Jeanne Welch, *A Cultural Overview and Comprehensive Management Plan for the DuPont Property, Pierce County, Washington* (1989) • Gary Wessen, *A Report of Archaeological Testing at the DuPont Southwest Sites (45-PI-72), Pierce County, Washington* (1989) • Richard D. Daugherty, *Results of Monitoring the City of DuPont LID-1* (October 22 and Fall, 1989)

DATE	RESEARCH AND EXPLORATION
1990	Archaeological Research • Richard D. Daugherty, *A Data Recovery of Hudson's Bay Burials at Northwest Landing* (1990) • Guy Moura, *A Testing and Evaluation of the 1833 Fort Nisqually, 45-PI-55 at Northwest Landing, Pierce County, Washington* (1990) • M. Leland Stilson, *A Data Recovery Study of 45-PI-401 Hudson's Bay Dwellings, at Northwest Landing, Pierce County, Washington* (1990) • Janet Creighton, *Data Resulting from Analysis of Beads and Floral Remains from 45-PI-401, 45-PI-405, and 45-PI-55 Together with Analysis of Faunal Remains, Wood, Metal, Bricks, Ceramics, Clay Pipes, Vessel Glass, Flat Glass, Leather, and Miscellaneous Items from 45-PI-55 DuPont, Washington* (1990) • L. E. Carlson, *A Cultural Resources Survey of Buildings/Facilities of the E.I. DuPont de Nemours & Co., Inc. Explosives Works, DuPont, Pierce County, Washington* (1990)
1991	Archaeological Research • M. Leland Stilson, *A Data Recovery Study of 45-PI-405, The 1843 Fort Nisqually Village at Northwest Landing, Pierce County, Washington* (1991) • M. Leland Stilson, *1988 Test Excavation at the 1843 Fort Nisqually (45-PI-56), DuPont, Washington: A Preliminary Report* (1991) • Cecelia Svinth Carpenter, *Information on the Known Deaths and/or Burials on the Fort Nisqually–DuPont Site 1833-1887* (1991)
1992	Archaeological Research • Richard D. Daugherty, *The Excavations of Burials Four and Five at 45-PI-404 (1992)*
1995	Archaeological Research • Richard D. Daugherty, *Archaeological Test Excavations Near the Mouth of Sequalitchew Creek* (April 5, 1995) • Richard D. Daugherty, *A Cultural Resource Survey of a Highway Interchange, Pierce County, Washington* (1995) • Richard D. Daugherty, *Supplement to the Cultural Overview and Comprehensive Management Plan with Special Reference to Parcel "B"* (1995)
1996	Archaeological Research • Richard D. Daugherty, *The Status of Cultural Resources in and adjoining Palisade Village Divisions 5 through 8 and LID Parcel "G" Northwest Landing, DuPont, Washington* (April 1996)

DATE	RESEARCH AND EXPLORATION
	• Richard D. Daugherty, *The Status of Cultural Resources on and adjoining the Extension of Center Drive* (April 18, 1996) • Paul E. Solimano, Dennis E. Lewarch, Leonard A. Forsman, and Lynn Larson, *Intel DuPont Status of Cultural Resources on and adjoining the Extension of Center Drive* (1996) • Richard D. Daugherty, *The Status of Cultural Resources in the Area Designated Division IV, Northwest Landing, DuPont Washington* (September 9, 1996)
1997	Archaeological Research • Richard D. Daugherty, *An Addendum to: Cultural Resource Survey of a Highway Interchange, Pierce County, Washington* (January 27, 1997) • Richard D. Daugherty, *A Resurvey on the Village IV Area for Cultural Resources* (May 10, 1997) • Richard D. Daugherty, *A Resurvey of the Division 5 Area for Cultural Resources* (May 26, 1997) • Gail Thompson and James A. Carter (Historic Research Associates, Inc.), *Summary of Cultural Resources for Proposed DuPont Golf Course, Pierce County, Washington.* Prepared by Historical Research Associates, Inc. (December 1, 1997)
1998	Archaeological Research • Richard D. Daugherty, *An Review of Summary of the Cultural Resources for Proposed DuPont Golf Course, Pierce County, Washington.* Prepared by Historical Research Associates, Inc. (1998)

Appendix C
Distribution List

FULL ADDRESSES
City of DuPont PO Box 455 DuPont, WA 98327
City of Lakewood 10510 Gravelly Lake Drive SW, Suite 206 Lakewood, WA 98499
City of Steilacoom 1715 Lafayette Street Steilacoom, WA 98444-0256
DuPont Toxics Citizen Oversight Project c/o Tom Skjervold 6913 US Hwy 101 NW Olympia, WA 98502-9575
E.I. du Pont de Nemours Company Corporate Remediation Bailey Mill Plaza, Bldg. 27-1252 Lancaster Pike and Route 141 Wilmington, Delaware 19805
Fort Lewis Attn: AFZH-PWE/MS-17 PO Box 3395001, Bldg. 1210 Fort Lewis, WA 98433-9500
League of Women Voters 12700 SE 32nd Bellevue, WA 98005
Nisqually Delta Association PO Box 7444 Olympia, WA 98507
Nisqually Indian Tribal Office 4820 SHE NAH NUM Drive, SE Olympia, WA 98513
Office of Archaeology & Historic Preservation EIS Reviews PO Box 48343 Olympia, WA 98504-8343
Olympia Library 313 8th Avenue SE Olympia, WA 98501

Pierce County Council Office 950 Tacoma Avenue S., Room 1046 Tacoma, WA 98402
Pierce County Library 3005 112th East Tacoma, WA 98446
Pierce County Library Lakewood Branch 6300 Wildaire Road SW Tacoma, WA 98499
Pierce County Library Steilacoom Branch 2950 Steilacoom Blvd. Steilacoom, WA 98388
Pierce County Parks & Recreation 9112 Lakewood Drive S.W., #121 Tacoma, WA 98499
Pierce County Public Works and Utilities Environmental Service Division 9116 Gravelly Lake Drive SW Tacoma, WA 98499
Puget Sound Clean Air Agency 110 Union Street, #500 Seattle, WA 98101-2038
Puget Sound Energy EIS Reviews 815 Mercer Seattle, WA 98109
Puget Sound Regional Council EIS Reviews 1011 Western Avenue Seattle, WA 98104
Puget Sound Water Quality Action Team PO Box 40900 Olympia, WA 98504-0900
Puyallup Tribe of Indians 2002 E. 28th Street Tacoma, WA 98404

Puget Sound Environmental Education Clearing House (SPEECH) 209 East 4th Avenue, Suite 206 Olympia, WA 98501
Steilacoom Tribe of Indians 1515 Lafayette Street PO Box 419 Steilacoom, WA 98388
Tacoma Pierce County Chamber of Commerce 950 Pacific Avenue, Suite 300 PO Box 1933 Tacoma, WA 98401-1933
Tacoma-Pierce County Health Department Environmental Health Office 3629 South D Street Tacoma, WA 98408-6897
Tacoma Pierce County Habitat 909 N. J Street Tacoma, WA 98407
U.S. EPA, Region 10 Director, Environmental Evaluations 1200 Sixth Avenue Seattle, WA 98101
U.S. Fish & Wildlife Service EIS Reviews 2625 Parkmont Lane Building B-3 Olympia, WA 98502
Washington State Department of Fish and Wildlife EIS Reviews 600 Capital Way North Olympia, WA 98501
Washington State Department of Natural Resources – SEPA Center PO Box 47015 Olympia, WA 98504-7015
Washington State Department of Ecology Environmental Review Section Mail Stop PV-11 Olympia, WA 98504

Washington State Department of Ecology Toxics Cleanup Program Southwest Regional Office PO Box 47775 Olympia, WA 98504-7775
Washington State Department of Health Office of Toxic Substances PO Box 47825 Olympia, WA 98504-7825
Washington State Department of Transportation PO Box 47316 Olympia, WA 98504-7316
Washington State Parks & Recreation EIS Reviews 8150 Cleanwater Lane Olympia, WA 98504
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