2. The request for additional work contradicts the Respondents' own draft RI Report, which concludes that no further work is needed to complete the SAC-4 FS;

The Respondents state that in EPA's "August 12, 1995 letter" (emphasis added) the Agency made the statement that the request for additional work contradicts the Respondents own draft RI report. For the record, this statement was made in EPA's April 12, 1995, letter. The Respondents contend that since the letter which they claim precipitated the need for additional data was not received until February 3, and the draft RI report was submitted February 4, it was impossible to include the identification of the need for additional work in the draft RI.

As stated above, in EPA's view, the Respondents misinterpreted EPA's comments presented in our February 3, 1995 letter. EPA's comments did not imply that additional data needed to be collected. To the contrary, EPA believes that the data presented in the draft RI, and additional modelling by the Respondents included in the revised SAC-4 report, confirm EPA's position that sufficient data already exist regarding the risk from the landfill surface, and groundwater migration, in order to make decisions on selecting an appropriate, protective remedy.

The Respondents dispute EPA's position that sufficient data has been collected, since the data collected to date, and the groundwater modelling conducted by the Respondents, indicate that several potential remedial alternatives are not protective and do not meet ARARs. These alternatives have thus been eliminated from the analysis of alternatives. The Respondents contend that by not agreeing to amend the RI/FS Work Plan to allow the Respondents to collect this additional data, EPA is limiting the range of containment alternatives under consideration. The Respondents contend that collecting the additional data would be necessary to determine which of the non-capping

alternatives, including those eliminated in the screening process, are consistent with the NCP.

EPA continues to maintain that the Respondents' statement in the draft RI that no further work is necessary is accurate, and contradicts the Respondents' claim that additional work is needed. EPA believes that current data allow the Agency to consider a sufficiently broad range of alternatives, as presented in the SAC-4 report, and as described in the Proposed Plan for Interim Remedial Action. EPA has determined that additional data collection support of the SAC-4 FS is not needed.

3. The proposal for additional work is structurally flawed and contains technical deficiencies;

The Respondents claim that EPA's April 12, 1995, comments do not provide enough specifics on why their additional work request is deficient, and do not provide specifics on what would be necessary to correct the flaws and deficiencies.

EPA believes the level of detail provided in its April 12 comment letter adequately pointed out the deficiencies in the Respondents proposal for additional data collection. EPA did not provide further comments on what would be needed to correct the proposal because the Agency does not believe that collecting the additional data is needed in order to support the SAC-4 report nor to make a decision on the remedy.

Therefore, EPA has determined that the Respondents' contention that EPA did not provide enough specific comments on the deficiencies of their proposal has no bearing on EPA's decision that the work is not needed.

4. Collection of the additional data would result in delay of cleanup at the site;

The PRPs contend that EPA over-estimated the amount of time it would take to complete the additional data collection, and that the work could be completed in time described by the

Respondents in their February 23, 1995 letter (final SAC-4 report by August 31, 1995).

EPA maintains its position that the Respondents significantly under-estimated the amount of time necessary conduct the additional work. EPA maintains that it would take much longer to carry out the necessary steps: review, comment, negotiate work plan, EPA approval of work, conduct field activities, data analysis and review, report preparation, EPA review and approval of final SAC-4 report. EPA has determined that collection of the additional data would delay the agreed upon schedule for completion of SAC-4 report, and this delay is unnecessary since sufficient data has been collected to date."

The Respondents subsequently appealed the Branch Chief's Determination to the EPA Region 10 Regional Administrator. On October 18, 1995, the Deputy Regional Administrator, acting for the Regional Administrator, issued the following decision regarding additional surface sampling (Findley, 1995a):

"**EPA's Final Determination:** The Respondents request to perform additional work is denied. The rationale for this decision follows.

The Respondents asserted in their dispute that the AOC allows the Respondents to identify the need for additional work at any time during the RI/FS process. The Respondents also asserted that it was EPA comments in a February 3, 1995 letter which raised the need for the collection of additional data to support the FS. Since the SAC-4 FS report was submitted by the Respondents only 10 days after receiving EPA's comments, the Respondents asserted that they had an inadequate time to respond to EPA's comments before submitting the SAC-4 FS report. Therefore, the Respondents asserted that their request was not untimely. The Respondents also asserted that the request was not inconsistent with the RI and believed that EPA did not adequately explain the deficiencies in their additional work proposal.

The Branch Chief, in his August 4, 1995 determination, wrote that the Respondents were erroneous in concluding that EPA's February 3, 1995 comments identified the need for collecting additional data. The Branch Chief cited the AOC, which states that EPA, in its discretion, will determine whether additional data will be collected. The Branch Chief upheld the Remedial Project Manager's (RPM's) position (as detailed in his April 12, 1995 letter) that sufficient data had been collected to date upon which to make a decision on a appropriate, protective cleanup remedy using the presumptive remedy approach outlined in the AOC. The Branch Chief also upheld the RPM's position that the Respondents request was untimely, was inconsistent with the draft RI, and contained structural flaws and deficiencies.

My review of the record concludes that EPA reasonably evaluated the Respondents' request for additional work, and concluded that the work was not necessary to support the objectives of the RI/FS. In their review, the RPM and the Branch Chief also determined that the request for additional work was untimely and would cause delays in the cleanup. Although the RPM had determined that the additional work was unnecessary, his preliminary review identified several deficiencies in the proposed work. I find that the decisions by EPA staff and the Branch Chief are consistent with EPA authorities under CERCLA and the National Contingency Plan. Further, Paragraph 36 of the AOC, an agreement signed by the Respondents, specifically provides that EPA's decision on additional work is at its discretion. I find that the record shows that the RPM and the Branch Chief reasonably determined that no additional work was necessary, and that EPA decided, at its discretion, to not authorize the work suggested by the Respondents. For these reasons, I uphold the decision of the Branch Chief to deny the Respondents' request for additional work.

This determination is EPA's final decision on this dispute."

EPA's decision not to amend the RI/FS Work Plan to allow for additional sampling of the landfill surface was therefore reasonable and justified, as EPA carefully considered all of the Respondents' points and concerns before EPA issued its final decision regarding these disputes. Additional correspondence regarding this dispute is included in the AR for this interim remedial action. See also Response to Comment 2.9.1.

2.9.1 **Additional Comment Under C.2.:** The commentor also states that, had EPA approved the AOC Respondents' requests to amend the RI/FS workplan to allow the testing of the surface of the landfill in a timely manner, these results would have been available at the time of issuance of the streamlined Risk Assessment and the Proposed Plan for this interim remedial action.

Response: The AR shows that EPA responded in a timely fashion to the Respondents' requests for additional work. Both the EPA Branch Chief's Determination (Gearheard, 1995a), and the EPA Regional Administrator's decision (Findley, 1995a), note that the Respondents' request was untimely. In addition, given the Respondents' lack of consistent timeliness in submitting RI data, EPA did not have reason to believe that the Respondents would produce this additional surface data prior to issuance of the Streamlined Risk Assessment and Proposed Plan. All final RI data of acceptable quality was due on May 4, 1995, with the final RI Report. Some of this data was provided to EPA as late as October, 1995, well after the streamlined Risk Assessment was finalized and the Proposed Plan issued. EPA was also concerned that competition for analytical resources needed for the additional surface sampling may have contributed to longer delays in submitting the late RI/FS Work Plan data that was submitted in October 1995. Therefore, EPA believes that it has acted reasonably in denying the AOC Respondents' requests to conduct more extensive surface soil sampling at the Tulalip Landfill, after fully considering the need for additional data and the potential for delay in addressing the ongoing discharges of hazardous substances into the environment.

2.9.2 **Additional Comment Under C.2.:** The commentor suggests that the 1988 surface data used by EPA as part of the streamlined Risk Assessment was "limited and unreliable" data. [8] [17]

Response: EPA included 1988 surface data in the streamlined Risk Assessment, not for the purpose of fully characterizing the entire landfill surface, but to point out that existing site data from 1988 indicates that some locations of the landfill surface were contaminated at the time those samples were taken. At the sample locations, hazardous substances were found at levels that exceeded comparison numbers that are considered to be protective of human health and the environment at the Site in all media sampled during the RI. These comparison numbers include standards, criteria and risk-based chemical concentrations that are protective of human health and the environment for this interim remedial action. EPA agrees that 5 samples are an insufficient number of samples to fully characterize the 147 acre landfill surface, and that the 1988 data is significantly older than RI/FS data. However, sampling of the landfill surface is not necessary to proceed with a presumptive remedy at municipal landfill sites. As the EPA guidance document "Presumptive Remedy for CERCLA Municipal Landfill Sites" (EPA, 1993a) states on page 5:

> "A quantitative risk assessment... is not necessary to evaluate whether the containment remedy addresses all pathways and contaminants of concern associated with the source."
>
> * * * *
>
> "Streamlining the risk assessment of the source area eliminates the need for sampling and analysis to support the calculation of current or potential future risk associated with direct contact."

These EPA policy statements clearly indicate that EPA believes it is not necessary to sample the landfill surface before making a decision to proceed with an interim action to contain the landfill wastes. However, because the 1988 data was available and considered reliable by EPA, it was included it in the Streamlined Risk Assessment.

Recent surface water data collected by the Respondents during the RI/FS at leachate seep SP-01 supports the 1988 data because it indicates that, at this location, surface water contamination on the landfill surface still exists. Sampling data from seep SP-01, the only leachate seep sampled during the RI/FS which originates on the landfill surface, exceeded comparison numbers

that are protective of human health and the environment (see interim ROD, Table 11-1). See also Response to Comments 10.1 - 10.4 for responses to comments about the quality of the 1988 data.

2.9.3 **Additional Comment Under C.2.:** The commentor asks why EPA considers the 1988 data to be adequate, while EPA considered the Respondents' proposal for additional surface sampling to be inadequate.

Response: The Respondents' request to conduct additional surface samples was the subject of a formal dispute (see Response to Comment 2.9 for a complete explanation of why EPA declined to amend the AOC to conduct this additional sampling). EPA does not maintain that the five surface soil and surface water samples taken in 1988 are sufficient to "adequately" characterize the entire landfill surface. However, in EPA's view, because the 1988 data is available and EPA considers it to be reliable, it is appropriate to include this available data in the Streamlined Risk Assessment. EPA believes the 1988 data does adequately characterize landfill surface conditions at those 5 sample locations at the time they were taken, even though 5 sample locations cannot be considered representative of the entire landfill surface.

It should be noted that EPA guidance on presumptive remedies, which is consistent with the NCP, does not require EPA to fully characterize any medium before making a decision on whether remedial action is warranted to address contamination in that medium.

See also Response to Comments 10.1 - 10.4 for responses to comments about the quality of the 1988 data.

2.9.4 **Additional Comment under C.2.:** The commentor states that EPA used unreliable data (the 1988 data) to rule out non-capping alternatives in the Proposed Plan, and that even the 1988 data fail to show a risk to human health and the environment.

Response: The 1988 surface data was given appropriate consideration by EPA during the remedy selection process, acknowledging the limited number of samples and the age of the data. The 1988 surface data was not a critical factor in eliminating any alternatives from consideration, nor in EPA's selection of Alternative 4c as the most appropriate alternative for interim remedial action. If the 1988 surface data had been set aside and not considered at all by EPA, the comparative analysis of alternatives in the interim ROD would still

have led EPA to conclude that Alternative 4c provides the best balance of trade-offs with respect to the nine criteria in addressing the remaining pathways of concern.[16]

Alternative 4c was selected in the interim ROD because it provided the best balance between the nine NCP criteria and met the remedial action objectives. Some of the other alternatives would have met the remedial action objective of prevention of direct contact; however, those alternatives were ruled out in the interim ROD based on an analysis of the nine NCP criteria and their ability to meet the other remedial action objectives.

EPA disagrees with the commentor's assertion that the 1988 data show no threat to human health and the environment. "Table 6-4 - Summary of On-Source Data that Exceed Ecological Comparison Numbers" from the ROD indicates that, in 1988, at 5 sample locations on the landfill surface, concentrations of the following chemicals in surface water exceeded comparison numbers that are considered protective of ecological resources:

Chemical	Frequency of Exceedances
Phenanthrene	1/5
Bis(2-ethylhexyl)phthalate	1/5
Cadmium - total	1/5
Chromium - total	2/5
Copper - total	4/5
Iron - total	5/5
Lead - total	2/5
Nickel - total	3/5
Zinc - total	4/5

In addition to these 1988 surface water exceedances of comparison numbers, EPA notes that the 1988 surface soil data exceeded the comparison number for bis(2-ethylhexyl)phthalate at one sampling location. Based on these exceedances of comparison numbers, EPA believes it is reasonable to conclude that in 1988, at these five sampling locations on the landfill surface, surface water presented a potential risk to the environment. Though the 1988 data may not be representative of current conditions at these sample

[16] These pathways include leachate passing through the perimeter landfill berm and discharging to wetlands, leachate on the landfill surface (SP-01), Zone 2 groundwater, off-source surface soils, off-source subsurface soils, off-source surface sediments, and off-source subsurface sediments.

locations, and does not fully characterize the 147-acre area, consideration of this data is still useful and appropriate because it represents conditions at five locations on the landfill surface in the relatively recent past. See also Responses to Comments 10.1 - 10.4.

2.10 **Comment:** "C.3. Region 10 Has Arbitrarily Refused to Allow the Respondents to Conduct Tests Related to the Discharge of Zone 2 Groundwater to Surface Water." [3]

Response: See Response to Comment 2.10.3.

2.10.1 **Additional Comment Under C.3.:** The commentor states that EPA is incorrect in expecting that Alternative 4c in the Proposed Plan will eliminate the migration of leachate into Zone 2 groundwater in the short term.

Response: EPA disagrees with the commentor regarding the effectiveness of Alternative 4c in eliminating migration of leachate into Zone 2 groundwater. As was stated by the Respondents in the Revised SAC-4 RI/FS that they prepared, on pages 87-89 (discussing Alternatives 4b and 4c), the low permeability cover (or "cap") for Alternative 4b:

> "...essentially eliminates infiltration and leachate generation, thereby eliminating seep and groundwater migration and achieving all the seep and groundwater RAOs [remedial action objectives]...."

The permeability of the cover discussed in Alternative 4b is the same as would be required for Alternative 4c. Thus, the AOC Respondents' own consultant agrees with EPA regarding the effectiveness of the cap required by the selected alternative, Alternative 4c.

In addition, the Proposed Plan on page 10 states that Alternative 4c "...is expected to eliminate the perimeter berm leachate seeps within two years, and basically eliminate the generation and migration of leachate in the deeper groundwater to the sloughs." It may be true that Alternative 4c will allow more leachate to be released into the environment in the *short term* than Alternative 2b, which is the alternative supported by the Respondents. However, in the *long term*, Alternative 4c would release significantly less leachate than Alternative 2b, thereby reducing the amount of mass contaminant loading to the environment (mass contaminant loading was

identified in the Streamlined Risk Assessment as one of the primary risk concerns at the Tulalip Site). The NCP gives preference to long-term effectiveness over short-term effectiveness. See 55 Fed. Reg. 8725; 40 C.F.R. section 300.430(f)(1)(ii)(E). Construction of Alternative 4c will allow the existing leachate mound within the landfill waste to dissipate gradually, by the force of gravity, through the perimeter leachate seeps and downward into Zone 2. Once the leachate mound recedes, the cover, by preventing new infiltration of precipitation, effectively prevents the generation and migration of new leachate. In contrast, Alternative 2b (if it were to work as well as the Respondents have predicted) would allow a greater initial leachate reduction by reducing the volume of the existing leachate mound more quickly, but would continue to allow significant amounts of leachate to migrate into the environment in perpetuity.

"Comparison of the Leachate Collection and Treatment Alternative (2b) with the FML Cover Alternative (4c), Golder Associates, October 24, 1995" (Golder, 1995b) compares the cumulative leachate flow out of the landfill into the environment of Alternatives 2b and 2b(ii) with that expected for Alternative 4c. Figure 4-2 from the above Golder report (Golder, 1995b)[17] shows that, for approximately fifteen years, Alternatives 2b and 2b(ii) are expected to allow slightly less leachate to escape into the environment. However, with Alternative 4c, after this 15 year period, leachate production subsides. In contrast, under Alternatives 2b and 2b(ii), the leachate continues to escape from the landfill at a rate of approximately 80 million gallons every 10 years in perpetuity. If the collection system proposed for Alternatives 2b and 2b(ii), an unproven technology, turns out to be less effective than the Respondents have predicted (a distinct possibility, given that alternatives 2b and 2b(ii) are unproven technologies), the predicted leachate escapement rate for these alternatives of 80 million gallons every ten years could be substantially higher.

2.10.2 **Additional Comment Under C.3.:** The commentor suggests that the RI/FS sampling showed that there were no exceedances of surface water quality criteria at any location.

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[17] A copy of this figure is provided for the convenience of the reader at the end of Appendix D in Attachment C.

Response: EPA disagrees with this comment. Excluding leachate data collected from the perimeter leachate seeps, there were three surface water samples taken outside the landfill perimeter during the RI/FS that exceeded surface water comparison numbers: one exceedance of arsenic and one of dibenz(a,h)anthracene at sample location R1-SW-SC24-S2 that exceeded human health comparison numbers, and one exceedance of lead that exceeded the ecological comparison number at sample location R1-SW-SG37.

In addition to these three exceedances of water samples that were specifically referred to as "surface water" samples in the RI/FS Work Plan, samples taken from the perimeter leachate seeps are also a type of surface water sample, even though they are explicitly referred to in the RI/FS Work Plan as "leachate seep" samples. Under Washington state law, which requires the application of ambient water quality criteria to be measured at the point where groundwater enters surface waters,[18] the comparison number exceedances measured in the perimeter berm leachate are exceedances of surface water criteria. EPA notes that numerous chemicals were found in the leachate seep waters, and that the levels of many chemicals exceeded the comparison numbers that are considered to be protective of human health and the environmental resources. See Tables 6-2, 6-4, and 6-5 in the interim ROD for more specific information regarding leachate seep exceedances. Thus, it is EPA's position that the numerous samples of leachate seeps outside the perimeter of the berm demonstrate that surface waters are contaminated by discharges from the Site.

The RI/FS approach for evaluating Zone 2 groundwater was to measure groundwater chemical concentrations at 13 perimeter landfill berm wells. Using this data from the berm wells, the Respondents used a groundwater modeling technique to estimate the contaminant concentrations that would be expected at the location where Zone 2 groundwater enters the sloughs, which is where State Water Quality Criteria must be measured according to Washington state law that EPA has identified as being relevant and appropriate for this

[18] No mixing zones in surface water (i.e., the sloughs) are permitted under State law for measuring compliance with these discharges. This issue of mixing zones in surface water was the subject of a formal dispute resolution process under the RI/FS Administrative Order on Consent. See Response to Comment Section 2.9 for more information on this dispute. See ROD Section 11.2 - Compliance with ARARs.

Site. The results of this groundwater modeling indicated that, in general, one would expect to see contaminants in the berm wells diluted by a factor of 5 to 9 from the time they leave the perimeter berm wells to the time they reach the sloughs. Taking these dilution factors into account, exceedances of comparison numbers at the Zone 2/slough interface would be expected. See Section 6.0 of the interim ROD. Ammonia nitrogen exceeds comparison numbers for all samples taken at the high end of the predicted concentration reduction range (73 of 73). Based on the exceedances of comparison numbers in Zone 2 groundwater in the berm wells and predicted through groundwater modeling at the sloughs, it is appropriate to conclude that discharges from the landfill are resulting in exceedances of human health and ecological comparison numbers at the Zone 2/slough interface, which represents a potential threat to human health and the environment.

2.10.3 **Additional Comment Under C.3.:** The commentor states that EPA denied the Respondents' proposal to amend the RI/FS workplan to perform Zone 2/surface water interface testing for the "same reasons" that EPA denied their request to test the surface of the landfill.

Response: The Respondents' request to install additional groundwater sampling wells in the wetlands surrounding the landfill was the subject of a formal dispute under the RI/FS AOC. In accordance with the AOC, the EPA Region 10 Branch Chief issued a Determination regarding the Respondents' request. The Respondents appealed this decision to the EPA Region 10 Deputy Regional Administrator, who subsequently issued a decision on this matter. The Branch Chief's Determination and the Deputy Regional Administrator's Decision are provided above in EPA's Response to Comment 2.9.

2.10.4 **Additional Comment Under C.3.:** The commentor states that the AOC Respondents disagreed with EPA regarding whether an aquatic biota inventory was needed under the RI/FS to show effects of Zone 2 groundwater discharges, which Respondents believe is necessary in order to define risks posed by the site.

Response: As EPA concluded during the formal dispute process, an adequate biota inventory already exists for the Site (Weston, 1992); therefore, a second inventory is not necessary. In addition, there are biological inventories available for the Snohomish River Delta in

general (NOAA, 1991). See also Response to Comment 11.45. EPA's presumptive remedy guidance does not require EPA to show that there are specific organisms at the Site that could be harmed by specific chemicals.[19] The purpose of the presumptive remedy approach is to streamline the RI/FS and Risk Assessment process so that expenditures of time and money are reduced while ensuring that an appropriate remedy is selected. The presumptive remedy approach allows EPA to compare site sample data (contaminant concentration levels) against standards and criteria (some of which were later identified as chemical-specific ARARs in the interim ROD), and against risk-based chemical concentrations if standards or criteria are unavailable. Where established standards for one or more contaminants in a given medium are clearly exceeded, remedial action is generally warranted[20], and selection of a containment remedy to address the potential pathway(s) posed by that medium is appropriate. EPA concludes that based on numerous exceedances of state surface water comparison numbers in groundwater at the site, and based on the results of the Respondents' modeling that shows that some of these contaminants are unlikely to meet state water quality standards at the Zone 2/slough interface (see Responses to Other Comments in Section 2.10), remedial action is warranted to address the Zone 2 groundwater pathway.

2.11 **Comment:** "C.4. Region 10 Arbitrarily Dictated the Content of the Respondents' SAC Reports" [3]

2.11.1 **Additional Comment Under C.4.:** The commentor also states that despite EPA's approval of the Respondents' contractors, EPA has rejected numerous recommendations and conclusions made by the Respondents' contractors. The commentor also states that EPA initially denied the collection of dissolved metals data, and then EPA severely limited its use in evaluations by the Respondents' contractors, despite EPA's use of dissolved metals data at other sites. The commentor then states that EPA did not offer a rational basis for not allowing the Respondents to perform additional testing.

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[19] However, Appendix B of the Risk Assessment for Interim Remedial Action contains information about specific species that are present at the Site which could be harmed by chemicals that are discharging from the landfill.

[20] See "Presumptive Remedy for CERCLA Municipal Landfill Sites" (EPA, 1993a, page 4.)

Response: EPA disagrees that the Agency has arbitrarily dictated the content of the Respondents' SAC reports. To the contrary, EPA has provided the Respondents with a clear record showing how EPA's comments and decisions on all of the SAC Reports have been made consistent with CERCLA, the National Contingency Plan (NCP), and the Agency's authority under the Administrative Order on Consent (AOC), under which the SAC reports were developed by the Respondents. Pursuant to this AOC, the Respondents agreed to develop cleanup alternatives using the presumptive remedy of containment. The AOC states that EPA makes the final decision on the contents of all reports. EPA retained a respected consulting firm (Roy F. Weston, Inc.) to provide expertise and assistance in reviewing the SAC reports submitted by the Respondents. EPA also used qualified and competent in-house technical advisors in preparing comments on SAC reports.

Using this expertise, EPA evaluated cleanup alternatives proposed by the Respondents against the nine criteria outlined in the NCP. Those alternatives which met the two threshold criteria protection of public health and the environment, and compliance with applicable or relevant and appropriate requirements (ARARs) were retained for further consideration. The alternatives which were retained were then evaluated against the remaining seven NCP criteria. EPA chose Alternative 4c as the alternative which provided the best balance of all nine NCP criteria. See interim ROD Section 9.0 - Summary of Comparative Analysis of Alternatives. EPA also determined that Alternative 4c is cost effective (see interim ROD Section 9.0).

The Respondents have cited EPA's rejection of some non-capping alternatives as an indication that EPA arbitrarily dictated the contents of Feasibility Study reports. EPA disagrees that it has arbitrarily dictated the contents of the SAC Reports. EPA's basis for rejecting the non-capping alternatives is discussed in detail as part of a dispute with the Respondents and is included in the AR for this site. To summarize, EPA excluded two non-capping alternatives, Alternatives 3a and 3b, from further consideration in the Feasibility Study because, contrary to the Respondents' claim, these alternatives do not meet the two threshold NCP criteria (protectiveness and compliance with ARARs), and because they are inconsistent with the presumptive remedy of containment. See interim ROD Section 8.12 - Other Alternatives.

The Respondents also state that Region 10 has rejected evaluations and conclusions presented by the Respondents' experts in the course of preparing the cleanup alternatives. The Respondents provide two examples, EPA's limitations on the use of dissolved metals data, and EPA's denial of the Respondents' request for additional field work to collect additional data. Both of these issues were also part of disputes with the Respondents under the terms of the AOC. (The dispute regarding the collection of dissolved metals samples was resolved informally.) These disputes were resolved by letters from the Deputy Regional Administrator of EPA, and are part of the AR for the site (Gearheard, 1995b, Findley, 1995b). See also Response to Comment 2.9. As for additional field work requested by the Respondents, EPA decided that the additional work was not needed in order to select a reasonable, cost-effective cleanup remedy, containment of the source area. The record shows that EPA provided a rational basis for these decisions. Correspondence with the Respondents dated April 12, 1995, (Winiecki, 1995e), also provides the rationale for EPA's decision.

2.12 **Comment:** "C.5. Region 10's Reliance on the State of Washington's Current Landfill Regulations as an ARAR is Unlawful and Inconsistent With State Practice." [3]

2.12.1 **Additional Comment Under C.5.:** The commentor states that the current state of Washington Minimum Functional Standards ("MFS") for landfill closure, codified at WAC Chapter 173-304, are not relevant and appropriate requirements for the Tulalip Site.

Response: EPA disagrees with the commentor's statement that the current MFS for landfill closure are not relevant and appropriate requirements for this interim remedial action at the Tulalip Site. A detailed discussion of the relevancy and appropriateness of these regulations can be found in Section 11.2 of the interim ROD. To summarize, the Tulalip Reservation is surrounded on all sides by land which is under the jurisdiction of Washington State. If the landfill were located one mile south of its current location, outside the Reservation boundaries, the MFS regulations would be legally applicable if a cleanup action were selected. However, Washington State regulations are not applicable to this interim remedial action because the landfill is located wholly within the boundary of the Tulalip Indian Reservation, and under federal law the laws of the state of Washington are not enforceable within the boundaries of the Tulalip Indian Reservation. The Tulalip Tribes have no landfill

closure requirements that are comparable to state landfill closure requirements; therefore, EPA has determined that MFS shall be considered relevant and appropriate to this interim remedial action, because those state landfill closure requirements contain provisions relating to landfill cover construction and landfill gas control. The remedial action objectives set out in the interim ROD require, among other things, that the selected interim remedy "prevent direct and skin contact with, and ingestion of, landfill contents and contaminated soils, eliminate migration of leachate that exceeds ambient marine water chronic criteria," and that the remedy "prevent inhalation and release of landfill gas." The components of EPA's presumptive remedy for municipal landfills (containment) include a landfill cover. See OSWER Dir. No. 9355.0-49FS (EPA, 1992a, pg. 2.) The closure requirements of WAC 173-304 were meant to address problems or situations at municipal solid waste landfill sites which are sufficiently similar to those encountered at the Tulalip Site (and identified as the remedial action goals for the Tulalip Site), such that the use of the WAC 173-304 closure requirements is well-suited to the Tulalip Site. Thus, EPA has determined that the WAC 173-304 requirements for landfill covers are relevant and appropriate to this interim remedial action at the Tulalip Landfill Site. See also interim ROD Section 11.2 (which also identifies the federal landfill closure requirements, codified at 40 C.F.R. § 258.60, as an ARAR for this Site).

2.12.2 **Additional Comment Under C.5.:** The commentor also states that the MFS requirements cannot be ARARs for the Tulalip Site as those requirements apply only to landfills which have closed after the effective date of the regulations (November 3, 1988), and the commentor believes that the Tulalip Landfill completed closure in 1979. The commentor also states that MFS cannot be an ARAR for this Site because the State of Washington never identified it as an ARAR, as is required by the NCP.

Response: EPA disagrees with the commentor regarding the status of the MFS as ARARs at the Tulalip Site. In EPA's view, the selected alternative is a cost effective interim containment action that is expected to address effectively the ongoing discharges of contaminants from the Site. The selected alternative, 4c - Geosynthetic Cover with Passive Drainage, is the least expensive alternative that complies with Washington State Minimum Functional Standards (MFS) for landfill closures. As stated in the response above,

EPA has determined that the MFS are relevant and appropriate requirements for the Tulalip Landfill. These standards are, as they are called, minimum closure standards that have been established by the State for proper landfill closure. An MFS cap has a minimum number of low permeability layers (one), and requires that the surface slopes of the cover to be constructed at a grade not less than 2 percent. A two percent grade is considered to be the minimum grade necessary for adequate surface drainage.

An MFS cap is a relatively low cost cap, compared to some types of caps that have been selected at other NPL sites. At the Tacoma Landfill NPL site, for example, a cap that complies with the requirements of the Resource Conservation and Recovery Act (commonly referred to as a "RCRA cap") was selected and constructed. RCRA caps are considerably more expensive than MFS caps because they require two impermeable layers instead of one. Generally speaking, a RCRA cap will comply with MFS requirements, but an MFS cap will not comply with RCRA. RCRA requirements are more stringent.

While the Tulalip site closure may have been legal at the time, and even accepted by EPA at the time, the closure requirements at that time were not effective at preventing the site from becoming a long term environmental problem. This is evidenced by the data collected during the 1988 site inspection and the RI/FS data, which documented large volumes of contaminated leachate leaving the site.

Since the Tulalip Landfill was closed, the State of Washington (and EPA - see 40 C.F.R. Part 258) has made the requirements for landfill closure significantly more stringent. The State has acknowledged that the previous landfill closure requirements were inadequate, and recognized the need for improved closure standards to help ensure that closed landfills would not threaten human health and the environment. This appears to be the case at Tulalip Landfill. Today, observing the data that has been collected at the site after the 1979 closure, it is clear that the 1979 closure, believed adequate at that time, was insufficient. This insufficiency may not have been apparent in 1979, and it may not have been apparent when EPA agreed that the landfill had been closed in accordance with the 1977 Consent Decree, but its insufficiency is apparent today.

In addition, if one were to take the commentor's argument regarding the applicability of the current MFS

to the Tulalip Landfill to its logical conclusion, one would have to conclude that the only laws that could be ARARs at any Superfund site are those laws that were in effect when a given site "ceased operations" and/or "closed." Clearly, that was not what Congress intended when it promulgated Section 121 of CERCLA. Congress' intent under Section 121 of CERCLA was to have remedial actions require the "level or standard of control for such hazardous substance or pollutant or contaminant which at least attains such legally applicable or relevant and appropriate" requirements. See 42 U.S.C. § 9621(d)(2)(A). In the legislative history of Section 121, Congress also stated with regard to the issue of "relevant and appropriate" environmental laws and Acts that:

> "[t]hese Acts need not be legally applicable. The Administrator [of EPA] is to look to the standards in all of the acts which apply to a particular release or a threatened release and determine whether or not application of the standards in the other acts is reasonable and sensible under the circumstances. In determining whether a standard or criterion established under any other Federal or state environmental statute is applicable to cleanup of a facility subject to a remedial action, the Committee does not intend that such standard or criterion should only be applied where the jurisdictional or procedural requirements of such laws are technically met. For example, the regulatory requirements of the SDWA apply only to certain specific sources of public drinking water. The Federal Water Pollution Control Act [FWPCA] contains similar procedural restrictions. Nevertheless, the Committee intends that all standards and criteria developed under both statutes shall apply to Superfund response actions when the bodies of water at issue will be used for similar purposes as those identified in the [SDWA], or the [FWPCA], or where such bodies of water present similar opportunities for human exposure and adverse effects on human health or the environment as are presented by the environmental media regulated under the other statutes."

(Emphasis added). See House Comm. on Public Works and Transportation, Superfund Amendments of 1985, H.R. Rep. No. 253, 99th Cong., 1st Sess., pt. 5, at 54 (November 12, 1985). See, also, 40 C.F.R. § 300.5 (definition of "relevant and appropriate requirements" in the NCP).

Thus, it is clear that Congress intended that Federal and state environmental laws such as the current State of Washington MFS may be considered by EPA to be an ARAR for the Tulalip Landfill Site, despite the fact that the current MFS do not "technically" apply to the Tulalip Landfill because it ceased operations in 1979.

Finally, EPA has determined that current MFS are relevant and appropriate requirements for the Tulalip Landfill interim remedial action because some of the purposes of this interim remedial action (prevent direct contact with the landfill contents and minimize leachate generation) are similar to the purposes of the MFS in WAC 173-304 (to prevent contact with landfill contents after closure and to minimize and/or eliminate generation of leachate). See, generally, WAC 173-304-460(2)(a), -460(2)(c), and -460(3)(a). The definition of "relevant and appropriate requirements" in the NCP states that a relevant and appropriate requirement is one that:

> "...while not 'applicable' to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site." 40 C.F.R. § 300.5.

Thus, EPA has determined that the current MFS for closure of landfills is well suited to the Tulalip Site, as a MFS-compliant cover design would meet the remedial action objectives for the Site.

The commentor's assertion that the State has not identified MFS as an ARAR is without merit. The State has no civil jurisdiction on the Tulalip Indian Reservation, and therefore the State has no requirement to identify ARARs for the Site because under federal law the State law is not enforceable.

2.12.3 **Additional Comment Under C.4.:** The commentor states that the MFS are "action-specific" ARARs which become ARARs only after a determination is made that a landfill cover is necessary to protect human health and the environment.

Response: EPA agrees that MFS are identified as "action-specific" ARARs in the "CERCLA Compliance With Other Laws" manual, but EPA disagrees with the remainder of this comment. The potential ARARs for the Tulalip Landfill Site were developed as part of the ongoing RI/FS for the site. Since the Tulalip Landfill is similar to a solid waste landfill in that the wastes are heterogeneous and large in volume and thus treatment of such wastes would be impracticable, and EPA has determined that remedial action is necessary at this site, it follows that federal and state laws governing the proper closure of municipal landfills would be potential ARARs for this site. As such, EPA has identified the MFS under WAC Chapter 173-304 as an ARAR in the interim ROD. Under Section 121 of CERCLA, the MFS requirements apply to solid waste landfills on the NPL located on land subject to the laws of the state of Washington. However, since the Tulalip Landfill is located on Tribal lands, the MFS requirements are not applicable, but instead are clearly relevant and appropriate specifications for proper closure of this landfill. Since the MFS regulations are ARARs for the Tulalip Landfill, if EPA were to select an alternative which did not meet the MFS requirements, EPA would have to waive the MFS ARAR or find that the MFS are either not relevant or not appropriate for this site. EPA guidance[21] states:

> "In the absence of Federal Subtitle D closure regulations, <u>State Subtitle D closure requirements generally have governed CERCLA response actions at municipal landfills as applicable or relevant and appropriate requirements (ARARs)</u>. New Federal Subtitle D closure and post-closure care regulations will be in effect on October 9, 1993 (56 <u>Fed. Reg.</u> 50978 and 40 <u>C.F.R.</u> Part 258). State closure requirements that are ARARs and that are more stringent than the Federal requirements must be attained or waived." (Emphasis added).

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[21] Presumptive Remedy for CERCLA Municipal Landfill Sites (EPA, 1993a, page 7.)

Both Federal Subtitle D closure regulations codified at 40 C.F.R. Part 258, and MFS for landfill closure codified at WAC 173-304 have been identified in this interim ROD as ARARs for the Tulalip Landfill.

2.12.4 **Additional Comment Under C.5.:** The commentor states that Region 10's "arbitrary" application of the MFS regulations as an ARAR is "highlighted" by recent actions taken by the state of Washington at the Everett Landfill/Tire Fire Site.

Response: EPA disagrees with the commentor that EPA has "arbitrarily" applied <u>any</u> ARARs at the Tulalip Landfill Site. In comparing the Everett Landfill to the Tulalip Landfill, the commentor fails to recognize that the Everett Landfill is not on the NPL. The Tulalip Landfill is on the NPL, and therefore EPA must follow CERCLA and the NCP when investigating the site and developing remedial alternatives. Section 121 of CERCLA states that the remedial action selected for a given site must attain the standards set out in state environmental laws that are more stringent than federal law. However, the only standards which can legally be ARARs under Section 121 are those standards which are "promulgated" at the time the remedial action is selected. Thus, EPA cannot consider (as suggested by the commentor when he proffers the Everett Landfill as a comparison) the old MFS, which were codified at WAC 173-301, as these regulations are no longer in effect and in 1985 were superseded by the WAC 173-304 regulations.

In addition, Section 300.5 of the NCP defines "relevant and appropriate requirements" to be those state standards that are identified in a timely manner <u>and</u> which "are more stringent than federal requirements." <u>See</u> 40 C.F.R. § 300.5. The old landfill closure requirements generally called for the installation of a cover that consisted of approximately 2 feet of soil with adequate drainage. The current federal municipal landfill requirements (codified at 40 C.F.R. Part 258) regarding solid waste landfill cover requirements for closure require, <u>inter alia</u>, a landfill cover with a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than $1x10^{-5}$ cm/sec, whichever is less. Therefore, since the WAC 173-301 closure requirements are less stringent than the current federal municipal landfill closure requirements, EPA cannot consider the old, less-stringent WAC 173-301

requirements as ARARs when making remedial action decisions at the Tulalip Landfill Site.

2.13 **Comment:** "C.6. Region 10's Proposed Plan Capriciously Mischaracterizes the Site's Environs." [3]

Response: EPA disagrees with the commentor. The AR contains an abundance of information indicating that the wetlands surrounding the landfill are of great ecological significance. The "Shoreline of Statewide Significance" and the "AMBS" designations are not the sole reasons upon which EPA is basing the selected interim remedy. Rather, these designations, in combination with other information provided in the AR, reflect the importance of the surrounding areas. It is important to realize that the potential impacts of the landfill leachate discharges are not limited to the immediate area surrounding the landfill.

Contaminants from the landfill flow into Ebey and Steamboat Sloughs, and then into Puget Sound. The Puget Sound estuary, which includes the Tulalip Landfill, is an estuary of national significance. Puget Sound is one of 28 estuaries in the United States that are currently part of the National Estuary Program (NEP), which was established under the Clean Water Act. The NEP's mission is to protect and restore the health of estuaries while supporting economic and recreational activities. An EPA document entitled "National Estuary Program: Bringing Our Estuaries New Life" (EPA/842/F/93/002) defines an estuary, explains the significance of estuaries, and provides some information on some of the problems of estuaries in the program. The following is excerpted from the document:

> "WHAT IS AN ESTUARY?
>
> An estuary is a coastal area where fresh water from rivers and streams mixes with salt water from the ocean. Many bays, sounds, and lagoons along coasts are estuaries. Portions of rivers and streams connected to estuaries are also considered part of the estuary. The land area from which fresh water drains into the estuary is its watershed.
>
> WHY ARE ESTUARIES SIGNIFICANT?
>
> Estuaries are significant to both marine life and people. They are critical for the survival of fish, birds, and other wildlife because they provide safe spawning grounds and nurseries.

Marshes and other vegetation in the estuaries protect marine life and water quality by filtering sediment and pollution. They also provide barriers against damaging storm waves and floods.

Estuaries also have economic, recreational, and aesthetic value. People love water sports and visit estuaries to boat, fish, swim, and just enjoy their beauty. As a result, the economy of many coastal area is based primarily on the natural beauty and bounty of their estuaries. Estuaries often have ports serving shipping, transportation, and industry. Healthy estuaries support profitable commercial fisheries. In fact, almost 31 percent of the Gross National Product is produced in coastal counties. This relationship between plants, animals, and humans makes up an estuary's ecosystem. When its components are in balance, plant and animal life flourishes. Because of our love of water, almost half of the United States population now lives in coastal areas, including the shores of estuaries. In addition, coastal counties are growing three times faster than anywhere else. Unfortunately, this increasing concentration of people upsets the balance of the ecosystems. People need housing, services, and roads, so new industry and businesses arrive to provide them. All this stresses the estuaries by increasing the types and amounts of pollution entering them. When severe, such stresses have forced government authorities to close beaches and shellfish beds and issue warnings about eating fish. In addition, removing grass and trees for development can cause soil erosion and reduce natural habitat, which contributes to the threat of extinction of endangered wildlife."

* * * *

"PUGET SOUND:
Protecting the Sound from Contaminated Sediments

Sediments in Puget Sound are contaminated with toxic chemicals. This contamination results from large inputs of toxic substances to a body of water, which is a very serious problem in estuaries. Marine animals that live on the estuary floor can accumulate the poisons in their bodies and, sometimes, pass them on to humans who can eat them. To protect marine life and help

guide decisions on when and where to clean up contaminated sediments, the Puget Sound NEP's CCMP called for development of the nation's first marine sediment standards. Because industrial and sewage plant dischargers are among the main sources of toxic substances entering the Sound, these sediment standards are being incorporated into their discharge permits. This should significantly reduce the quantity of poisonous substances entering the Sound."

This EPA document recognizes that contaminated sediments are a problem in Puget Sound, and that this contamination is a result of inputs of toxic substances. The RI/FS data clearly indicate that the Tulalip Landfill is a chronic source of contaminants to the surrounding environment. The landfill, by definition, is located within the Puget Sound estuary, and according to the RI/FS, all of the leachate discharges from the landfill end up in this estuary. EPA concludes that leachate discharges from the landfill are contributing to the loading of contaminants in the Puget Sound estuary,[22] and the selected interim remedial action is necessary to contain these contaminants and prevent them from migrating into surface waters where they can interact with the environment. Clearly, there are other contaminant sources that are also contributing to contamination of the estuary. However, determining the relative contributions of various sources to the estuary is outside the scope of CERCLA, and addressing those sources of contamination are outside the scope of this response action. By implementing the selected alternative, contaminant loading to the estuary will be reduced.

2.14 **Comment:** "C.7. Region 10's Preferred Remedy is Inconsistent with Actions Taken at Similar Sites in Region 10 and Elsewhere." [3]

Response: EPA disagrees with this comment. The On-Source Area of the Tulalip Landfill is being managed and evaluated pursuant to EPA's presumptive remedy process. As noted in EPA's memorandum Presumptive Remedies and NCP Compliance, (EPA, 1995a) "(t)he use of presumptive remedies advances the NCP remedy-selection objectives in that the presumptive remedy initiative

[22] Contaminant loading caused by Tulalip Landfill leachate discharges is contained in Table 5-14 of the Remedial Investigation Report.

promotes consistency in decisionmaking." The reader is referred to Responses to Comments 2.1.2 and 2.2 for more information regarding presumptive remedies and remedy selection. The nine remedy selection criteria in the NCP ensures the consistency noted in the above memorandum. The presumptive remedy process in general, and as used at the Tulalip Site, incorporates the nine NCP remedy selection criteria and provides additional consistency in decision-making.

The nine criteria were developed as a means to ensure consistency because the Agency understood that direct site-to-site comparison as a means of determining remedies was not feasible. The facts that form the basis for a remedy are unique to each site. There are a number of factors, in addition to the use of a presumptive remedy process, that make the comparison of the evaluation and decisionmaking processes between sites inappropriate, such as: (1) the impact of state ARARs: (2) laws, regulations, and policies in place at the time of the remedial action; (3) the lead agency (federal or state) in charge of the cleanup action; (4) terms and conditions negotiated between the lead agency and the parties conducting the cleanup; and (5) unique site characteristics. Comparison of decisions and actions at sites has never been a requirement of the CERCLA remedy selection process because of the inherent variations that exist among sites.

Because the presumptive remedy process was used for the on-source area of the Tulalip Site and was not used at any of the sites noted by the commentor, comparison of risk evaluation processes (e.g., risk assessment approaches, remedy selection) is inappropriate. The presumptive remedy process specifies the use of a streamlined risk assessment, as appropriate, for evaluating the need for remedial action at a site. The presumptive remedy process is a streamlined version of the full scale remedy investigation and implementation process used at the other sites. Consequently, differences between the evaluations exist.

EPA notes that EPA's selected interim remedy for the source area of the Tulalip Landfill, which includes a low permeability cover is, in general, consistent with remedies at the 30 sites EPA evaluated in developing the presumptive remedy approach and guidance. Of the 30 sites EPA examined, 24 sites, or 80% selected some type of low permeability cover as a remedy for the

source area of the landfill. See OSWER Dir. No. 9355.0-49FS (EPA, 1993a). See also Responses to Comments 8.5 and 8.6.

2.15 **Comment:** "D. Application of EPA's Presumptive Remedy Guidance Does Not Require an Impermeable Cap for the Tulalip Landfill." [3]

Response: EPA agrees that the Presumptive Remedy guidance calls for containment of landfill wastes as the presumptive remedy for Municipal Landfill Sites. The guidance describes landfill caps as one possible component of the containment presumptive remedy. As such, EPA evaluated all of the components of the presumptive remedy of containment, including a capping alternative, when EPA made its remedial decision in the interim ROD. See also Response to Comment 8.1.

EPA has been receptive to non-capping alternatives suggested by the Respondents, and has done its best to evaluate these alternatives thoroughly. EPA's analysis of the alternatives in the ROD has led EPA to the conclusion that Alternative 4c is most likely to provide adequate protection at the most reasonable cost. None of the non-capping alternatives suggested by the Respondents provide a better balance of trade-offs than Alternative 4c. More specifically, there are many significant uncertainties associated with Alternatives 2b and 2b(ii) regarding their potential protectiveness, implementability, and cost that are not exhibited by Alternative 4c.

2.16 **Comment:** "E. The Leachate Collection and Treatment Alternative (2b) is Preferable to the Geosynthetic Cover with Passive Drainage Alternative (4c) Based on the NCP's Remedy Selection Criteria." [3] [17]

Response: EPA evaluated eleven alternatives in the ROD, including Alternative 4c - Geosynthetic Cover with Passive Drainage; Alternative 2b - Leachate Collection with Treatment Berm; and Alternative 2b(ii) - Leachate Seep Collection with Discharge to POTW. EPA's analysis, provided in the ROD, shows that neither Alternative 2b nor 2b(ii) pass the two "threshold criteria" that must be met in order to further consider an alternative against the other seven NCP criteria. Appendix A to the ROD explains that even when evaluated against the NCP balancing criteria, Alternatives 2b and 2b(ii) compare poorly relative to the selected Alternative 4c.

EPA concludes in the ROD that, based on EPA's analysis of all the alternatives that were considered, Alternative 4c provides the best balance of trade-offs among the alternatives with respect to the NCP remedy selection criteria. Of all the alternatives considered by EPA, Alternative 4c is the least expensive containment alternative that will effectively stem the generation and flow of contaminated leachate into the surface waters surrounding the landfill. EPA's analysis provides sound reasons why alternative 4c was selected and other alternatives were not.

EPA disagrees with the Respondents' analysis, and the Respondents' conclusions based on their analysis, which attempts to compare Alternative 2b(ii) with Alternative 4c with respect to the nine NCP criteria (Golder, 1995b.) In EPA's view, the Respondents' analysis fails to fully and fairly describe the concerns with Alternative 2b(ii). More specifically, the Respondents' evaluation of Alternative 2b unjustifiably overestimates the potential effectiveness of this unproven alternative, disregards potentially serious problems with regard to its implementability, and, based on the considerable uncertainties that EPA perceives with respect to this alternative's unproven technologies, significantly underestimates the likely cost of construction and operation and maintenance (O&M) of the proposed system.

EPA has been receptive to non-capping alternatives suggested by the Respondents, and has evaluated non-capping alternatives. Because EPA may end up implementing this interim containment remedy if an agreement cannot be reached that provides for the PRPs to do the work, it is in EPA's best interest, as well as the Respondents', to select an interim remedy that is most likely to provide adequate protection of human health and the environment at the most reasonable cost.

In EPA's view, it is not cost-effective to invest millions of dollars in constructing Alternatives 2b and 2b(ii), unproven technologies that would not be protective, not comply with ARARs, <u>might</u> be implementable, and are more costly to operate and maintain than Alternative 4c, which employs proven containment technology with known effectiveness, implementability, reliability, is protective of human health and the environment, complies with ARARs, and has lower operations and maintenance costs.

EPA's careful and thorough analysis of the alternatives described in this ROD leads EPA to the conclusion that Alternative 4c is the most appropriate interim remedy. The other alternatives simply do not provide a better balance of trade-offs with regard to the nine NCP criteria than Alternative 4c. Based on EPA's analysis, EPA selected Alternative 4c as the interim remedial action, in accordance with CERCLA, the NCP, and EPA guidance.

2.17 **Comment:** "F. The United States Senate Has Directed EPA to Undertake Actions at the Tulalip Landfill Which Require Region 10 to Withdraw the Proposed Plan Immediately." [2] [3] [8] [18]

Response: EPA disagrees with the conclusion of this comment. The language the commentor refers to is contained in the United States Senate Appropriations Committee Report that accompanied the HUD and Independent Agencies Fiscal Year 1996 Appropriations Bill. This funding bill has not been signed into law by President Clinton and therefore is not in effect.

EPA is currently conducting a comprehensive baseline risk assessment for the Site to support selection of a final remedial action at the Site. EPA expects the comprehensive baseline risk assessment may be completed in the summer of 1996. The comprehensive baseline risk assessment will be used to evaluate whether additional cleanup measures should be undertaken in the off-source areas to address contamination that has migrated to these areas from the landfill. A comprehensive baseline risk assessment is not necessary to develop early or interim alternatives for the source area of the landfill, nor would it allow development and evaluation of less expensive containment alternatives for the source area.

In addition, EPA notes that after the CERCLA statute is amended or an appropriations bill is signed into law, the Agency will review its requirements and make any appropriate changes in the way the Superfund program is being managed at all CERCLA sites, including the Tulalip Landfill Site. Also, the Agency at present cannot make any predictions regarding the EPA budget directives or anticipate what the final budget will be, how monies will be allocated for what actions, or what the provisions of a revised Superfund law will require. As such, EPA Region 10 believes it would be inappropriate to make changes to the Tulalip Landfill Site decision-making process until these legislative

changes are codified into law. For the present, the Region is proceeding with this interim remedial action based on current laws, regulations, and policies.

2.18 **Comment:** Commentor stated that the Tulalip Site is being investigated under the NCP and it is therefore not appropriate to use additional concepts applied under other programs, such as pollution prevention, to address the site. [2]

Response: The commentor appears to be focusing his comment on the statement made by Mr. Brian O'Neal, a technical consultant for The Tulalip Tribes, at the October 3, 1995 public meeting on the Proposed Plan for the Tulalip Landfill site. In discussing the appropriateness of the placement of a cap on the landfill, Mr. O'Neal drew an "analogy between the use of the EPA's pollution prevention program" and the selection of the cap. Mr. O'Neal's comment did not state that the cap was selected because of EPA's pollution prevention goals. The fact that the implementation of a cap may result in minimization of leachate production, and this reduction of leachate is consistent with the philosophy of pollution prevention, does not mean that EPA's selection of the cap was driven by the pollution prevention program. Rather, EPA's selection of a cap at the Tulalip Landfill was governed by CERCLA, the NCP, and EPA guidance.

2.19 **Comment:** Commentor stated that it would be prudent and good public relations for EPA to back off of settlements at this time, especially in light of impending legislation focused at removing the Tulalip Landfill from NPL listing. [2]

Response: EPA presumes that the commentor is referring to the de minimis settlements since no other settlement offers are currently available. EPA believes that offering settlement opportunities to de minimis parties is entirely appropriate and consistent with current EPA policy. EPA is allowing these parties to obtain a complete release from liability at the Site at a very early stage in the process. With respect to the portion of the comment regarding "impending legislation," EPA assumes that the commentor is referring to language in the United States Senate Appropriations Committee Report for the HUD and Independent Agencies Fiscal Year 1996 Appropriations Bill. The proposed report language would not require EPA to remove the Tulalip Landfill from the NPL; rather, the language directs EPA to conduct a comprehensive baseline risk assessment prior to

selecting a final remedy. Despite the fact that the funding bill has not become law, EPA is proceeding at the Site in a manner consistent with this language. A comprehensive baseline risk assessment will be completed prior to the selection of a final remedy which addresses site-wide contamination. EPA is aware of no impending legislation focused on removing the Tulalip Landfill from the NPL.

EPA notes, for further clarification, that some Tulalip PRPs have initiated a lawsuit in federal court that challenges EPA's listing of the Site on the National Priorities List. EPA is unable to comment further on the lawsuit because this litigation is pending. See also Response to Comment 4.1.

2.20 **Comment:** Commentor stated that the AOC was intended only to cover the conduct of remedial investigation and feasibility studies and that it did not bind the respondents into performing remedial action at the site. [2]

Response: EPA agrees with this comment. However, EPA notes that the RI/FS AOC does not provide a release from liability for the signatories to the AOC. The PRPs who signed the AOC remain potentially liable for any future costs related to any response actions at the Site.

2.21 **Comment:** Commentor asked who would be expected to pay for the long-term maintenance associated with an FML-type cap if it were installed at the landfill. [2]

Response: EPA expects to include, as part of settlement terms reached with PRPs in the future, requirements for the long-term maintenance associated with the selected interim remedy. Pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607, PRPs are liable for the response costs associated with the site clean-ups. The costs of long-term maintenance fall within the definition of response costs and are, therefore, the responsibility of the PRPs.

2.22 **Comment:** Commentor asked whether the EPA legally maintains authority over future development at the site given that the property is situated on the Tulalip Indian Reservation. [1]

Response: Pursuant to CERCLA, EPA has authority to take response actions to protect public health or welfare or the environment. Consistent with this authority, EPA has selected a remedy which addresses

potential or existing threats associated with the landfill located on the reservation. EPA's selected remedy may have an impact on future land development at the Site. As part of the remedial action, EPA will require institutional controls which will protect the integrity of the implemented remedy. EPA and the Tribe will develop a plan for "routine" future uses of the Site. This plan will also protect the remedy. See ROD Section 10.0 - Selected Remedy, for more information about institutional controls. See also Response to Comment 2.7.2.

2.23 **Comment:** Commentor asked if off-site wetlands that revealed contamination similar to what was found at the landfill would also become the responsibility of the PRPs. [1]

Response: The PRPs are potentially responsible for contamination at the Site. The extent of contamination at the Site includes the contaminant source area (i.e., the 147-acre landfill area, including the perimeter landfill berm), and any off-source areas that have been contaminated by discharges from the source area. Such contaminated off-source areas are part of the Site. The Site-wide FS, which has not yet been completed, will evaluate alternatives, including a "no-action" alternative, for cleaning up any contaminated off-source areas.

2.24 **Comment:** Commentor asked for clarification in meaning between the "Interim Cleanup Action" and the "Final Cleanup Action." [1]

Response: The interim cleanup action is an early, interim remedial action that EPA believes must be implemented at this time to contain the waste at the Site in order to protect human health and the environment. EPA expects that this interim remedial action will minimize the migration of contaminants from the source area to off-source wetlands, sloughs, and tidal channels. If, after construction of the selected interim remedial action (Alternative 4c) is completed, EPA determines, based on Site data, that Alternative 4c is not effectively containing the landfill wastes, additional containment action(s) for the source area, such as a perimeter leachate collection and treatment system, may be necessary. If such additional measures are necessary, they will be documented in the final ROD for the Tulalip Site, which will address any additional measures for the source area, as well as any remedial actions that may be necessary for the off-source areas of the site (such as cleanup measures for the off-

source wetlands, if necessary). For additional information, see interim ROD Section 4 - Scope and Role of Interim Response Action.

2.25 **Comment:** Commentor states that EPA's Presumptive Remedy Guidance assumes institutional controls will be necessary to restrict future activities at CERCLA municipal landfills in order to maintain the integrity of the containment system. The commentor states that EPA has ignored this fact by using the off-source media to justify a remedy that can only be applied to on-source media. [3]

Response: The commentor is inappropriately linking concepts that are not related in the way the commentor suggests. EPA agrees that the Presumptive Remedy Guidance states that institutional controls are appropriate to restrict future activities at CERCLA municipal landfills in order to maintain the integrity of the containment system. For example, an appropriate institutional control might be a prohibition on excavating holes through a landfill cover system, because holes would obviously reduce the effectiveness of the cover. However, such institutional controls have nothing to do with EPA's consideration of off-site data in the context of selecting a containment remedy for the source area.

It is entirely appropriate to consider off-site data (along with on-source data) when evaluating the potential need for an interim containment action at landfill sites because the basic goal of a containment action is to contain the landfill wastes, thereby reducing impacts of contaminants migrating from the source area to the off-source area. For this reason, in EPA's view, it would be difficult to make a sound decision on whether containment of a source area is needed in the absence of any off-source data. In fact, EPA's review of the RI data indicates that, at this time, the landfill wastes are not adequately contained; the RI data shows that the landfill is acting as a contaminant source, and contaminants are migrating from the landfill to off-source areas. The Streamlined Risk Assessment included an evaluation of off-source data to comparison numbers that are considered to be protective of human health and the environment, and found many exceedances of the comparison numbers, which indicated that the landfill poses a potential threat to the surrounding areas. A containment remedy would contain these contaminants and prevent on-source contaminants from moving to off-source areas, thereby reducing potential risks to humans and ecological receptors. If

the off-source data had showed no exceedances of the comparison numbers (which is not the case), EPA may have concluded that the landfill is not acting as a contaminant source to off-source areas.[23]

EPA is unclear as to the meaning of the commentor's reference to institutional controls as related to the off-source area. Consideration of off-source data during the interim remedy selection process is unrelated to the issue of institutional controls which, in the case of a solid waste landfill cover, are usually identified along with the selected remedy in the ROD to protect the integrity of the cover system after it is installed.

2.26 **Comment:** Commentor stated for the public record that the Seattle Disposal Company (SDC) previously requested an emergency injunctive motion for relief from the 9th Circuit and argued at the time that irreparable and immediate threat was present at the site. Commentor went on to state that now that the SDC is considered a viable PRP, they argue that risks at the site need to be evaluated before a remedy is selected, if a remedy is warranted at all. [2]

Response: Comment noted.

2.27 **Comment:** EPA's proposed remedy is not mandated by other environmental laws or standards and goes well beyond the "threshold criteria" of the NCP. [3]

Response: It is EPA's responsibility to fulfill the statutory mandates of all federal laws under its jurisdiction. CERCLA is just one of many laws which authorize EPA to respond to environmental problems. Since CERCLA and the NCP specifically govern response actions at sites where there has been a release or threatened release of hazardous substances which may present an imminent and substantial endangerment to public health or the environment, EPA is required to select a remedy which is consistent with the requirements set forth in CERCLA and the NCP, regardless of whether the remedy chosen is "mandated" by other environmental laws or standards. Although other laws and regulations may be ARARs at the Site, and therefore may be considered in selecting a remedy, only CERCLA specifically governs the selection of response actions at CERCLA sites. EPA believes it has

[23] On-source data must also be considered, because another purpose of a containment remedy is to prevent direct exposure to landfill contents.

conducted a thorough evaluation of alternatives through the use of the nine NCP criteria. EPA is confident that the remedy it has selected is the most appropriate to remediate the source area of the Site, and directs the commentor to ROD Section 9.0 - Summary of the Comparative Analysis of Alternatives, for further information regarding EPA's evaluation.

3.0 PRE-CERCLA CLOSURE HISTORY

3.1 **Comment:** Commentor asked if EPA approved the closure of the Tulalip Landfill in 1979 and 1980 after the cover was placed. [2]

Response: At the insistence of EPA, the landfill was closed and capped in 1979 pursuant to the Rivers and Harbors Act of 1899, 33 U.S.C. §§ 403,407 and the Clean Water Act, 33 U.S.C. §§ 1311, 1319, 1342, and 1344. The closure and capping was performed in accordance with a consent decree, which was executed by EPA, Seattle Disposal Company and the Tulalip Tribes and entered in the U.S. District Court for the Western District of Washington. However, the filling and initial capping of the landfill as provided in the consent decree, while completed and approved in 1979, failed to halt the discharge of contaminated leachate from the landfill. As a result, further remediation of the landfill is necessary at this time. The current PRPs at the Site did not receive a complete release from future liability at the Site through the 1979 consent decree, therefore they are still responsible for the response costs under CERCLA to address ongoing problems at the Site.

3.2 **Comment:** Commentor asked why, if the original closure and containment of the landfill was accepted in 1979, PRPs are now being asked to address problems at the site. [1] [12]

Response: The PRPs are being asked to address problems at the Site because the original closure and containment of the landfill did not successfully eliminate the production and discharge of hazardous substances from the Landfill into the environment.

3.3 **Comment:** Commentor indicated that EPA had required Marine Disposal to cover the landfill with two feet of clean fill and that EPA had inspected and accepted the completed cover. The commentor indicated that EPA should honor its release and that pre-1979 parties should have no further liability. [2]

Response: Marine Disposal was required to comply with all existing regulations governing the capping of a landfill. Included in those requirements were the state MFS which, consistent with technical knowledge of capping technology at the time, dictated placing two feet of clean fill on the landfill as part of the capping effort. CERCLA is a strict liability statute which means that a person can be held liable for costs of cleanup regardless of fault. Despite efforts to cover the Site in 1979, which were consistent with current laws and regulations at that time, the cap installed at the time was ineffectual in remediating the contaminant problem at the Site. No PRPs were given a complete release from liability under the Consent Decree for their contribution to the remediation of the Site at that time. Thus, Marine Disposal Company remains liable for the costs of remediating the Site according to current laws and regulations.

3.4 **Comment:** Commentor indicated that the Tulalip Tribes, with the permission of EPA, reopened the landfill in 1986 to accept demolition debris and in doing so, disturbed the cover. The commentor stated that the Tulalip Tribes should continue to develop the site as originally intended and that it is not EPA's responsibility to continue this development or compensate the Tulalip Tribes for loss of natural resource land which the Tulalip Tribes elected to fill. [2]

Response: EPA's responsibility is to respond to the release of hazardous substances into the environment. Leachate containing hazardous substances continues to be generated and released from the landfill. EPA has the authority under CERCLA to require any persons who are defined as potentially liable parties under Section 107 of CERCLA, 42 U.S.C. 9607, to pay for the costs of responding to that release. Additionally, EPA has no evidence that the acceptance of demolition debris for the purpose of building roads on the landfill as part of a capping effort to address ongoing leachate discharges disturbed the cover of the landfill.

3.5 **Comment:** Commentor asked why EPA, if they are concerned with remediating leachate discharges under Superfund, allowed the Tulalip tribes to violate their NPDES permit since at least 1986. Also EPA allowed toxic dumping to be done after the site was legally closed. [2] [8]

Response: As stated in Response to Comment 2.8.1., EPA's obligation to take enforcement action for violation of NPDES permits is wholly discretionary. EPA has determined at this time that the appropriate means of addressing the leachate problem at the Site is not through enforcement of the NPDES permit, but rather, through the remedy selection process under CERCLA. Under CERCLA, EPA can require extensive study of the Site and can evaluate a number of alternatives for remediation of the Site so that it can choose a response action which most comprehensively and effectively addressees the contamination.

EPA did not allow toxic dumping to be done after the Site was legally closed. In 1986, the Tribes applied for an NPDES permit solely for the purpose of placing additional capping material on the landfill to correct the previous inadequate closure of the landfill. The original permit allowed the Tribes to obtain low permeability soil from a freeway construction project near Seattle. However, the soil did not become available and EPA modified the NPDES permit in 1987 to allow placement of capping materials from other sources. The permit contained provisions which required the sources of capping material to be screened for hazardous substances prior to their placement on the landfill. Due to problems in obtaining adequate types and amounts of capping material, only a small portion of the capping volume approved by EPA was actually placed at the Site. The Tribe's limited capping activities at the Site from 1987-1990 resulted primarily in construction of a grid of roadways rather than the corrective capping envisioned. EPA is not aware of any information which indicates that any hazardous substances have been transported to the Site since 1979.

4.0 NPL LISTING

4.1 **Comment:** Commentor suggested that the rationale employed in classifying the site as a Superfund site was flawed and required further explanation. [1]

Response: On April 25, 1995, EPA promulgated a final rule adding the Tulalip Landfill site to the National Priorities List (NPL) (60 Fed. Reg. 20330). The site had been proposed for inclusion on the NPL on July 29, 1991 (56 Fed. Reg. 35840). The rationale employed in classifying the site as a Superfund site is based on the criteria in the Hazard Ranking System (HRS)

established by the National Contingency Plan, 40 C.F.R., Part 300 under Section 105(a)(8)(B) of CERCLA, as amended.

EPA received few comments on the proposal during the 60 day public comment period. However, voluminous late comments were received by EPA from some of the PRPs well after the close of the comment period. EPA carefully evaluated all comments received prior to the final listing decision and specifically responded to the claim by some commentors that its rationale was "flawed". This response can be found in the Support Document for the Revised National Priorities List Final Rule-April 1995 (EPA, 1995b).

EPA has followed all of the Administrative Procedures Act requirements that govern this informal rule-making as well as the specific criteria for listing a site on the NPL established by regulation.

5.0 TRIBES' ROLE

5.1 **Comment:** Commentor asked what settlement amount is being offered to the Tulalip tribe as their portion of the responsibility for the site contamination, and what things they are being required to do to take care of the cleanup. [2]

Response: The Tulalip Section 17 Corporation[24], U.S. Bureau of Indian Affairs, generators, transporters, and users of the site are currently participating in a cost allocation process. The purpose of this process is to determine the fair share of response costs that each of the parties should pay. EPA intends to discuss settlement terms with parties after the conclusion of the allocation process.

5.2 **Comment:** The commentor stated that the Tribes should have to pay for the entire cleanup. They were paid for use of the landfill. The Tribe caused the problem. [9] [15] [17]

Response: Pursuant to CERCLA, owners and operators of the Site as well as generators and transporters of hazardous substances found at a Superfund Site are liable for cleanup costs associated with a site.

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[24] The Tulalip Section 17 Corporation leased the Site to the Seattle Disposal Company for landfill operations and was also involved in post-1980 capping activities at the Site.

Therefore, other parties in addition to the Tulalip Section 17 Corporation, are responsible for response costs incurred at the Site.

5.3 **Comment:** Commentor asked if the participation of the Tulalip Tribes' representatives at the October 3 public meeting was funded by EPA under a specific cooperative arrangement. [2]

Response: The Tribes' participation, including Tribal members, the Tribes' Superfund Coordinator and technical consultants, at the Public meetings held by EPA on August 22, 1995 and October 2, 1995 was not funded by EPA. However, EPA notes that, to assist the Tribes' involvement in the Superfund process, EPA entered in to a Memorandum of Agreement (MOA) with the Tribes on February 11, 1992. The MOA was amended on September 9, 1992 to include the Bureau of Indian Affairs as a signatory. EPA also granted the Tribes a Superfund support agency cooperative agreement under Section 104 of CERCLA, which continues to provide funds for the Tribes' Superfund coordinator.

6.0 ARARS

6.1 **Comment:** Commentor asked for an explanation of how EPA could consider MFS as ARARs for this site and what efforts EPA has made to determine how Department of Ecology has applied current MFS to landfills that were closed before those standards were adopted. [2]

Response: See the Responses to Comments 2.12., 2.12.1, 2.12.2, 2.12.3 and 2.12.4 regarding the applicability of MFS as an ARAR for the Tulalip site.

EPA, in accordance with the EPA/Ecology Memorandum of Understanding of August 18, 1994[25], has provided Ecology with periodic updates regarding past and projected activities at the Tulalip site.

[25] Environmental Protection Agency, Region 10, Washington State Department of Ecology, Superfund management in Washington, August 18, 1994 describes the role EPA and Ecology will play at each NPL site in the State of Washington.

According to Mr. Pete Kmet[26], Senior Environmental Engineer, Toxics Cleanup Program, Washington Department of Ecology, the current MFS are required at all solid waste landfills requiring remedial action under MTCA, regardless of the date that the landfill was closed. WAC-173-340-710(6)(c) states:

> "Solid waste landfill closure requirement. For solid waste landfills, the solid waste closure requirements in chapter 173-304 WAC shall be minimum requirements for cleanup actions conducted under this chapter. In addition, when the department determines that the closure requirements in chapter 173-303 WAC are applicable requirements, the more stringent closure requirements under that law shall also apply to cleanup actions conducted under this chapter."

7.0 HR 2099

7.1 **Comment:** Commentor asked EPA if it plans to follow the direction of the Senate and if it plans to undertake an alternative dispute resolution process which involves a neutral party. The commentor also indicated that the public meeting directed by a neutral facilitator does not constitute a neutral party dispute resolution process as defined by the U.S. Senate. [2]

Response: EPA will address any pending legislation when it becomes final. See Responses to Comments 2.6 and 2.17.

8.0 CONSISTENCY WITH OTHER SITES

8.1 **Comment:** Commentor stated that they did not believe that the presumptive remedy was synonymous with an impervious cap, and that of 30 sites which went into a documented presumptive remedy, only 24 had low permeability caps. [2]

Response: EPA agrees that the presumptive remedy is not "synonymous" with an impervious cap and that the presumptive remedy specifies containment as the presumptive remedy for municipal landfills. For

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[26] Personal communication by Lynda Priddy on February 15, 1996. Mr. Kmet cited WAC 173-340-710(6)(c) as applicable to all solid waste landfills, regardless of the landfill closure data (if any), determined to require a remedial action pursuant to MTCA.

further details, see the Response to Comments 2.7.1 and 2.15. According to EPA's Guidance "Presumptive Remedy for CERCLA Municipal Landfill Sites" (EPA, 1993a) components of containment include features such as a cap, groundwater controls, leachate collection and treatment, gas collection and treatment, etc.

EPA also agrees that 24 of the 30 or 80% of the sites studied as background for the presumptive remedy had an low permeability cap. EPA notes that all 30 sites either already had a cover, or the ROD called for repairs of an existing cover, or the ROD called for construction of a new cover.

In EPA's memorandum "Presumptive Remedies and NCP Compliance" (EPA, 1995a) the Agency notes that flexibility is also needed to take into account unique site characteristics. EPA agrees that the presumptive remedy does not dictate a cover and based on EPA's experience other alternatives are sometimes selected. Unique site characteristics can lead the Agency to select different remedies at seemingly similar sites.

The reason Alternative 4c, which is a geosynthetic cap, has been chosen for the Tulalip Site is that Alternative 4c satisfies all of the NCP remedy selection criteria EPA uses to evaluate remedial alternatives. Other remedial alternatives, some of which include only a leachate collection system without a cap, were also evaluated according to the same NCP criteria and failed to satisfy EPA's remedy selection criteria. For more information about the remedy selection process and evaluation used for remedial alternatives, see the Response to Comment 1.1, and ROD Section 9.0 - Summary of the Comparative Analysis of Alternatives. See also the Response to Comment 2.7.1 (Highlight 1) for more information about the components of a containment remedy.

8.2 **Comment:** The commentor has been unable to identify a single closed landfill required to be remedied to meet MFS. [3]

Response: See Responses for Comments 2.12, 2.12.1 - 2.12.4, 6.1, and 8.1.

8.3 **Comment:** Commentor stated that the Tulalip Landfill was evaluated differently than five other CERCLA landfills (Old City of York, Whidbey Island NAS, OU 2/3, Whidbey Island NAS, OU 4/5, Hamilton Island Landfill and Everett Landfill). The processes used in evaluating the other landfills, but not used for the

Tulalip Landfill, include: (1) screening level assessments were conducted to screen out chemicals and media of potential concern; (2) baseline risk assessments were conducted (except where the screening assessment identified negligible risk); (3) background concentrations of all media were evaluated; (4) screening values were appropriately applied; (5) site data were appropriately used; and (6) remedial impacts were completely evaluated. [3]

Response: See Responses to Comments 2.4.1 and 2.14.

8.4 **Comment:** Commentor suggested that EPA's cleanup approach at the landfill was not consistent with other remedy selections at other federal facilities within Region 10. [1]

Response: EPA cannot respond specifically to the comment because the Agency is not sure what the commentor means by "other federal facilities". See Responses to Comments 2.4.1 and 2.14 for responses to other similar comments regarding consistency with other sites.

8.5 **Comment:** Commentor asked if EPA or its consultant, Weston, had reviewed or evaluated the RODs for the Whidbey Island, Hamilton Island, and Columbia River landfills prior to issuing the Proposed Plan on August 4, 1995. [2]

Response: CERCLA and the NCP require that EPA base its remedy selection on the weighing of nine NCP criteria, not on the evaluation of RODs from other similar sites. Consequently, EPA did not specifically evaluate each ROD for the above-mentioned sites before EPA issued the Proposed Plan for the Tulalip site. Instead, EPA followed the Presumptive Remedy process for abbreviating the RI/FS and remedy selection processes.

The basis of the Presumptive Remedy Guidance is an evaluation of the process and decisions at 30 similar landfills. EPA's Presumptive Remedy Guidance identified those alternatives that satisfy the nine NCP criteria. EPA maintains consistency by following not only CERCLA and the NCP but also appropriate Agency guidance and policies.

In preparing for the Responsiveness Summary, EPA has examined the RODs for the two operable units at Whidbey Island NAS OUs 2 and 4 and Hamilton Island. (EPA does not know what the commentor means by "Columbia River Landfills" and therefore can not respond to that part

of the comment). EPA has determined that the investigation and evaluation processes for these sites differed from the Tulalip Site because these sites did not follow the presumptive remedy process. The Whidbey Island OUs and the Hamilton Island Site were construction debris landfills, whereas the Tulalip Site was a commercial/industrial landfill where hazardous substances were disposed. Construction debris landfills are not similar in terms of risk concerns to municipal landfills or commercial/industrial landfills.

Additionally, based on early RI data gathered at the Hamilton Island Site, it became clear to the Agency that remedial action at the Site may not be necessary. However, to fully substantiate a no remedial action determination for Hamilton Island, EPA conducted a comprehensive baseline risk assessment. In contrast, at the Tulalip Site, where RI data indicated the possible need for remedial action, a streamlined baseline risk assessment was sufficient to support the need for remedial action. Also, Tulalip Landfill, unlike the Whidbey Island OUs and the Hamilton Island Site, was sufficiently similar to municipal landfill sites that utilizing the presumptive remedy process at Tulalip was appropriate. See Responses to Comments 1.1, 2.1, 2.4.1 and 2.14 for more details.

8.6 **Comment:** Commentor indicated that remedial activities at Whidbey Island (EPA assumes the commentor means OUs 2 and 4 as in other comments made by the commentor), Hamilton Island, and Columbia River did not involve an impermeable cap. The majority of these landfills used a "comprehensive baseline risk assessment" rather than a "screening level risk assessment." Additionally, frequency of detection and background data were taken into account in the "baseline risk assessments." [2]

Response: As explained in the Responses to Comments 2.4.1 and 2.14, these sites did not follow the presumptive remedy process and therefore these sites are not comparable to Tulalip Landfill, for which EPA and the Respondents agreed the presumptive remedy approach was appropriate. Under the presumptive remedy process which EPA followed for the Tulalip Site, a streamlined baseline risk assessment is sufficient to justify an interim remedial action. EPA does not know what the commentor means by the "Columbia River" site.

8.7 **Comment:** Commentor indicated that the Tulalip Landfill shares few similarities to landfills located at Whidbey and Hamilton Islands and that drawing comparisons between these landfills is inappropriate. [2]

Response: EPA agrees that these sites are not similar to the Tulalip Landfill and are not good examples to use in comparing investigation and evaluation processes. See Response to Comment 2.4.1 and 2.14.

9.0 HYDROGEOLOGICAL ISSUES

9.1 **Comment:** Commentors asked if lateral or tidally influenced flow of groundwater is present through on-site waste and if groundwater flow beneath the site would continue to be effected by existing wastes at the site even after surface infiltration of rain water was eliminated. If so, the commentors asked how the current recommended action would prevent horizontal contaminated groundwater flow from influencing Zone 1 and Zone 2 groundwater. [1] [4]

Response: EPA expects that installation of a cap on the landfill will significantly reduce the downward and horizontal movement of contaminated groundwater by reducing rainfall as a source of groundwater recharge. Groundwater modeling suggests that Alternative 4c is expected to reduce the average infiltration of rainfall by more than 99 percent. Rainfall is the primary source of groundwater in the refuse layer (Zone 1) at the Tulalip Landfill. Rainfall also provides the primary driving force for groundwater discharging to the seeps and recharging to a deeper layer beneath the refuse (Zone 2). Currently, the water level in the landfill is generally higher than the water level in the surrounding sloughs. Groundwater tends to flow from areas with higher water levels to areas with lower water levels. Groundwater in Zones 1 and 2 is currently flowing radially away from the center of the landfill towards the sloughs. During the summer months when little rainfall occurs and the water level in the refuse layer is lower, the number of seeps decreases; during the winter months when abundant rainfall occurs and the water level in the refuse layer is higher, a greater number of seeps are found. Installing a cap on the landfill is expected to eliminate the downward and lateral movement of groundwater through the refuse and the formation of seeps by cutting off rainfall as the source of groundwater recharge. As a result, most waste will no longer be saturated or subject to infiltration by rainwater.

EPA believes that groundwater in the refuse layer (Zone 1) is not significantly (if at all) impacted by tidal fluctuations, based on EPA's review of the results of a 72-hour tidal study conducted by the PRPs and described

in the Remedial Investigation report (HLA, 1995, Section 3.6). Water levels in Zone 1 monitoring wells are several feet higher than the high tide levels in the surrounding sloughs.

A relatively small amount of the refuse is located within the Zone 2 interval below the landfill (i.e., within the former barge canals). Regional groundwater flow is expected to resume within Zone 2 once the groundwater mound in Zones 1 and 2, caused by infiltration of rainfall into the landfill, is reduced or eliminated by Alternative 4c. EPA expects that the rate of migration of contaminants in Zone 2 to the sloughs will be significantly reduced due to the lower groundwater flow velocities anticipated under the regional groundwater flow gradient and because of the reduced volume of waste available for leaching.

9.2 **Comment:** Commentor asked how much leachate is presently discharging from the site and how much leachate was expected to discharge with the implementation of Alternative 4c. [1]

Response: Leachate currently discharges through leachate seeps in the perimeter landfill berms onto wetlands surrounding the Site, and down into the Zone 2 aquifer and then into the sloughs. Construction of the Alternative 4c landfill cap is expected to reduce the total leachate discharges from the landfill from approximately 130 gallons per minute (gpm) to less than 0.4 gpm (Golder, 1995a, Table 3-2); this represents a reduction of more than 99 percent. Discharges of leachate through the <u>seeps</u> is expected to be eliminated in approximately 2 years.

Based on field observations and estimates from the groundwater modeling developed by the AOC Respondents and summarized in the RI Report (HLA, 1995, Section 3.4) and the FS Report (Golder Associates, 1995a, Section 1.2.4), between 6 and 45 gpm currently discharge from the surface seeps. Discharge is higher during rainy months and lower during relatively dry summer months. Leachate seeps represent about 5 percent to 35 percent of the total groundwater discharge from the refuse layer. According to groundwater modeling estimates, 65 percent to 95 percent (43 to 82 gpm) of the leachate currently discharges into the Zone 2 sand layer beneath the landfill.

Approximately 2 years following construction of the Alternative 4c cap, any leachate present under the cap

is expected to move into the underlying Zone 2 layer. The surface seeps would be eliminated due to the lowering of the groundwater level within the refuse layer to an elevation below that of the seep locations. The amount of leachate discharging to Zone 2 is expected to drop rapidly for the first couple of years following construction of the cap and then decrease more gradually to nearly zero within a decade. For other alternatives such as the various leachate interception proposals (e.g., Alternatives 2b and 2b[ii]) the amount of leachate discharging to Zone 2 will drop rapidly over the first year following construction, but will then fluctuate widely between less than 1 gpm to 50 gpm due to seasonal variation in rainfall infiltration (Golder Associates, October 1995b, Figure 4-1). This is based on the assumption that the leachate interception system will operate at 100% efficiency, which is unlikely. If the leachate interception system operates at less than 100% efficiency, due to fouling or plugging, then the discharge to Zone 2 would increase. The seasonal variation in leachate discharge predicted for the leachate interception alternatives results from the lack of an impermeable cap that would prevent the generation of leachate during the rainy seasons.

10.0 DATA QUALITY/DATA EVALUATION OF 1988 SITE DATA

10.1 **Comment:** Commentor expressed the opinion that Tulalip Landfill EPA Case 8956[27] data are questionable and should not be relied upon for quantitative purposes. Specifically, their findings call into question all data produced by CompuChem for Case 8956 and reportedly provide evidence of flaws in data produced by Rocky Mountain Analytical Laboratories (RMAL) for Case 8956. Commentor indicated that the contents of several documents support their argument. These documents include: correspondence from EPA's Office of Inspector General and associated memoranda concerning the Investigation Referral Contract Lab Program; an internal EPA investigative report of the agency's Environmental Monitoring Systems Laboratory (EMSL); telephone logs; data validation checklists and data assessments; and excerpts from deposition transcripts from an EPA employee and CompuChem employees. [3]

[27] EPA Case 8956 refers to the sample group number for the 1988 surface soil and water data for the source area of the Tulalip Landfill.

Commentor suggested that CompuChem's data should be disqualified due to the laboratory's possible failure of performance evaluation (PE) samples and its failure to comply with established EPA procedures. Commentor asserted that the results of the quarterly blind PE samples analyzed between October 1987 to May 1988 should be obtained and evaluated. [3]

Further, because the commentor was not provided with any telephone logs documenting dialogue between EPA, CompuChem, or RMAL, the commentor suggested that participating laboratories failed to inform EPA of problems as they arose (e.g., a broken sample container and a lost sample). Commentor indicated that this represents a direct conflict with the 7/87 and 10/86 CLP SOW. [3]

Response: Regarding the reliability of the data from Case 8956, EPA has re-reviewed the data and made a determination that the data is reliable for its use in the Streamlined Risk Assessment. This review can be found in the Support Document for the Placement of the Tulalip Landfill on the National Priorities List (EPA, 1995b). In instances where qualified data were used by EPA, the potential bias associated with the qualified data relative to human health or ecological based levels of concern was considered. One such example would be the use of contaminant data that is above human health or ecological based levels and has an associated data qualifier describing its value as being potentially biased low (meaning that the true concentration of the contaminant may be higher).

Regarding CompuChem's performance in analyzing PE samples, EPA has reviewed the PE samples that were relevant to Case 8956 (QB2 and QB3 were analyzed before and after samples for this Case) and found a very slight exceedance of the acceptable limit for benzene in QB2 and a low bias reporting the phenol compounds in QB3. With these results, in addition to all quality control data for Case 8956, EPA finds no valid reason to disqualify CompuChem's data for Case 8956.

Regarding the absence of telephone logs between EPA, CompuChem or RMAL, concerning a broken sample container and a lost sample, shipment or discrepancies in the documentation are resolved with the Sample Management Office (SMO) and noted in the comments section of the "Contents for Gray Envelope". The Gray Envelope may not be found with the sample batches for the Tulalip Landfill; however, this information is redundant because the Field Sample Data and Chain-of-Custody form

and the Organic Sample Traffic Report form would also record receipt of the samples by the laboratory. (For further details see Woods, 1996 in the AR for the interim ROD.)

10.2 **Comment:** Commentor concluded that one or more flaws exist with the EPA Case 8956 data. In summary, it is the opinion of the commentor that the data is considered flawed and not reliable for quantitative use because of (i) the high percentage of qualified data; (ii) the omissions and errors of participating laboratories and field sampling personnel to comply with established procedures required by EPA; and (iii) the inability of EPA to provide the complete file purge documentation for CompuChem or RMAL which is necessary to verify that all laboratory procedures were followed. [3]

Response: See Response to Comment 9.1. In addition, in its review of the documentation, EPA could find no significant deviations from procedures by participating laboratories or field contractors that would warrant rejecting any of the data from Case 8956 that has been used. For more specific information, see the Support Document for the placement of the Tulalip Landfill on the National Priorities List (EPA, 1995b).

Regarding complete file purge documentation, EPA agrees that two documents may be missing for some of the data. However, the information in these documents is redundant and can be obtained from information in other documents that are part of the sample data package. For further details see Woods, 1996 in the AR for the interim ROD.)

10.3 **Comment:** Commentor states that many errors were committed by (i) the EPA's contractor (i.e., Ecology & Environment, Inc.) in sample documentation, (ii) the EPA in copying the original data, and (iii) the contract laboratories in reporting data. These errors are summarized below. [3]

- Chain-of-custody (COC) records for organic data were broken.
- No COC for copies were observed with signatures and data and time of sample receipt by laboratory.
- The COC forms for both inorganic and organic samples did not document if container custody seals were intact.

- The sample descriptions from the inorganic laboratory data indicated that many of the water samples were collected improperly (i.e., some of the samples were described as cloudy, thus suggesting that particulates from the sediment were introduced into the sample at the time of collection).

- The complete "case file purge" for both organics and inorganics was not available. This should have included (i) the worksheets necessary to verify the percent moisture content of the organic sediment sample data; (ii) sample tags and sample tracking records within the laboratory; and (iii) documentation describing the condition of sample bottles upon receipt (e.g., temperature).

Response: With regard to missing Chain-of-Custody (COC) forms or COC forms without signatures and dates of receipt by the laboratory and verification of sample condition, EPA has addressed these deficiencies along with the available redundant information found in the signed Traffic Reports from the labs. This information can be found in the Support Document for the Placement of the Tulalip Landfill on the National Priorities List (EPA, 1995b).

Regarding the worksheets for verifying percent moisture content of the organic sediment data, additional verification of percent moisture data can be acquired from the inorganic data packages since both the inorganic and organic laboratories perform this same determination on split samples.

Regarding sample tracking records within the laboratory, EPA has reviewed the previously identified audit reports for these labs and has found that sufficient sample tracking procedures were in place at the time that Case 8956 samples were within these facilities. (For further details <u>see</u> Woods, 1996 in the AR for the interim ROD).

Regarding the confirmation of sample temperature upon receipt, EPA believes that elevated sample temperatures would have resulted in an overall low bias for some organic compounds and possibly mercury results. For sample results that were measured above Human Health or Ecological based levels of concern, EPA believes the data to be suitable for its intended use.

10.4 **Comment:** Commentor stated that neither the EPA's Support Document (April 1995) for the placement of the Tulalip Landfill on the National Priorities List nor the additional documents provided to the PRPs alleviate these concerns. [3]

The commentor questioned the reliability of the RMAL and CompuChem generated data based on the laboratories (i) non-compliance with the contract laboratory program statement of work (SOW) requirements for sample tracking procedures; (ii) analysis of samples by staff lacking documented credentials; (iii) RMAL's lack of standard operating procedures (SOPs); and (iv) CompuChem's failing scores on the performance evaluation samples. [3]

Response: Regarding PE scores, see Response to Comment 9.1. EPA has reviewed the commentor's concerns regarding alleged non-compliance with CLP SOW requirements for sample tracking, credentials of laboratory staff and status of RMAL's SOPs. Upon reviewing audit reports and available documentation, EPA believes that the commentor's expectations of the level of detail contained in internal tracking documents are much higher than what EPA expected or required of the laboratories under contract. At the time samples for Case 8956 were within the laboratories, these facilities met the requirements of the CLP SOW for internal sample tracking. (For further details see Woods, 1996 in the AR for the interim ROD).

Regarding the status of RMAL's SOPs, audit reports of RMAL cite the absence of SOPs. This occurrence makes reference to an instance where the agency had not forwarded the SOPs to the contract auditor in time for the audit. (For further details see Woods, 1996 in the AR for the interim ROD).

Regarding laboratory staff credentials, EPA acknowledges that the Routine On-site Audit Reports and Data Package Audit Reports state that staff resumes have not been submitted to the Agency (a contract requirement at the time). However, during the on-site audits, the auditors did make a determination that the personnel performing specific job duties met the required educational and experience requirements, despite the fact that they did not have the required resumes on file with the Agency. (For further details see Woods, 1996 in the AR for the interim ROD).

11.0 STREAMLINED BASELINE RISK ASSESSMENT FOR INTERIM REMEDIAL ACTION

General Comments

11.1 **Comment:** The commentor agrees with the Risk Assessment findings and believes the assessment is a valid basis to proceed with the interim remedy. The commentor also supports the time line for implementing the remedy and opposes the extension of the public comment period because it interferes with the timely remediation of the site. [10]

Response: In response to the extension requests from PRPs, EPA agreed twice to extensions of the public comment period from 30 days to a total of 80 days. This 80-day comment period for the Proposed Plan was 50 days longer than the minimum defined by the NCP. EPA does not believe the extension will significantly delay the construction and operation of the remedy. However, EPA denied a subsequent request for an additional extension of the comment period because EPA believes 80 days is sufficient time to comment. Also, the Agency has not developed responses to comments submitted to EPA after the close of the comment period for inclusion in the Responsiveness Summary unless information submitted with the late comments would significantly alter the response action at the site.

11.2 **Comment:** The commentor claims that the Risk Assessment was manipulated to support a predetermined remedy, namely 4c, and that The Tulalip Tribes have wanted this area to be filled for commercial development since the early 1960s. [8]

Response: The Streamlined Risk Assessment, as explained in earlier responses (see Responses to Comments 1.1, 2.1 and 2.7.1), was a streamlined baseline risk assessment that satisfies all the pertinent requirements of CERCLA, the NCP, and EPA's presumptive remedy and risk assessment guidance. The interim containment remedy selected by EPA for the Tulalip Landfill source area falls within the scope of a presumptive remedy. Additionally, when selecting a remedy, EPA must follow a prescribed procedure that involves an evaluation of the alternatives under consideration against evaluation criteria set forth in the NCP. EPA has completed this process of evaluation and has determined that Alternative 4c is the most appropriate remedy for the Site. It was only after the completion of the Streamlined Risk Assessment and the evaluation of the alternatives that EPA determined

Alternative 4c to be appropriate. The rationale for selecting Alternative 4c is documented for public comment in the Proposed Plan and interim ROD. Based on this evaluation, EPA concluded that the Alternative 4c provides the best balance of trade-offs among the alternatives with respect to the nine NCP criteria that EPA uses to evaluate alternatives.

EPA cannot comment on what The Tribes' plans were for the Site in the early 1960s.

11.3 **Comment:** A cleanup decision can not be made at this time because the Risk Assessment is flawed. [6]

Response: EPA does not agree that the Streamlined Risk Assessment is "flawed". The Streamlined Risk Assessment was developed in accordance with CERCLA, the NCP, and EPA guidance. It is sufficient to support EPA decisionmaking with regard to an interim response action at the Site, and contains no deficiencies that would prohibit it from being used for this purpose. If the commentor is stating that the Streamlined Risk Assessment should be a comprehensive baseline risk assessment, then the commentor should <u>see</u> the Responses to Comments 2.1, 2.1.1, 2.1.2, 2.2, 2.3.1 and 2.3.2. For information about the 1988 data quality, <u>see</u> Responses to Comments 2.9.2, 2.9.3 and 2.9.4.

11.4 **Comment:** Commentor asked if the risks in the "screening risk assessment" are accurate and real. [2]

Response: The Streamlined Risk Assessment provides a comparison of site data to "comparison numbers" considered to be protective of human health and environmental resources, which include chemical concentration standards, criteria, and risk-based concentrations. Based on the results of the RI and the Streamlined Risk Assessment, which show exceedances of the comparison numbers in on-source and off-source media, EPA has concluded that an interim remedial action is necessary to address these risks. According to CERCLA, the NCP, and EPA guidance on presumptive remedies, the information and analyses provided in the Streamlined Risk Assessment are sufficient for decisionmaking purposes regarding an interim remedial action. Appendices A and B of the Streamlined Risk Assessment provide additional information on how some of the comparison numbers were developed, and why exposure to chemical concentrations that exceed the comparison numbers is expected to lead to adverse effects. For a discussion of the target risk levels used by EPA from the Region III risk-based calculations

and the MTCA Tables, see Responses to Comments 11.9, 11.10, 11.17, 11.31 (last bullet), 11.32, 11.33 and 11.38.

11.5 **Comment:** Commentor stated that a discussion of the various options for future development of the site should be included in the Risk Assessment because most readers will not have access to the land use document referenced in the report. [3]

Response: While a detailed discussion for future land uses was not included in the Streamlined Risk Assessment, conservative exposure assumptions were incorporated in the Streamlined Risk Assessment to ensure that exposures associated with any possible future uses would be evaluated and considered during remedy selection. Historically, EPA has been criticized for selecting remedies that have, in effect, "placed a fence around a site" and prohibited any future productive use of the site. Accordingly, relatively recent EPA guidance indicates that EPA should consider future land use during the remedy decision process as EPA has done at the Tulalip Landfill (EPA, 1995c).

The information requested by the commentor is contained in the Big Flats Land Use Program (Tulalip Tribes, 1994) document, referenced in the Streamlined Risk Assessment. This document is part of the Administrative Record for this project and is therefore accessible to the public. In summary, this document states that the Tulalip Landfill on-source area has been placed in an "industrial" use category. Any future "industrial" or "commercial" use of the landfill surface should be limited to ensure the continued integrity of the containment system. The wetlands areas adjacent to the landfill have been placed in a "conservation" use category. According to the description of "Conservation" use, no development may occur in these areas with the exception of utility crossings.

It should be noted that a landfill cover is not an ideal surface for future development. While a landfill cover would allow some limited use or development on the landfill surface, significant restrictions are necessary to prevent damage to the cover system are included in the selected remedy. When design and construction are complete, EPA and The Tulalip Tribes will develop a document titled "Routine Use of Tulalip ('Big Flats') Landfill" that delineate which routine site uses may occur and which routine site uses shall

not occur on the surface of the cover. Any commercial or development activity on the surface will require a written agreement between EPA and the Tribes to ensure the continued integrity of the cover.

As a point of clarification, the term "industrial" as defined by the Tulalip Tribes is different from the State of Washington MTCA definition of "industrial." See Responses to Comments 11.10, 11.37 and 11.38.

11.6 **Comment:** The commentor stated that extensive valuable ecological and chemical data collected during the remedial investigation were not, but should have been, used in the Risk Assessment[28] Specifically, the commentor requested a reason why the following data were not used: [3] [8] [17] [18]

- Studies of the degree to which landfill chemicals accumulated in shellfish and small mammals.

Response: Due to problems with the quality of some of the RI analytical data developed by the AOC Respondents, EPA required certain parts of the RI to be repeated, including sampling and analysis of shellfish and small mammals. Therefore, these data were not available for the Streamlined Risk Assessment. However, these data are not necessary to select an appropriate interim containment remedy for the Site. The Streamlined Risk Assessment is a complete document that contains sufficient information to proceed with selection of an interim remedy for the source area. These data are appropriately included and will be evaluated in the comprehensive baseline risk assessment, which will assess potential risks to the off-source wetland resources surrounding the landfill. Accordingly, the data will be available and used in the comprehensive baseline risk assessment and remedy selection evaluation for the off-source area.

- Studies of the toxicity of sediments adjacent to the landfill to clams and amphipods.

Response: Due to problems with the quality of the analytical data, the AOC Respondents had to repeat the

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[28]\ The commentor contradicts another comment he has made. See Comment 11.14, where the same commentor states that he is of the opinion that the off-source area should only be evaluated in a detailed risk assessment proposed as part of a non-presumptive remedy. All of the media that the commentor asserts in this (11.6) comment should have been included in the Streamlined Risk Assessment (shellfish, small mammals, etc.) are off-source data.

clam investigation; therefore, the toxicity studies could not be included in the Streamlined Risk Assessment. The amphipod test results were not be used in the Streamlined Risk Assessment because the purpose of the Streamlined Risk Assessment was to directly compare analytical chemistry results to available comparison numbers. Because the results of the bioassay will require a statistical evaluation and interpretation, these data will be evaluated in the comprehensive baseline risk assessment and remedy selection evaluation for the off-source area.

- Data on chemical residues in sediments, soils, surface waters and tissues of sculpin residing in surface water adjacent to the landfill.

Response: The commentor's assertion that these data were not used in the Streamlined Risk Assessment is incorrect. Detected chemical concentrations in sediments, soils, surface water, and sculpin were incorporated into the Streamlined Risk Assessment and evaluated. Section 2 of the Streamlined Risk Assessment summarizes the analytical data used in the Streamlined Risk Assessment (including sediments, soils, surface water, and sculpin tissues), and Table 2-1 in Section 2 lists the chemicals detected in on-source (surface water, leachate seep SP01, surface soil, Zone 1 and Zone 2 groundwater) and off-source (surface and subsurface soil, surface and subsurface sediment, surface water, leachate seeps SP02-SP11, fish tissue) media. Numerous chemicals were found in sediments, soils, surface waters, and/or fish tissues at levels that exceed comparison numbers considered to be protective of human health and the environment, including polycyclic aromatic hydrocarbons (PAHs), PCBs/pesticides, and inorganics.

The presumptive remedy guidance specifies that the Agency does not need to evaluate all exposure pathways in a streamlined baseline risk assessment. See Response to Comment 11.16.

11.7 **Comment:** The commentor felt that the 1988 surface water data incorporated into the Risk Assessment should not have been used because on-site activities at the time of collection may have caused non-representative contamination of this medium. Also, the commentor stated that the analytical techniques used in the 1988 investigation are unreliable, and five samples are not sufficient to characterize the 143-acre site. [3]

Response: The 1988 sampling design took the possibility of cross contamination into account by placing sampling locations away from any on-site activities. As summarized in section 11 of the 1988 E&E report, a site inspection was conducted prior to sampling to document on-site activities and to determine sampling locations that would not be affected by on-site activities. Consequently, EPA has no reason to believe that cross contamination of the landfill surface/pooled water is a result of contamination of the construction debris disposed on-site in 1988.

EPA believes that the 1988 data is reliable (see Response to Comments 2.9.2 and 2.9.3.). However, EPA notes that the 1998 data may be relatively less useful for purposes of making decisions with regard to an interim action at the Site than data collected during the RI because it is older. Clearly, the 1988 data represent 1988 Site conditions, which is useful information; however, the data may not represent current Site conditions. The 1988 data was used in conjunction with the data collected for the RI to evaluate on- and off-source exceedances in the Streamlined Risk Assessment. The 1988 data included surface soil and surface water from the landfill surface. The 1995 RI data from leachate seep SP01 was used to determine the condition of leachate coming from the landfill surface. EPA notes that the RI data from seep SP01 exceeded comparison numbers for some chemicals, including phenanthrene, dissolved iron, dissolved lead, total cyanide, total iron, total lead, heptachor, Aroclor 1016, and ammonia (see interim ROD Table 6-4).

Regarding the comment that "five samples are not sufficient to characterize the 143-acre site," EPA agrees that the five samples are insufficient to fully characterize the entire 143-acre landfill surface. However, it would be inappropriate to conclude that just because the 5 samples do not fully characterize the landfill surface, that the data is therefore totally useless and should be completely ignored. The Streamlined Risk Assessment included these 5 samples and measured the results against "comparison numbers"--- chemical concentration levels that are considered protective of human health and the environment. The Streamlined Risk Assessment indicates that in 1988, at 5 sample locations on the landfill surface, concentrations of some chemicals in surface water exceeded levels that are considered protective of human health and the environment. EPA believes it is more appropriate to consider such information, while keeping

in mind the potential limitations of its usefulness, than to ignore it. See Response to Comments 2.9.2 and 2.9.3.

11.8 **Comment:** Commentor asked if the EPA used ecological data as well as background data in the Risk Assessment. [1]

Response: Not all of the ecological data collected during the remedial investigation were available at the time the Streamlined Risk Assessment was prepared. See Response to Comment 11.6. Some of the data (mammal tissue, clam tissue) submitted by the AOC Respondents were of poor quality and could not be used at the time the Streamlined Risk Assessment was being developed. The reasons some of the data could not be used include inappropriately high detection limits for the tissue data and the loss of tissue samples in the laboratory for the clam bioassay due to inappropriate sample preparation. Analytical data available for fish tissue was incorporated into Section 2 of the Streamlined Risk Assessment. In this section, trends in chemical detections across media were analyzed (Streamlined Risk Assessment, Table 2-1). See Responses to Comments 11.111 - 11.115.

11.9 **Comment:** Commentor stated that the screening values used in the human health evaluation are not enforceable and do not constitute "criteria." [3]

Response: EPA disagrees with this comment. The commentor appears to be implying that EPA can only use promulgated standards when evaluating human health risks at a Superfund site. Neither CERCLA nor the NCP require the use of promulgated or enforceable standards in determining acceptable levels of risk at CERCLA sites. EPA has appropriately used existing state and federal standards to identify levels which, if exceeded, indicate a human health or environmental risk at the Tulalip Site. In the absence of enforceable standards or criteria, EPA appropriately uses existing risk-based chemical concentrations which provide a basis for determining levels of risk to human health or the environment at a given site. The EPA guidance document "Streamlining the RI/FS for CERCLA Municipal Landfill Sites" (EPA, 1990a) states on Page 3 that the scope of the baseline risk assessment can be streamlined or limited by "identifying all pathways that are an obvious threat to human health or the environment... by comparing RI-derived contaminant concentration levels to standards that are potential chemical-specific ARARs for the action... When

potential ARARs do not exist for a specific contaminant, risk-based concentrations should be used." [emphasis added]. Consequently, Region 10 used the Region 3 risk-based concentrations because Region 10 considered the exposure assumptions and target risk levels used in the Region 3 risk-based concentrations to be appropriate for the Tulalip Site. See Response to Comment 11.10.

In total, EPA has recorded numerous exceedances of comparison numbers that are considered to be protective of human health and the environment at the Site. Site investigation efforts, including sampling done recently by certain PRPs as part of the RI, indicate that landfill leachate leaving the Site exceeds comparison numbers for pesticides such as DDT and aldrin, polychlorinated biphenyls (PCBs), and heavy metals and other contaminants including chromium, copper, lead, mercury, nickel, zinc, ammonia, and heptachlor. The RI documents the presence of hazardous substances contaminating soils, sediments, surface water, and groundwater at the Site. Hazardous substances found in surface soils at the Site exceeded comparison numbers in one or more samples at eight of the nine leachate soil grid locations. At six of the leachate soil grid locations, subsurface soil samples were collected. Hazardous substances found in these subsurface soils exceeded comparison numbers in five of the six subsurface soil samples. Hazardous substances found in leachate exceeded comparison numbers at least once in most of the eleven seeps that were tested. Chemicals detected in Zone 1 groundwater (located within the refuse layer of the landfill) exceeding comparison numbers consisted of the metals copper, lead, nickel, and zinc, as well as ammonia, cyanide, and the pesticide heptachlor epoxide. The studies found that Zone 2 groundwater (located below the refuse layer) was contaminated at levels exceeding comparison numbers for the metals copper, lead, and nickel, as well as cyanide and ammonia. Thus, it is clear that there are exceedances of chemical-specific criteria to all media evaluated during the RI/FS at the Tulalip Landfill Site which warrant the taking of the interim remedial action specified in the interim action ROD in order to protect human health and the environment. See Response to Comment 2.5.5.

11.10 **Comment:** Commentor asserted that the "screening level" Risk Assessment misapplied both the EPA Region III risk-based concentration (RBC) and the cleanup levels defined by the State of Washington's Model Toxics Control Act (MTCA). Commentor argued that the EPA

Region III RBCs, as defined by the EPA, are not intended to be used as cleanup goals or no-action levels at CERCLA or RCRA sites. Commentor indicated that EPA has applied MTCA cleanup standards at other hazardous waste sites in Washington state where EPA was involved. [3]

Response: EPA disagrees that human health criteria were used inappropriately. The risk-based concentrations used were not indicated to be the appropriate cleanup levels, they were used in the Streamlined Risk Assessment to assess risk. Risk assessment is a distinctly different process than the process to establish cleanup numbers. EPA uses risk-based concentrations when established standards or criteria are not available. MTCA soil cleanup standards for "commercial/industrial" sites, calculated under WAC 173-340-740 were also used for comparison in the Streamlined Risk Assessment. See Responses to Comments 2.5.4, 11.9, 11.37 and 11.38.

11.11 **Comment:** The commentor suggested that the document's title, "Draft Final Risk Assessment for the Tulalip Landfill Interim Containment Remedy," incorrectly states that it provides justification for an "Interim Containment Remedy." The commentor suggested that the document is in reality being prepared as part of the Source Area Containment studies and any references to an interim containment study should be removed. Commentor also indicated that the document, as currently presented, is not a complete risk assessment, and that any further versions of the document should be prepared in accordance with the four steps of risk assessment as defined by the NCP before being identified as a risk assessment. [3]

Response: The title of the final document was changed to Tulalip Landfill Risk Assessment for Interim Remedial Action to address the commentor's concern.

EPA disagrees with the commentor's assertion that the Streamlined Risk Assessment is an "incomplete" assessment, see the Responses to Comments 2.1, 2.1.1, 2.1.2., 2.2, 2.3, 2.3.1 and 2.3.2. The Streamlined Risk Assessment has, in fact, been prepared in accordance with all four components (albeit streamlined) of a more detailed risk assessment. These components are: (1) hazard identification and dose (stressor), (2) response assessment (combined in an ecological effects assessment component), (3) exposure assessment, and (4) risk characterization. In the Streamlined Risk Assessment, the hazard identification

and dose step of a risk assessment was met by identifying the chemicals which were detected in on-site media and by listing the ranges of the detected concentrations. The response assessment step consisted of identifying toxicity information (in terms of risk-based concentrations and criteria) to compare to the detected chemical concentrations. In the exposure assessment step, ecological receptors (e.g., marine organisms) and human receptors (e.g., future site workers) were identified to support the selection of appropriate toxicity information (selected in the response assessment step). Finally, the risk characterization was conducted by comparing the range of detected chemical concentrations (identified in the hazard identification step) to the appropriate toxicity information (gathered from completing the response assessment and exposure assessment steps). Risk characterization results were discussed in terms of frequency and magnitude of exceedance of risk-based concentrations and criteria.

11.12 **Comment:** Commentor asserted that the use of the term "interim remedy" was incorrectly used throughout the Risk Assessment. Commentor suggested that an interim remedy is applied only to reduce imminent threats to human and environmental health, a condition considered by the PRPs as not present at the site. In addition, a citation to page 1-1, 1st paragraph was requested. [3]

Response: The commentor is incorrect in stating that EPA may only utilize an interim remedy in circumstances presenting an imminent and substantial danger. Section 104(a)(1) of CERCLA authorizes a response action whenever "(A) any hazardous substance is released or there is a substantial threat of such release into the environment, <u>or</u> (B) there is a release or substantial threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare[.]" (emphasis added). <u>See</u> 42 U.S.C. § 9604(a)(1). In this case, the release of many different hazardous substances into the environment has been documented in the RI/FS that is in the administrative record. For example, data in the RI/FS shows that there are numerous exceedances of comparison numbers considered protective of human health and the environment, including specific health-based and ecological standards, criteria, and risk-based concentrations. Because there are documented releases of hazardous substances on the Site, EPA may undertake a response action at the Site regardless of whether those releases pose an imminent and substantial danger to the public

health or welfare. However, EPA has determined these releases of hazardous substances also do pose a potential imminent and substantial endangerment to human health and the environment. See Section 6.3 of the interim ROD, which states that "[c]omparison of the measured chemical concentrations to the human health risk-based and ecological effects-based criteria established under other environmental programs reveals potential risks to humans and the environment. Based on the RI/FS and findings in the Streamlined Risk Assessment, EPA finds that actual or threatened releases of hazardous substances from the Site, if not addressed by the selected alternative or one of the other active measures considered, may present an imminent and substantial endangerment to public health, welfare, or the environment."

Congress, in Section 121 of CERCLA, specifically contemplated early or interim actions, by allowing EPA to waive ARARs in such cases. In addition, the NCP preamble states that:

> EPA encourages the implementation of interim action operable units, as appropriate, to prevent exposure or control risks posed by a site." See 55 Fed. Reg. 8705.

Thus EPA clearly has the ability under CERCLA and the NCP to address risks posed by a site by using early or interim actions, even where those risks do not pose an "imminent" threat.

11.13 **Comment:** Commentor stated that EPA's Tulalip Landfill "screening risk assessment" was not conducted according to EPA guidance and can only be used to determine which pathways are not of concern, not to establish the need for remediation. Also, the commentor stated that the Risk Assessment used default exposure assumptions. [3]

Response: The Streamlined Risk Assessment was developed fully in accordance with EPA's guidance on risk assessment for presumptive remedies (EPA, 1990a and EPA, 1993a). Streamlined risk assessments are appropriate for many sites where presumptive remedies have been conducted by EPA, such as landfills. These risk assessments can be used to determine whether early remedial action is warranted to limit or eliminate releases from source areas. A comprehensive baseline risk assessment would typically be conducted thereafter to address off-source areas of such sites. EPA believes that it is appropriate to use default exposure assumptions for streamlined risk assessments unless

site-specific deviations from such values are readily available. See Responses to Comments 11.9 and 11.11.

The commentor did not provide a reference to the guidance he claims EPA has followed; therefore, EPA cannot specifically address his concern. For more discussion about the appropriateness of using a streamlined risk assessment for the Tulalip Site see the Responses for Comments 2.1.2, 2.2, 2.3.1, and 2.5.4.

11.14 **Comment:** The commentor suggested that the document did not adhere to the scope of the investigation as defined in the presumptive remedy guidance. Commentor suggested that receptors and pathways evaluated as part of the presumptive remedy inappropriately included off-site receptors and addressed exposure pathways outside the source area. It is the opinion of the commentor that the off-source areas should only be evaluated in a detailed risk assessment prepared as part of a non-presumptive remedy.[29] [3]

Response: Because the leachate from the landfill exits from the berm into the off-source areas, an off-source evaluation is appropriately included in the Streamlined Risk Assessment to qualitatively determine to what extent the chemicals in the leachate have impacted the surrounding water bodies and wetland areas. The presumptive remedy of containing the landfill waste is designed to prevent chemicals in the source area from migrating to off-source areas. Therefore, it is very appropriate to evaluate the off-source areas in light of potential remedies for the source area. The Streamlined Risk Assessment was conducted to document potential adverse effects associated with the landfill (e.g., leachate). Therefore, it is appropriate, and consistent with EPA's presumptive remedy guidance, to evaluate off-source receptors, in addition to on-source receptors, that may be affected by contaminants from the landfill. See Response to Comment 11.95.

11.15 **Comment:** Commentor suggested that the Risk Assessment was not prepared in accordance with the Presumptive

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[29] EPA notes that the commentor's opinion in this comment that the off-source areas should not have been evaluated in the Streamlined Risk Assessment is in conflict with this same commentor's assertions in Comment 11.6 in which the commentor asserts that some off-source data (mammal tissue, clam tissue, etc.) that was unavailable for inclusion in the Streamlined Risk Assessment should have been included in the Streamlined Risk Assessment.

Remedy Guidance (U.S. EPA 1993) and the specific purpose of the document is not clearly stated. Further, the commentor indicated that no regulatory background information is provided in the text to provide the reader an understanding of the context within which the evaluation was conducted. Commentor requested that the EPA guidance referred to in the 1st paragraph of the Executive Summary under the discussion of "available criteria" be cited (including pages). [3]

Response: EPA prepared the Streamlined Risk Assessment fully in accordance with EPA's Presumptive Remedy for CERCLA Municipal Landfill Sites guidance (EPA, 1993a) and other EPA presumptive remedy guidance EPA, 1998, 1991, 1995a, and 1995c). See Responses to Comments Sections 2.1, 2.2, and 2.3. The regulatory background information the commentor has requested is presented in the Introduction (Section 1) of the Final Tulalip Landfill Risk Assessment for Interim Remedial Action. Specifically, the purpose of the Streamlined Risk Assessment is to identify potential exposure pathways and compare relevant site data to existing comparison numbers. The citations for the comparison numbers are contained in Sections 3 (pages 3-1, 3-2, 3-3) and 4 (pages 4-2, 4-3) of the Streamlined Risk Assessment.

11.16 **Comment:** Commentor does not agree that "EPA guidance for the presumptive remedy risk assessment states that it is not necessary to calculate multi-chemical, multi-pathway risks to initiate the remedial action." [3]

Response: EPA disagrees with the commentor. The presumptive remedy guidances (EPA, 1990a and EPA, 1993a) clearly provides for the initiation of remedial action without the calculation of multi-chemical, multi-pathway risks having been performed. See the Responses to Comments 2.1, 2.2, and 2.3 for EPA's explanation regarding the appropriate use of a streamlined baseline risk assessment for selecting a interim remedy at a Site where a presumptive remedy approach is appropriate.

11.17 **Comment:** Commentor does not agree that an exceedance of regulatory criteria by one sample would trigger remedial action at any site. [3]

Response: The "Presumptive Remedy for CERCLA Municipal Landfills" (EPA, 1993), clearly states that "where established standards for one or more contaminants in a given medium are clearly exceeded, remedial action generally is warranted." See the

Responses to Comments 2.1.2 and 2.5.2 for a more detailed response. Also, EPA notes that the Agency has concluded in the interim ROD that early, interim action to contain the landfill waste is appropriate at the Tulalip Site based not on one exceedance of a comparison number, but on the exceedance of 1367 comparison numbers in many different media. See Response to Comment 2.2 -- the table with the number of exceedances.

11.18 **Comment:** Commentor stated that very few of the general and specific comments supplied by Parametrix on the "Draft Final Tulalip Landfill Risk Assessment for Interim Containment Remedy" were addressed in the "Final Tulalip Landfill Risk Assessment for Interim Containment Remedy." [3]

Response: All of the Respondents' comments on the Draft Final Tulalip Landfill Risk Assessment for An Interim Containment Remedy have been addressed by EPA, either through revisions to the Streamlined Risk Assessment or in the Responsiveness Summary. In EPA's letter of August 4, 1995 (Winiecki, 1995c) (of which the commentor was carbon copied), the Agency stated that it considered all comments submitted by Parametrix and when EPA issued the final Streamlined Risk Assessment. Additionally, EPA stated that it intended to provide written responses to outstanding comments (comments not addressed in the Final Streamlined Risk Assessment) in the Responsiveness Summary for the ROD. Those outstanding comments have been added to this document. See Response to Comment 2.5.1.

11.19 **Comment:** Commentor asserted that it is inappropriate at this time to state that remedial action is warranted at the site because of the number of the errors and deficiencies in the Draft Final Risk Assessment. Further, the commentor stated that the purpose of a "screening level risk assessment" is to identify chemicals of potential concern and eliminate pathways and chemicals of negligible risk. [3]

Response: All significant errors and deficiencies were addressed before the final Streamlined Risk Assessment was produced. See Response to Comment 2.5.1 and 11.18. According to EPA guidance, including "Presumptive Remedy for CERCLA Municipal Landfill Sites" (EPA, 1993a); and "Streamlining the RI/FS for CERCLA Municipal Landfill Sites" (EPA, 1990a), the Final Tulalip Landfill Risk Assessment for Interim Remedial Action, dated August 1995, is a streamlined baseline risk assessment that is appropriately used to identify

the need for interim remedial actions. See Response to Comment 11.13.

11.20 **Comment:** Commentor stated that several figures in Section 2 of the Risk Assessment were mis-titled (Figures 2-2 through 2-6). [3]

Response: EPA can not identify any errors in the titles of the figures to which the commentor refers. All figures are properly numbered and titled in the Streamlined Risk Assessment.

11.21 **Comment:** Commentor noted that pages 2-8, 3-3, and 3-4 were not contained in the draft Risk Assessment. [3]

Response: All pages are contained in the final Streamlined Risk Assessment. Pages 2-8 and 3-4 in the draft Streamlined Risk Assessment are intentionally blank.

11.22 **Comment:** Commentor stated that the word "in" should be "for" on page 2-1, 5th paragraph, in the last complete sentence on the page. [3]

Response: EPA has noted the commentor's grammatical edit.

Human Health Risk Assessment Comments

11.23 **Comment:** Commentor stated that surface and subsurface soil should not have been evaluated because future excavation of the landfill is unlikely. [3]

Response: As a point of clarification, subsurface soil data from the landfill source area was not available and therefore not used in the Streamlined Risk Assessment. Only surface soil data for the source area from the 1988 data set was available for use the in the Streamlined Risk Assessment. The presumptive remedy guidance (EPA, 1993a), states on page 5, "(s)treamlining the risk assessment of the source area eliminates the need for sampling and analysis to support the calculation of current or potential future risks associated with direct contact.". The Agency has found in the its experience that surface and subsurface soil data play a small role in the data used to select a remedy. Therefore, for the Tulalip Site, the Agency did not focus on gathering subsurface soil data or additional surface soil data (beyond the 1988 data gathering effort.)

EPA agrees with the commentor that "future excavation of the landfill is unlikely." Institutional controls such as land use restrictions designed to protect the integrity of the landfill cover could prohibit excavation. However, exposure to subsurface soil and sediment in the off-source areas is possible under the future use exposure scenarios that have been identified for the Site. Although the off-source area has been placed in the "Conservation" use category by the Tulalip Tribes in "Big Flats Land Use Program" (Tulalip Tribes, 1994)[30], subsurface soil and sediment may be contacted in this area if there is need to place utility lines to support on-source development. This is a likely scenario because restrictions made on penetrating the cap could necessitate locating utility lines in the off-source area. Also, people working at a future industrial/commercial on-source facility may elect to use the off-source area for recreational purposes such as fishing, hiking and kayaking on a frequent basis. Therefore it must be considered possible that a person could contact off-source subsurface soil and sediment. For information about the "Conservation" category <u>see</u> the Response to Comment 11.5.

11.24 **Comment:** Commentor stated that fish consumption is not a complete exposure pathway in the off-source area because Tribal fishermen will not harvest the tideflat species present there. [3]

Response: Fish consumption is a complete exposure pathway. Tribal members consume bottom fish (i.e., resident, sediment-dwelling fish) caught in the vicinity of the Site.[31]

11.25 **Comment:** Commentor stated that use of a 10^{-6} cancer risk level is inappropriate for children because they are exposed for a subchronic duration of time, not the chronic exposure assumed in recommending an acceptable risk level of 10^{-6}. [3]

Response: The use of a 10^{-6} cancer risk level is appropriate for children because, due to their small body size and greater potential for exposure (e.g., their higher ingestion rate of soil), they are

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[30] Note that the Tribes designation system for land use is different from the designation system specified in MTCA.

[31] Personal communication, Eric Winiecki, EPA Remedial Project Manager, with Tom McKinsey, Tulalip Superfund Coordinator, January 19, 1996.

considered a sensitive population which is typically protected by using a 10^{-6} cancer risk level for a target risk. It does not matter whether a child's exposure is chronic or subchronic because cancer risk is considered cumulative over a lifetime, i.e., a 10^{-6} cancer risk level would be considered appropriate whether the exposures occurred over a few months or many years.

11.26 **Comment:** Commentor stated that chemicals with a low frequency of detection should have been dropped from the evaluation. [3]

Response: The purpose of the Streamlined Risk Assessment was to identify the magnitude and location of exceedances of comparison numbers including risk-based concentrations and ambient water quality criteria for hazardous substances released from the landfill. Considering the heterogeneous nature of a landfill (and the associated leachate leaving it), the appropriateness of eliminating a contaminant based on frequency of detection is questionable. The magnitude of the detection must also be considered in the risk assessment approach. If a contaminant is detected infrequently but has a very high concentration, an exposure risk still exists. Eliminating a contaminant, in most cases, based on frequency of detection is not advocated by EPA guidance.

11.27 **Comment:** Commentor stated that it is both incorrect and inconsistent with EPA's own Presumptive Remedy Guidance to apply a future industrial/commercial use scenario (with children at a day care facility) to the Tulalip site and then use this scenario to identify risks which must be mitigated off-source. Commentor goes on to state that the future use specified (industrial/commercial) is not considered appropriate for the Tulalip Landfill site because former landfill sites are not expected to support such uses. [3]

Response: The Tulalip Site includes both on-source and off-source areas. In light of the proposed future land uses identified in the Big Flats Land Use Program (Tulalip Tribes, 1994), exposure of children and adults to both on-source and off-source areas is a reasonable scenario. See the Response to Comment 11.5 for a more

detailed description of the proposed future land uses for the site. Evaluation of potential off-source health risks is appropriate and consistent with the Presumptive Remedy Guidance. See Responses to Comments 11.14 and 11.95.

EPA guidance specifies that the Agency consider potential future uses of a cleanup site before a remedy is selected to ensure that the selected remedy will not preclude potential uses that are important to the local community (Future Use of Superfund Sites, EPA, 1995c). See Response to Comment 2.7.2. EPA developed this policy regarding future use because in the past, some of the cleanup decisions the Agency made at certain sites were criticized for preventing or inhibiting productive future use of the sites. EPA has accordingly considered future uses in its approach to the Tulalip Site.

Landfills remediated with covers have been developed for productive uses (e.g., parks) other than as a landfill after the landfill has been closed and covered. EPA believes that more landfill closures should be designed to accommodate future use of the landfill surface. Reuse of previously contaminated property in a manner that is protective of human health and the environment is beneficial to the community and goes hand-in-hand with EPA's national "Brownfield" initiatives. Remediating a site that is not compatible with some type of future productive use (e.g., recreational use) is a loss to the community and society as a whole. Reuse of remediated property lessens the pressure on communities to develop undeveloped property.

The selected remedy includes institutional controls. These would include controls on use of the Site, such as land use restrictions that limit or prohibit development or activities conducted on the Site so as to not interfere with performance of the selected remedy, and to prohibit activities that are not protective of human health and the environment. When design and construction of the interim remedy are complete, EPA and the Tulalip Tribes shall develop and approve a document entitled "Routine Use of Tulalip ('Big Flats') Landfill," the purpose of which shall be to ensure the continued integrity of the cover system. This document shall delineate routine site uses that may occur on the surface of the cover and uses that shall not occur, in accordance with the land use restrictions established in the interim ROD. This

document shall be implemented at the Site in perpetuity, or until EPA and The Tulalip Tribes determine in writing that implementation of the document is no longer necessary at the Site. After the document is approved by EPA and The Tulalip Tribes, the document can only be modified by mutual written agreement by both EPA and The Tulalip Tribes.

Any commercial or development activity on the landfill surface will require advance, written agreement between EPA and the Tribes to ensure the continued integrity of the cover system and to ensure protection of human health and the environment.

A clearly visible sign shall be placed and maintained into perpetuity at the landfill entrance which summarizes the activities that may occur on the landfill cover, and shall also summarize the restrictions on use, as described in the "Routine Use of Tulalip ('Big Flats') Landfill" document. The sign shall include the phone number of a Tribal officer or employee who is familiar with the requirements of the "Routine Use of Tulalip ('Big Flats') Landfill document and is able to provide direction to potential users of the Site regarding the document.

11.28 **Comment:** Commentor noted that potential health risks from chemicals in sediments were estimated by assuming that a child at a day care facility built on-site would be exposed to the sediments 250 days/year. Commentor stated that this is almost certainly an overestimate of potential exposures because the sediments are tidally inundated and would require extensive stabilization and placement of fill material prior to construction of any buildings. [3]

Response: In the Streamlined Risk Assessment, EPA used reasonable, available risk-based concentrations (i.e., those calculated by EPA Region III and presented in MTCA) to address exposure a child may have at the Site, in this case a commercial exposure. It is assumed that if a commercial facility frequented by children were developed on the landfill surface, a child could reasonably wander into this area during the day while playing, receiving exposure during the estimated 250 days/year. In addition, 250 days/year is a possible exposure frequency for a child recreational user if, for example, ballfields or other recreational facilities were placed on the landfill surface (there are no available exposure default criteria which address a recreational scenario). <u>See</u> Response to Comment 11.25.

11.29 **Comment:** Commentor states that it is inappropriate to compare off-source surface and subsurface sediment data to soil screening values for an industrial site because off-source biological resources are not directly exposed to on-source soils and sediments. [3]

Response: Future commercial/light industrial development of the on-source area could facilitate chronic exposure of off-source receptors to on-source contamination. For this reason, it is appropriate to compare off-source sediment data to industrial risk-based contaminants. See the Responses to Comments 11.23 and 11.31 (first bullet).

If the commentor is implying that the off-source area is not impacted by on-source contamination, see to the Response to Comment 11.95 for a discussion of contaminate migration from the on-source area to the off-source area.

11.30 **Comment:** Commentor states that using screening-level soil values to screen subsurface sediment data assumes that sediments will be routinely disturbed under the same scenario as mentioned for surface sediments, and that this is an unlikely scenario. [3]

Response: Subsurface sediments do not need to be routinely disturbed for there to be a chronic exposure condition. One excavation event or other significant disturbance may be sufficient to permanently relocate subsurface sediments to the surface where they would be available for continued, chronic exposure.

11.31 **Comment:** Commentor stated that the screening values used in the Risk Assessment were inappropriately applied to the media of concern, as follows: [3]

- Human health screening values based on industrial exposure were inappropriate to use because they are based on long-term exposures that are unrealistic for the off-site sediments.

Response: EPA believes it is appropriate to assume that a person could have long-term exposures to off-source sediments because on-source industrial development may require access to off-source areas, e.g., installation of utility lines in off-source areas to support on-source development. Also, people working at a future industrial/commercial on-source facility may elect to use the off-source area for recreational purposes such as fishing, hiking and kayaking on a frequent basis.

- There are not enough fish in the area to sustain a harvest needed for chronic exposure, therefore it is not reasonable to include screening for the fish ingestion pathway. [also 2]

Response: The surface water criteria are based on ingestion of "organisms" (e.g., any edible seafood, including fish, shellfish, squid), not just fish. EPA is not aware of any documentation supporting the commentor's statement that there are not enough fish available in the area of the landfill to sustain a harvest needed for chronic exposure. The "Preliminary Natural Resource Survey" (NOAA, 1991) prepared for the Tulalip Landfill Site, states on page 7:

> "Habitat in the Snohomish River Delta supports substantial fisheries. There are several large migratory runs of salmon in the Snohomish River. Pink, chum, coho, and chinook salmon migrate through the area primarily from August to December, although year-round migration occurs. During upstream migration. Habitats near the site provide critical transition habitat where salmon must acclimate before moving from a salt environment to freshwater migratory pathways. During outmigration, these habitats are used extensively by smolts and juveniles for nursery grounds.
>
> Commercial Catch Areas 8a and Recreational Punch Card Area 8 are inclusive of the Snohomish River Delta...In general, the annual commercial salmon catch has varied between roughly 1.0 and 1.7 million kg since 1986...An estimated 6 percent of the recreational catch of salmon reported for all of Puget Sound in 1988 was harvested from this catch area".

<u>See also</u> Response to Comment 11.24.

- EPA used EPA Region III Risk-Based Concentrations (RBCs) as a substitute for preparing a comprehensive baseline risk assessment.

Response: According to CERCLA, the NCP, and EPA presumptive remedy guidance, the streamlined baseline risk assessment that has been completed for this Site is appropriate and sufficient for evaluating the need for an interim containment remedy. Use of EPA Region III RBCs is an appropriate component of the Streamlined Risk Assessment. The EPA guidance document "Streamlining the RI/FS for CERCLA Municipal Landfill

Sites (EPA, 1990a) states on Page 3 that the scope of the baseline risk assessment can be streamlined or limited by "identifying all pathways that are an obvious threat to human health or the environment... by comparing RI-derived contaminant concentration levels to standards that are potential chemical-specific ARARs for the action... When potential ARARs do not exist for a specific contaminant, risk-based concentrations should be used." [emphasis added]. Consequently, Region 10 used the Region 3 risk-based concentrations because Region 10 considered the exposure assumptions and target risk levels used in the Region 3 risk-based concentrations to be appropriate for the Tulalip Site. See Response to Comment 11.37.

The Streamlined Risk Assessment is not a "substitute" for a comprehensive baseline risk assessment. The Streamlined Risk Assessment is for decisionmaking regarding an interim action for the containment of the landfill on-source area; the comprehensive baseline risk assessment will be used in deciding whether additional clean-up will be necessary in the off-source wetlands surrounding the landfill.

11.32 **Comment:** Commentor requested a detailed discussion of the assumptions underlying the U.S. EPA Region 3 screening values and the MTCA values, including an explanation of any changes made in the exposure parameters used in calculating these values. [3]

Response: EPA made no changes in the Region 3 parameters or the MTCA parameters used to calculate risk-based concentrations, nor was any reference made to changes. Therefore, EPA refers the reader to the Region 3 document for complete documentation of the derivation of these values. The reference for the Region III values is: EPA Region III Risk-Based Concentration Table (EPA, 1994). The reference for the MTCA values is: Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARCII) Update (Ecology, 1995). See the Response to Comment 11.31 (last bullet).

Following preparation of the draft Streamlined Risk Assessment in March 1995, EPA Region 3 revised its soil risk-based chemical concentrations. For comparison purposes, these updated values have been incorporated into Tables and Figures in the interim ROD, where appropriate, and exceedances of these values were compared to what was reported using the 1994 values. Using the updated (1995) values, the following exceedances were found:

Surface Soil

Chemical	Frequency of Exceedances
Aroclor 1242	2/106
Arsenic	91/93
Benzo(a)pyrene	3/106
Beryllium	2/106
Chrysene	1/106
Heptachlor epoxide	1/106

Subsurface Soil

Chemical	Frequency of Exceedances
Aroclor 1242	2/19
Arsenic	17/17
Benzo(a)pyrene	3/20

See also Response to Comment 11.33

11.33 **Comment:** Commentor requested more documentation of the rationale used to identify current and future exposure scenarios, exposure pathways, and exposure parameter assumptions. In addition, it was requested that sample calculations be presented, showing how screening values were derived. [3]

Response: While the Site is currently closed, the Site, as well as surrounding areas, have been used for recreation in the past. Potential future use scenarios for the on-source and off-source areas were identified in the Big Flats Land Use Program document (Tulalip Tribes, 1994) referenced in the Streamlined Risk Assessment. Specifically, the on-source area is proposed by the Tulalip Tribes for industrial use in the future, and the off-source area is proposed for use as a "conservation" area. See Response to Comment 11.5 for a description of potential future site uses.

The Streamlined Risk Assessment also listed references for the risk-based concentrations used. These references contain complete documentation of equations and exposure parameters used in computing risk-based concentrations. Because no modifications were made to these concentrations in preparing the Streamlined Risk Assessment, it was not necessary to reiterate this information in the Streamlined Risk Assessment. Detailed information on how some of the ecological "comparison numbers" were derived is included in the Appendices A and B of the Streamlined Risk Assessment. However, the November 1994 and October 1995 EPA Region

III RBC Table and the MTCA RBC Tables have been added to the AR in response to the commentor's request. Included in these tables are the exposure assumptions and methods used to calculate RBCs.

11.34 **Comment:** Commentor requested that rationale be provided for the assumption of a three percent lipid concentration in fish in calculating water quality standards. Commentor asked if this was a site-specific assumption. [3]

Response: Justification for the assumption of a three percent lipid concentration in fish is provided in Section 3 of the Streamlined Risk Assessment in the reference cited for the surface water comparison numbers. The three percent lipid concentration is a national default value (Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance Final Rule. 40 C.F.R. Part 131, December 22, 1992), not a site-specific assumption.

11.35 **Comment:** Commentor states that the use of EPA's conservative arsenic screening criterion of 1.6 mg/kg not only misapplies its own guidelines, as set forth by EPA Region 3, but is also inconsistent with the more site-specific State of Washington clean-up regulations. The Model Toxics Control Act has a cleanup standard of 57 mg/kg for arsenic. [3]

Response: The RBCs for soil ingestion of arsenic at industrial sites, as provided in the Region III RBC Tables, was used appropriately. These values do not constitute cleanup levels, but were used to evaluate and identify areas at the site where exceedances occurred. Also used for this purpose was the MTCA Method C arsenic risk-based value of 57 mg/kg and the background level of 7.3 mg/kg, identified by the Department of Ecology for the Puget Sound Basin. Throughout the Streamlined Risk Assessment, the more conservative values were used appropriately and were imparted greater weight in the evaluation process. For some constituents these were MTCA values; for others, values from the RBC Tables. See Response to Comment 11.10.

11.36 **Comment:** Commentor stated that according to MTCA, the risk-based screening value for arsenic in soil is lower than the natural background concentration. [3]

Response: The EPA risk-based concentration in soil is lower than the established regional background

concentration. For this reason, both the MTCA risk-based concentration and the established regional background concentration were used for comparison in the Streamlined Risk Assessment.

11.37 **Comment:** Commentor stated that it was paradoxical that EPA screening values for carcinogens were adjusted to a reference risk value of 10^{-6} to account for the presence of children, yet MTCA values calculated for children under a daycare scenario use a 10^{-5} cancer risk level. [3]

Response: Section 3 of the Streamlined Risk Assessment text acknowledges the fact that different cancer benchmarks were used by EPA, as provided in the Region 3 or MTCA Tables, to calculate risk-based concentrations and explains why both sets of values are reasonable to consider for the site.

In using EPA Region III risk-based concentrations, chemical concentrations associated with target levels of a 10^{-6} cancer risk and a hazard quotient of 1.0 were selected for each chemical. It is unlikely that EPA would in any case select less conservative values for a streamlined baseline risk assessment, since the effect of the presence of multiple chemicals and media are not taken into consideration using table values. In fact, it is recommended by EPA Region 10 that target values of a 10^{-6} cancer risk and a hazard quotient of 0.1 be used for screening values. Therefore, it can be argued that the risk-based concentrations used in the Streamlined Risk Assessment were definitely not unduly conservative for the intended purpose.

Soil cleanup standards for "industrial" sites, provided in WAC 173-340-745 were not considered for this site because the Tulalip Landfill does not meet MTCA's definition of an "industrial" site. The definition of an "industrial" site, as defined in the December, 1995 promulgated MTCA regulation SB 6123 (i.e., the "Ports Bill") which becomes effective in February, 1996 as follows:

> "Industrial properties" means properties that are or have been characterized by, or are to be committed to, traditional industrial uses such as processing or manufacturing of materials, marine terminal and transportation areas and facilities, fabrication, assembly, treatment, or distribution of manufactured products, or storage of bulk materials, that are either:

(a) Zoned for industrial use by a city or county conducting land use planning under chapter 36.70A RCW; or

(b) For counties not planning under chapter 36.70A RCW and the cities within them, zoned for industrial use and adjacent to properties currently used or designated for industrial purposes."

The Tulalip Landfill does not meet this definition.

Because the comparison of residential MTCA cleanup standards to the site was not deemed warranted, EPA decided to use the equations and exposure assumptions given in WAC 173-340-740(4)(b)(iii) for commercial/industrial sites to establish risk-based concentrations for comparison in the Streamlined Risk Assessment. However, the risk-based concentrations calculated using the parameters listed in this standard do not represent MTCA cleanup standards because other factors such as additional exposure pathways (other than soil ingestion), protection of ambient water and surface water and cumulative risks would have to be considered pursuant to MTCA regulatory provisions. These additional factors could render final cleanup levels more conservative than the screening valued used for the Streamlined Risk Assessment.

The commentor also questioned the validity of using a target value of 10^{-6} (for carcinogens) for one set of risk-based concentrations (the EPA Region III RBCs) and 10^{-5} for the other (MTCA RBCs). The commentor asserted that EPA only used the Region III RBCs because they were "more stringent than MTCA". In fact, the target value used for carcinogens is only one of many differences in the factors used to calculate the different RBCs. EPA uses the same target value for carcinogens for both industrial workers and residents in order to equally protect both groups. The differences in risk-based concentrations calculated by EPA Region III and MTCA stems from the differences in the assumed exposure durations, rates, ages, etc. The factors used by both groups are default values- neither can be said to be specific to the Pacific Northwest. One similarity between the risk-based concentrations calculated by EPA Region III and MTCA are that they both use a target value of 1.0 for noncarcinogenic effects. The net result of the use of different exposure factors by EPA Region III and MTCA is that MTCA risk-based concentrations are more conservative

for noncarcinogens and EPA Region III risk-based concentrations are more conservative for carcinogens. Because the assumptions used by both EPA Region III and MTCA were determined to be reasonable for this site, it was prudent to use both sets of RBCs for comparison in the Streamlined Risk Assessment. See Response to Comment 11.38.

See also Responses to Comments 11.10 and 11.31.

11.38 **Comment:** Commentor stated that the MTCA values presented in Table 3-1 of the Risk Assessment document are residential, not industrial values. Commentor further notes that residential screening values are inappropriate to use to evaluate future land use, because future use of this site will not be residential. [3]

Response: EPA has not used any residential comparison numbers in the Streamlined Risk Assessment. The MTCA numbers presented in Table 3-1 of the Streamlined Risk Assessment are industrial numbers, as indicated. The commentor has incorrectly interpreted the MTCA risk-based concentrations. MTCA has two "industrial" risk-based concentrations for soil. One set of concentrations, in some industrial/commercial situations, is derived using methodology presented in WAC 173-340-740, Method C (the concentrations used in the Streamlined Risk Assessment). The other concentrations defined as soil cleanup standards for "industrial" are calculated using WAC 173-340-745. Using MTCA regulations, the Tulalip Landfill site does not qualify as "industrial" under WAC 173-340-745, but does qualify as an "industrial/commercial" site as described in WAC 173-340-740 (1)(c). The reviewer is directed to WAC 173-340-740 (1)(c), where the classification "industrial" is used to describe the comparison numbers derived under Method C. Residential comparison numbers were not used in the Streamlined Risk Assessment. See also Responses to Comments 11.10, 11.37 and 11.44.

11.39 **Comment:** Commentor stated that Figure 3-1 in the Risk Assessment inappropriately depicted "direct contact by humans" as a release mechanism for contaminants. [3]

Response: The commentor has misinterpreted the information presented in Figure 3-1. In this figure, "direct contact" represents a process by which soil has become contaminated from landfill waste (i.e., soil is in direct contact with landfill waste). In this context, it is a primary release mechanism to humans.

11.40 **Comment:** Commentor noted that the conceptual site model indicated that exposure to on-source soil was not a complete exposure pathway, but that associated text stated future recreational use of the site was possible. Correction of this inconsistency was requested. [3]

Response: The commentor has accurately pointed out an inconsistency between what is presented in Figure 3-1 and the accompanying text of the Streamlined Risk Assessment. Figure 3-1 should indicate that exposure to on-source surface soil is a viable exposure pathway for current/future recreational users. However, this inconsistency has no effect on the results of the Streamlined Risk Assessment because there are no comparison numbers available which address recreational exposure. However, pursuant to MTCA WAC 173-340-740(1)(d), cleanup levels for recreational sites shall be at least as stringent as WAC-173-340-740 Method C cleanup levels.

11.41 **Comment:** Commentor stated that the surface water screening criteria used for 1,2-dichlorobenzene and the soil/sediment screening value used for chlordane are incorrect in Table 3-1 of the Risk Assessment. [3]

Response: Both values are correct as presented in the Final Streamlined Risk Assessment.

11.42 **Comment:** Commentor stated on page 3-17, Section 3.3, 1st sentence, that "there were" should be deleted in the first sentence. [3]

Response: EPA has noted the commentor's grammatical edit.

11.43 **Comment:** Commentor stated that the second sentence in the fourth paragraph on page one of the Executive Summary should contain a caveat indicating that access to the site does not necessarily translate to a health concern based on chemicals identified in on-source media. [3]

Response: EPA believes that adding the caveat suggested by the commentor would be misleading. Many samples taken from on-source surface water (RI leachate seep SP01, and the five 1988 surface water samples), and RI data from the perimeter leachate seeps exceed comparison numbers that are considered to be protective of human health and the environment. Therefore, EPA has concluded that potential risks to human health and the environment are present at the Site. In addition,

exposure to antibiotic-resistant microbiological pathogens, which have been found in on-source surface water, may be a potential health concern.

11.44 **Comment:** Commentor stated that the soil screening number listed for chrysene is the residential, not the industrial screening value, and that using the industrial screening value of 18,000 μg/kg, no criterion exceedance would be found. [3]

Response: No residential comparison numbers were used in the Streamlined Risk Assessment. The soil risk-based concentration identified for chrysene is an industrial/commercial risk-based concentration, as defined in WAC 173-340-740. It is not a residential concentration.

The risk-based concentration suggested by the commentor is for industrial sites as defined at WAC 173-340-745. As explained in paragraph 11.10 above, the Tulalip Landfill Site does not meet MTCA's criteria for using the industrial standards, and so the more stringent commercial/industrial standards at WAC 173-340-740 were used. See Response to Comments 11.10 and 11.38.

Ecological Evaluation Comments

11.45 **Comment:** The commentor questioned if the list of species identified as being on site was complete, and requested that a reference be provided for any ecological survey work conducted at the site. [3]

Response: The list of species at the site is based on review of information sources (E&E, 1988, and NOAA, 1991) for the area. In addition, EPA REAC performed an ecological survey in 1992 (Weston, 1992). This reference is included in the final Streamlined Risk Assessment document. These documents are included in the AR for the interim ROD. The list of species is not a complete list. Instead the list is a list of examples of species identified as being on site based on previous investigations.

11.46 **Comment:** Commentor stated that EPA made numerous conservative assumptions regarding the current or past presence and habitats of various organisms and species around the site. [3]

Response: Information relating to organisms and species at the Tulalip Site were obtained from independent biological surveys. No assumptions were made regarding the habitat types and organisms at the

site. Please refer to Preliminary Natural Resource Survey, Tulalip Landfill, Marysville, WA, National Oceanic and Atmospheric Administration, 1991 (NOAA, 1991); and Draft Preliminary Site Assessment of the Tulalip Landfill, Letter from R. Henry (Weston REAC) to D. Charters, September 8, 1992 (Weston, 1992).

11.47 **Comment:** Commentor stated that the conceptual site model was confusing and requested that separate figures be provided for aquatic, terrestrial, and estuarine ecosystems. Commentor further noted that no explanation was given for how the dermal contact pathway would be evaluated for terrestrial birds and mammals. [3]

Response: The arrows have been modified in the referenced Streamlined Risk Assessment (Figure 4.1) to provide better clarification. Otherwise, EPA believes the figure is self-explanatory. The purpose of this model is to show interactions. Separate figures would defeat this purpose, therefore the figure was not changed. The small mammal and bird dermal pathway will not be evaluated separately from other pathways because the fur/feather barrier would prevent most of the exposure. However, any cleaning/preening behavior that results in ingestion of particulates that adhere to fur/feathers is considered in the ingestion pathway.

11.48 **Comment:** Commentor stated that the conceptual site model illustrates pathways of concern that are not appropriate or even plausible for selected media. Commentor listed the following specific concerns: [3]

- Under the terrestrial on-source soil pathway, mammals are exposed through the ingestion of water; the media of concern is soil, not water for this pathway.

Response: In the final Streamlined Risk Assessment, a separate exposure medium exists for water; therefore, the ingestion of water exposure route was removed from the on-source soil exposure medium.

- Under the leachate pathway for aquatic organisms, ingestion of soil/sediment is listed. Because leachate is considered a water matrix, clarify how fish and invertebrates are ingesting soil or sediment.

Response: Leachate contains soil/sediment particulates and these are potentially ingested along with the

ingestion of leachate. This pathway is especially relevant for filter-feeding organisms such as clams.

- Clarify the above bulleted items as they pertain to the aquatic receptors in both on-source surface water and off-source surface water media.

Response: The exposure routes listed are appropriate for the media listed. The exposure media are considered all-inclusive. There may be multiple exposure routes in an exposure medium. For example, in the surface water medium, there may be ingestion of sediment/soil particulates suspended in the surface water. To address the range of exposure possibilities, all potential routes were included in the figure.

See Response to Comment 11.51.

11.49 **Comment:** Commentor requested that the results of the evaluation of on-source groundwater sampling be discussed for ecological receptors. [3]

Response: The Zone 1 groundwater exits the perimeter landfill berm in the form of leachate; therefore, the Zone 1 groundwater was evaluated to determine chemicals of potential ecological concern. Zone 1 groundwater is also driven downward into Zone 2. Zone 2 groundwater exits into the sloughs and could adversely affect bottom-dwelling organisms. Both Zone 1 and Zone 2 groundwater were evaluated for ecological receptors by comparison to federal AWQC and state surface water standards. See the Responses for Comments 11.116 and 11.117 regarding dilution and mixing zone issues.

11.50 **Comment:** Commentor stated that the exposure pathways listed on page 4-1 should be presented as assumptions, not as definitions of exposure, because some of the listed exposure pathways are not plausible. [3]

Response: EPA disagrees. All of the exposure pathways listed are plausible, therefore they are appropriately referred to as "potential" pathways. It is assumed that these exposure pathways may result in an adverse effect from chemicals of concern at the Landfill. This discussion is a brief synopsis of potential exposure pathways based on current scientific knowledge in ecological risk assessment.

11.51 **Comment:** Commentor requested that an explanation be provided discussing why only certain exposure pathways were evaluated in the Risk Assessment. In addition, the commentor stated that there is no evidence in the

Risk Assessment that direct contact with soil by carnivorous rodents was evaluated, as stated in the text. [3]

Response: Under the presumptive remedy approach, it is "not necessary to evaluate whether the containment remedy addresses all pathways and contaminants of concern associated with the source" in the Streamlined Risk Assessment (EPA, 1993a). The purpose of the conceptual site model is to illustrate the potential pathways for inclusion in the Streamlined Risk Assessment. The most probable scenarios were chosen for evaluation. For example, plant, aquatic organism (fish and invertebrates), and small mammals were evaluated in the Streamlined Risk Assessment. Exposure pathways included ingestion and plant uptake/sorption. These are both major pathways and there is literature available to associate effects with contaminant concentrations. Direct contact with soil was evaluated through the ingestion pathway.

11.52 **Comment:** In general, the commentor either did not agree with the "screening values", requested additional "criteria" or requested additional clarification regarding the "criteria". Also, the commentor had the following comments on specific "screening criteria" used in the evaluation: [3]

General Response: Table 4-1 was updated in the Final Streamlined Risk Assessment for the Interim Remedial Response with all the current EPA Ambient Water Quality Criteria (AWQC), including those for both dissolved and total metals. Average water quality values were used for pH (7.8) and hardness (100 ppm CaCO3) because these values are within site-specific ranges (5.9 - 8.0 pH; 76-1171 ppm $CaCO_3$) and are typical of most surface waters in the U.S. New criterion values resulted in additional exceedances; criterion changes did not change the final results. Appendix B contains a summary of the derivation of AWQC.

Specific Responses to the bulleted comments are provided in order, as follows:

- The surface water marine criterion used for 1,2-dichloroethane was incorrect.

Response: The criterion for 1,2-dichloroethene was corrected in the final Streamlined Risk Assessment document.

- Marine and/or freshwater toxicity values available from EPA for dichlorobenzenes, 2,4-dimethylphenol, acenaphthene, fluoranthene, naphthalene, phenol, DDD, DDE, aluminum, and silver are not all listed.

Response: The requested criteria were added in the final Streamlined Risk Assessment document.

- The surface water marine criterion used for lindane is incorrect.

Response: The criterion for lindane was corrected in the final Streamlined Risk Assessment document.

- The pH used in the calculation of the criterion for pentachlorophenol should be stated. Likewise, the hardness used to calculate the criteria for hardness-dependant heavy metals should be referenced. Commentor stated that a hardness of 100 ppm $CaCO_3$ is low considering the salinity of waters proximate to the landfill.

Response: Average water quality values were used for pH (7.8) and hardness (100 ppm CaCO3) because these values are within site-specific ranges and are typical of most surface waters in the U.S.

- There are cases where acute criterion values are incorrectly referenced as chronic, and vice versa. This comment applies to values for 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, gamma-BHC, 4,4-DDT, arsenic, cadmium, copper, cyanide, lead, mercury, nickel, selenium, thallium, and zinc.

Response: The listed criteria are correctly referenced in Table 4-1 in the final Streamlined Risk Assessment.

- The use of a marine surface water criterion for chromium based on chromium VI is inappropriate. Commentor asked for justification for the use of this value. Commentor stated that only chromium III (not chromium VI) would occur in oxygenated surface water.

Response: Specific metallic speciation studies were not performed during the remedial investigation. Therefore it is not known what the chromium III levels are at the site. In addition, there is no chronic criterion for chromium III for saltwater. EPA believes it is reasonable to assume that the chromium VI chronic

criteria would be protective of most aquatic organisms, therefore it was used.

- In contrast to what is stated in the Risk Assessment, the chronic toxicity of zinc <u>is</u> affected by hardness. In addition, the commentor noted that the most recent ambient water quality criterion for zinc was published in 1987, not 1980.

Response: Average water quality values were used for pH (7.8) and hardness (100 ppm $CaCO_3$) because these values are within site-specific ranges and are typical of most surface waters in the U.S. Reference to the AWQC 1987 zinc document is noted, however the process of deriving AWQC has not changed.

- EPA incorrectly stated that aldrin levels exceeded EPA ambient water quality criterion. Aldrin levels exceed the Washington standard, but not the EPA standard.

Response: There are no EPA chronic criterion for aldrin; however, there are EPA chronic criteria for dieldrin. Because aldrin is metabolically converted to dieldrin by aquatic organisms, toxicity is attributed primarily to dieldrin. The Washington state water quality criterion was used for aldrin, since there is no EPA chronic criterion. However, aldrin levels at the site exceeded the Washington State chronic criterion and the EPA chronic criterion for dieldrin.

- The freshwater chronic criterion for PCBs is incorrect.

Response: The criterion for PCBs is correct in the final Streamlined Risk Assessment document.

- There are dissolved metals criteria available under the Washington Water Quality standards which should have been used.

Response: The final Streamlined Risk Assessment document includes Washington water quality standards for both dissolved and total metals.

- The marine chronic criterion used for heptachlor epoxide is incorrect.

Response: The criterion for heptachlor epoxide is correct in the final Streamlined Risk Assessment document.

- Marine chronic criteria was inappropriately used to screen on-source surface water for the following chemicals: phenanthrene, chromium, copper, cyanide, nickel, and zinc. In addition, marine chronic criteria was inappropriately used to screen on-site groundwater for the following chemicals: heptachlor, endosulfan II, zinc, mercury, copper, chromium, lead, cyanide, and nickel.

Response: The final Streamlined Risk Assessment has been revised so that on-source surface water data is compared only to freshwater comparison numbers. The groundwater was appropriately screened against marine AWQC because the groundwater exits into an estuarine environment.

11.53 **Comment:** Commentor stated that the on-source pooled water is ephemeral and would not sustain a balanced community of aquatic organisms. Therefore, ambient water quality criteria are not appropriate "screening" tools for evaluating these waters. [3]

Response: The on-source surface water on Tulalip Landfill consists of semi-permanent ponded and saturated areas capable of supporting aquatic life. Amphibian, reptilian, and aquatic organisms may be in the ponded areas of the landfill. Obviously, there are no salmonids in the on-source surface water; however, it is appropriate to screen against AWQC because the AWQC are designed to protect a large range of aquatic organisms. See Appendix B in the Streamlined Risk Assessment, "Derivation of Chemical-Specific AWQC" for more information about the AWQC.

11.54 **Comment:** Commentor suggested EPA inappropriately used outdated criteria for "screening" sediment toxicity (i.e., AETs) and should have used the current State SMS. Commentor argued that the EPA's stated rationale to not use the SMS due to the unavailability of dry-weight data and total organic carbon data is invalid. [3]

Response: The AETs and the SMS values are functionally equivalent, therefore either value can be used interchangeably. In Washington State, if a particular sample has an associated total organic carbon (TOC) value outside of the 0.5-3.0 range, AETs are used, in addition to SMS, for comparison to site data. Because many of the Tulalip samples have TOC numbers outside of this range, EPA considers comparison of site data to the AETs numbers to be an appropriate methodology.

EPA believes comparison of site data to AET numbers is sufficient for the Streamlined Risk Assessment. The comparison numbers for sediment were based on the dry-weight normalized AET concentrations (PSEP, 1988). AETs were used in place of the Washington State Sediment Management Standards (SMS) (Chapters 173-204 WAC) in this assessment because the site data were reported on a dry-weight basis. The database for site data collected during the RI was not completed at the time of the Draft Final Tulalip Landfill Risk Assessment for Interim Remedial Action; nor were the Round 2 sediment data in the database (received October 24, 1995). Sample-specific TOC normalization will be performed in the comprehensive baseline risk assessment to determine which samples can be compared to the SMS (i.e., normalization can only be performed in the TOC range of 0.5-3.0 percent).

11.55 **Comment:** Commentor asserted that exceedances of the "screening values" does not de facto indicate that "adverse affects are expected to occur." Commentor suggested that any observations of exceedances of "screening values" may indicate a potential for adverse effects. [3]

Response: EPA believes that exceedances indicate a potential for adverse effects.

11.56 **Comment:** Commentor had the following comments on the shrew model: [3]

- Commentor requested an additional explanation regarding why the terrestrial model used for organic chemicals could not be used for inorganic chemicals.

Response: This model probably could be developed for inorganic chemicals. However, there were already a number of comparison numbers available for inorganic chemicals, so it was not necessary to develop a model for inorganics. Therefore, the model was only used for organic chemicals.

- Commentor stated that the units do not balance in the equation used for estimating the daily soil ingestion rate of a shrew.

Response: The equation balances. The food ingestion rate should be 3.0 kg earthworm/kg body weight/day. The conversion factor has already been incorporated into the equation. For additional clarification,

consult the associated text on page A-4 of the Streamlined Risk Assessment.

- Commentor requested a reference to support the assumption that the shrew diet consists of 50 percent earthworms.

Response: This was a conservative assumption as stated in the Streamlined Risk Assessment. It is likely that the actual percentage exceeds 50%. The Wildlife Exposure Factors Handbook (EPA, 1993b) referenced on page 5-3 of the Streamlined Risk Assessment lists earthworms, slugs, snails, and ground-dwelling insects as making up over 50 percent of the shrew's diet, so 50% was used in the Streamlined Risk Assessment as a conservative assumption.

- Commentor requested clarification regarding which units are in wet weight, and which are in dry weight.

Response: The document has been clarified with respect to dry weight verses wet weight. As a point of clarification, earthworm wet weights were converted to dry weights.

- Commentor was unable to duplicate the calculated soil ingestion rate.

Response: The soil concentration is calculated correctly. The equation is 3.0 (kg fresh food/day) (daily food ingestion rate) X 0.5 (kg earthworm/kg fresh food) (proportion of diet that is earthworms) X 0.1 (kg soil/kg dry weight of earthworm) (amount of soil in earthworm) = 0.15 kg/kg body weight/day (soil ingestion rate). The conversion factor is already incorporated into the equation and the ingestion rate is 3.0 kg earthworm/kg body weight/day. Earthworm wet weights were converted to dry weight.

- Commentor requested clarification regarding why the shrew food ingestion rate was different from the shrew daily food ingestion rate.

Response: The food ingestion rate and the daily food ingestion rate are the same. There is a range in the daily food ingestion rate (1.3 to 4.5 times the body weight). For the purposes of developing ecological comparison numbers, it was assumed the shrew consumes three times its body weight (3.0 kg earthworm/kg body weight/day). See page A-4 of the Streamlined Risk Assessment for additional clarification.

- Commentor requested more information regarding the calculation of the ecological RBCs. Commentor was unable to reproduce the RBCs calculated for PCBs and DDT.

Response: Examples of calculations of ecological soil RBCs are as follows. Detailed information regarding the derivation and calculation of ecological soil RBCs can be found on pages A-1 through A-5 of the Streamlined Risk Assessment. The bioaccumulation factor for PCB (20) is multiplied by the food ingestion rate (3.0) and the soil ingestion rate (0.15) is added to this to calculate a total daily intake. In this case the total daily intake is 60.15 = [(20 X 3.0) + 0.15]. The toxicity reference value (TRV) for this chemical is 10.0. The TRV (10.0) is then divided by the total daily intake value (60.15) to get a RBC of 0.1662 ug/kg or 166.2 mg/kg. This number is rounded to the nearest whole number for the final RBC of 170 mg/kg.

The bioaccumulation factor for DDT (5.1) is multiplied by the food ingestion rate (3.0) and the soil ingestion rate (0.15) is added to this to calculate a total daily intake. In this case the total daily intake is 15.45 = [(5.1 X 3.0) + 0.15]. The toxicity reference value (TRV) for this chemical is 0.1. The TRV (0.1) is then divided by the total daily intake value (15.45) to get a RBC of 0.0065 ug/kg or 6.5 mg/kg.

11.57 **Comment:** Commentor stated that the text has not shown that plants are more sensitive to inorganics than shrews, and therefore the shrew model should have been used to derive RBCs for inorganic chemicals. [3]

Response: EPA agrees that this model probably could be developed for inorganic chemicals. However, there were already a number of comparison numbers available for inorganic chemicals, so development of the model for this purpose was not necessary. Therefore the model was only used for organic chemicals. The sensitivity of plants verses shrews is dependent on the chemical being evaluated. Therefore, chemical sensitivities were not investigated as part of the Streamlined Risk Assessment.

11.58 **Comment:** Commentor requested clarification of the statements made in Section 4.7 of the Risk Assessment. Commentor thinks EPA has inappropriately suggested that there is evidence of plant mortality at the Site, and states that discussing vole survival in the context of plant toxicity is inappropriate. Commentor also states

that contrary to what EPA has stated, there is no evidence of a loss of shrews at the site, and that there is not enough scientific evidence available to indicate that chemicals such as PCBs are affecting organisms at a higher trophic level. [3]

Response: EPA is stating that there is potential for adverse effects based on the chemical concentrations at the Site. Potential adverse effects based on numerous exceedances of risk-based criteria are discussed in the Streamlined Risk Assessment. However, additional text, discussing the ecological significance of exceedances of the risk-based criteria, was added to this section in the Final Streamlined Risk Assessment document to clarify that potential mortality to lower trophic levels (e.g., plants) may have a negative impact on higher trophic levels (e.g., voles). Exposure to higher trophic levels will be evaluated in the comprehensive baseline risk assessment. It is general scientific knowledge that bioaccumulative compounds such as PCBs can adversely affect organisms in higher trophic levels (EPA, 1993b; Weston, Weston, 1995b). See Response to Comment 11.60.

11.59 **Comment:** Commentor stated that more references are needed to substantiate the adequacy of the RBCs selected for the protection of biota exposed to metals in soil. Commentor asked if plants are more sensitive to metals in the soil, as opposed to avian and mammalian receptors who are exposed through a soil-based food chain. [3]

Response: Comparison numbers, with associated references, for inorganics are presented in Table A-1. From these references, a range of comparison numbers were identified. From this range of comparison numbers, an average was determined and used in the Streamlined Risk Assessment.

In this Streamlined Risk Assessment, which relies upon comparing site contaminant levels to comparison numbers, EPA believes it is not necessary to evaluate birds and mammals with respect to inorganics because the presumptive remedy does not require all exposure pathways or receptors to be evaluated. Because plant comparison numbers were readily available for the Streamlined Risk Assessment, these were used to streamline the risk assessment. Bird and mammal tissue will be evaluated in the comprehensive baseline risk assessment. See Response to Comment 11.16.

11.60 **Comment:** Commentor requested an explanation of what constitutes ecological significance for effects in plants. [3]

Response: Typically the mid-range of potentially deleterious effects were chosen as RBCs. Ecological significance in this context refers primarily to death. Effects such as "reduced weight" would probably not be ecologically significant. This was only chosen if other benchmarks bracketed (were higher and lower than) this value. Plant mortality is an example of an ecologically significant effect. Therefore, exceedances of these RBCs indicates that there is a potential for adverse effects to plants (and possibly plant consumers) at Tulalip Landfill. For example, if copper concentrations at the site are higher than the 100 ppm benchmark that indicates excessive toxicity to plants, this indicates there are potential detrimental effects at the Site from exposure to copper. There were soil samples in the off-source soil that exceeded the 100 ppm benchmark with concentrations of 129 and 135 ppm.

11.61 **Comment:** Commentor asked for justification for the assumption that terrestrial biota would be in contact with chemicals in soils to depths up to 1.5 feet. [3]

Response: Terrestrial organisms, particularly burrowing organisms (mole, otter), regularly contact soils to depths of 1.5 feet (EPA, 1993b). In addition, burrowing activity often results in the physical transport of deeper soils to the surface, which exposes non-burrowing organisms as well.

11.62 **Comment:** Commentor stated that in contrast to what EPA has stated, data is available for inorganic chemicals which addresses toxicity to mammals and birds. [3]

Response: A quantitative evaluation of birds and mammals was outside the scope of the Streamlined Risk Assessment. EPA expects to evaluate, quantitatively, bird exposure and mammal tissue in the comprehensive baseline risk assessment.

11.63 **Comment:** Commentor stated that it is inappropriate to conclude that elevated chemical concentrations may be a cause for the lack of sensitive species at the site. [3]

Response: Elevated concentrations of chemicals can adversely affect ecological organisms, especially sensitive species (amphibians, great blue heron, mink)

and sensitive life-stages (juvenile). For example, mink are very sensitive to elevated PCB concentrations. PCBs have been detected in leachate seeps, surface and subsurface soils, fish tissue and mammal tissue at the Site. Some of these sensitive species (amphibians, great blue heron) have been observed in the vicinity of Tulalip Landfill (NOAA, 1991 and Weston, 1992). Exposure of mink to even very low concentrations of PCBs can lead to adverse effects such as death and reproductive failure. No population studies have been performed to date; however, the comprehensive baseline risk assessment for the off-source area will evaluate the impact these chemicals may have on sensitive organisms. In the risk assessment process only a select number of species, trophic levels, and exposure scenarios can be evaluated. In EPA's opinion, it is important to be fairly conservative in evaluating the risk associated with chemical concentrations because not every species and life-stage can be evaluated in a risk assessment. In the Streamlined Risk Assessment, elevated chemical concentrations detected at the Landfill were compared to concentrations that cause adverse effects in organisms. Some of the chemicals detected at the Landfill were at levels above these adverse effects criteria. Therefore, there is potential for adverse effects to both common and sensitive species in the vicinity of the Landfill.

11.64 **Comment:** Commentor stated that the ecological and biological data collected during the remedial investigation demonstrate that risks to fish and wildlife at the site, both terrestrial and estuarine, were either non-existent or negligible when compared to the data from the background locations. [3]

Response: EPA evaluated site data collected during the remedial investigation with regional background data in the Streamlined Risk Assessment and found exceedances of background. EPA did not use the site-specific background data collected during the remedial investigation in the Streamlined Risk Assessment because EPA did not have all the background data, e.g., (1) the clam data was not usable and new clam data had to be generated and (2) sediments had to be re-sampled. The site-specific background data will be evaluated in the comprehensive baseline risk assessment. See also Response to Comment 11.88.

11.65 **Comment:** Commentor stated that, as discussed in the Tulalip Landfill Remedial Investigation report, the bioassays that were conducted on off-site sediment samples indicate negligible risks to aquatic life. [3]

Response: The bioassay data will be appropriately evaluated in the comprehensive baseline risk assessment. See Response to Comment 11.88. However, preliminary evaluation of RI data indicates that sediments collected from numerous locations surrounding the Tulalip Landfill experienced relatively high amphipod mortality during the test. This indicates a potential for adverse effects for organisms exposed to sediment in the proximity of Tulalip Landfill.

11.66 **Comment:** Commentor asked for further clarification on what was meant by "groundwater in the form of ponded areas." [3]

Response: This typographical error was corrected in the final Streamlined Risk Assessment. The phrase was changed to "surface" water.

11.67 **Comment:** Commentor noted that in contrast to EPA's data, the data available to Parametrix and the Respondents does not indicate an exceedance of chromium and nickel in off-source surface sediment. Commentor asked if these exceedances were found in EPA's split samples. [3]

Response: Concentrations of chromium and nickel exceeding the comparison numbers detected in EPA's split samples, but were not found in the Respondent's samples at levels exceeding the comparison numbers. Minor analytical differences such as these are common in split samples and could be the result of heterogenicity in samples, detection limit differences, laboratory variability, or other similar reasons.

11.68 **Comment:** Commentor asked for data to substantiate the statement that organisms used to develop specific AWQC were compared to organisms found at the site during EPA's Response, Engineering and Analysis Contract (REAC) investigation. Commentor also asked for specific data to back the statement that the AWQC were not developed considering organisms or life stages which are sensitive. [3]

Response: EPA is not prohibited from using a particular AWQC if the specific organism for that AWQC is not present on the Site. If organism similar to the organism on which an particular AWQC was developed is present, then that is sufficient for EPA use the associated AWQC to assess risk.

The commentor is directed to Appendix B (derivation of chemical-specific AWQC) of the Streamlined Risk

Assessment for more information concerning the derivation of AWQC. To summarize, the EPA and Washington State AWQ standards were developed to protect a large range of aquatic organisms (many of these are found in the vicinity of Tulalip Landfill). The EPA REAC report (Weston, 1992) contains information relating to specific species identified at the Tulalip site. The AWQC are appropriate to use at Tulalip because many of the organisms used to develop AWQC are also found in the vicinity of Tulalip Landfill. However, water quality criteria are not necessarily protective of all species and all life-stages of wildlife. The AWQC are based on available data; new data can result in an updated criterion. For example, as additional species are tested in response to a contaminant, the criterion may change because additional information is gathered. This is because most of the criterion values are based on data from testing a variety of common aquatic organisms. More sensitive life-stages (i.e., juvenile) and more sensitive organisms (i.e., amphibians can be sensitive) are not often tested due to lack of commercial availability. As new tests are developed to investigate sensitive life-stages and organisms, lower criterion values (more conservative) can be developed.

11.69 **Comment:** Commentor requested that uncertainties related to the RI data be discussed in the uncertainty analysis section. [3]

Response: The RI data used in the Streamlined Risk Assessment was validated by the AOC Respondents' contractor and no problems in the data set used for this assessment were identified. A full evaluation of frequency of detection, detection limits, and other data quality issues is provided in Section 6 and Appendix L of the RI report (HLA, 1995). A brief discussion of the uncertainties associated with the detection limits is provided in Section 2.1 of the Streamlined Risk Assessment. Some of the uncertainties related to use of the RI data include elevated detection limits compared to comparison numbers (the data did not meet detection limit goals), interferences from salt water, and interferences from complex sample matrices (e.g., high organic content).

Detection limits exceedances have resulted in re-sampling of small mammals, therefore not all of the data was available for the Streamlined Risk Assessment. In addition, analytical errors resulted in re-performing the clam bioassay. This included re-sampling selected sediment stations. Analytical

oversights also resulted in EPA re-evaluating the fish tissue PCB results. As an example, some of the sediment detection limit exceedances due to salt and/or complex sample matrices can not be lowered; therefore, some of these samples may not be as accurate in predicting adverse effects.

For more information regarding the "1988 data," see the Responses to Comments 10.1 - 10.4.

11.70 **Comment:** Commentor asked whether EPA measured the hardness in the ponded water on the landfill surface, and if so why the freshwater chronic criteria were not adjusted according to this hardness. [3]

Response: Average water quality values were used for pH (7.8) and hardness (100 ppm CaCO3) because these values are within site-specific ranges (5.9 pH; 76-1171 ppm $CaCO_3$) and are typical of most surface waters in the U.S.

11.71 **Comment:** Commentor stated that tidal estuaries, such as the estuary which surrounds the landfill, typically do not contain the diverse populations that AWQC were established to protect. Respondents disagree that marine AWQCs should be ARARs to be used for direct comparison to leachate seeps and Zone 2 groundwater. EPA inappropriately denied the Respondent's request to conduct an aquatic life survey of the site. [3]

Response: Tidal estuaries, in contrast to the commentor's suggestion, do contain diverse ecological communities. In fact, tidal wetlands are the most diverse wetland systems. In addition, these areas are often used as nurseries for sensitive life stages, such as juveniles and reproductively active organisms. Organisms at a sensitive life stages are, in general, more vulnerable to chemical exposures. Providing a nursey for sensitive life stages is a primary function of wetlands (i.e., providing a nursery) for a multitude of fish and wildlife species (Mitsch and Gosselink, 1993). Aquatic species residing in the vicinity of the Tulalip Landfill include salmon, cutthroat trout, and aquatic invertebrates such as clams, mussels, shrimp, and juvenile Dungeness crab (NOAA, 1991 and Weston, 1992). Terrestrial species utilizing estuarine wetlands in the vicinity of Tulalip Landfill include shorebirds and waterfowl, marsh hawks, osprey, bald eagles, and small mammals. The plant species in the area such as cattail, bulrush, and sedges provide shelter, feeding, and nesting areas for many of these

wildlife species. These plants also serve as a detrital (dead) food source for aquatic invertebrates (Mitsch and Gosselink, 1993).

Marine AWQCs are appropriate numbers for direct comparison to leachate and groundwater data. The Washington State Department of Ecology recommends that surface waters with salinities greater than 10 ppt be compared to marine AWQC, and that surface waters with salinities between 1 and 10 ppt are to be compared to the most conservative of the freshwater or marine criterion[32]. The salinity around the Tulalip Landfill are between 5 and 22 ppt, depending on the tide. Review of available biological survey data (Weston, 1992; NOAA, 1991) indicate that marine organisms inhabit the areas surrounding the Tulalip Landfill. The presence of marine organisms is of primary importance in the selection of meaningful water quality criteria. The marine organisms observed near the site are likely the primary receptors for off-site contaminant migration. As such, use of marine criteria for evaluating potential toxicity to these organisms is the most relevant and appropriate, and protective, approach.

The Respondents' request to conduct additional aquatic survey work at the Site was the subject of a formal dispute process under the RI/FS Administrative Order on Consent (AOC). See Response to Comment 2.10.4 for more information regarding this dispute. In summary, EPA's final determination, which was issued pursuant to the AOC, regarding this issue is that sufficient aquatic surveys have already been conducted in the vicinity of the Tulalip Landfill. Additional aquatic survey work is not necessary. For more information refer to the following documents which are included in the AR for this interim ROD:

1. Preliminary Natural Resource Survey, Tulalip Landfill, Marysville, WA, National Oceanic and Atmospheric Administration, 1991 (NOAA, 1991); and

2. Draft Preliminary Site Assessment of the Tulalip Landfill, Letter from R. Henry to D. Charters, September 8, 1992 (Weston, 1992).

A few of the species noted in the above documents are summarized in the first paragraph of this response.

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[32] \ Personal communication between Mark Hicks, Washington Department of Ecology and Nancy Musgrove, Roy F Weston, Inc. on January 10, 1995.

11.72 **Comment:** Commentor asked that references be provided to support the use of cattail, bulrush and sedge as a food base for aquatic invertebrates. Commentor asked for a definition of "food base." [3]

Response: EPA has added the requested reference to the final Streamlined Risk Assessment document (Mitch and Gosselink, 1993). The term "food base" has been changed to "food source" to more explicitly indicate that these emergent plants form a detrital (dead) food source ingested by aquatic invertebrates.

11.73 **Comment:** Commentor stated that small mammals should be included in the list provided on page 4-1. [3]

Response: EPA agrees. Small mammals were added to the list. The reader should note that this list is not a complete listing of all species that have been observed at the landfill. Please refer to Comment 11.71 for more information. Rather, the list provides some examples of species found in the vicinity of the landfill.

11.74 **Comment:** Commentor stated that additional details regarding the selection of sediment "screening criteria" are not provided in Appendix A as referenced in Section 4.3.1. [3]

Response: The commentor is mistaken in quoting this section in relation to the selection of sediment screening criteria. There is no mention of Appendix A. However, in the final Streamlined Risk Assessment document, text in Appendix A has been clarified to explain that sediment comparison numbers were discussed in Section 4.

11.75 **Comment:** Commentor noted that the Apparent Effects Thresholds (AETs) used for benzo(b)fluoranthene and benzo(k)fluoranthene are based on Microtox data, even though the text states that AETs based on Microtox data would not be used. Commentor also noted that AETs based on amphipods, oyster larvae, and benthic abundance are available for these chemicals. [3]

Response: These numbers were changed in the final version of the Streamlined Risk Assessment document. Microtox data were not used.

11.76 **Comment:** Commentor noted that freshwater criteria were used instead of marine criteria to evaluate concentrations of lead and mercury in off-source leachate and surface water. [3]

Response: In the final Streamlined Risk Assessment document, the referenced numbers were changed to marine criteria and the evaluation process was repeated. Tables 4-2 and 4-3 in the final Streamlined Risk Assessment reflect any changes resulting from the use of the revised ecological comparison numbers.

11.77 **Comment:** Commentor asked for a reference for the source of on-source surface water and surface soil data. [3]

Response: On-source surface soil and surface water data (i.e., sample numbers P1-P5) are from the 1988 E&E report. In addition, leachate seep SP01 is on-source and was sampled during the RI. Leachate seep SP01 had numerous exceedances of AWQC for inorganics such as lead, PCBs such as Aroclor 1016, pesticides such as heptachlor epoxide, and PAHs such as phenanthrene.

11.78 **Comment:** Commentor offered editorial comments on Table 4-3 of the Risk Assessment and noted that sample R1SBSB01F1 was incorrectly listed as having a vanadium exceedance. [3]

Response: Based on data received digitally from the Respondents, which contains validated data submitted by the Respondents, vanadium was detected in soil at the concentration identified in the report, and exceeded the ecological comparison number. Editorial comments are noted. Table 4-3 has been revised in the final Streamlined Risk Assessment.

11.79 **Comment:** Commentor noted that although the Risk Assessment stated that data from reference areas were not included, the data was included in the discussion regarding chemical exceedances in off-source surface-water. [3]

Response: The commentor has mistakenly concluded that off-source surface water samples were background (reference) samples. The off-source surface water samples referred to by the commentor were taken to evaluate the impact of landfill contaminant discharge on surface water near the site, not as potential reference locations. No reference samples were used in the Streamlined Risk Assessment.

11.80 **Comment:** Commentor identified references cited in the text which were omitted from the references section. [3]

Response: In the final version of the Streamlined Risk Assessment the reference section is complete.

11.81 **Comment:** Commentor noted that ecological toxicity values and Toxicity Reference Values (TRVs) do not correspond with the values for acenaphthylene and anthracene in Table A-2 of the Risk Assessment. The body weights and ingestion rates used for converting dietary values to doses was requested. [3]

Response: Information contained in the table referenced by the commentor is correct in the final Streamlined Risk Assessment. The requested justification is provided in the text on pages A-4 and A-5 of the Streamlined Risk Assessment.

11.82 **Comment:** Commentor noted that the chronic exposure criterion for aldrin is inappropriately labeled as marine when it is actually a freshwater criterion. [3]

Response: The marine and freshwater criterion for aldrin are identical.

11.83 **Comment:** Commentor stated that the data that exceeded "screening levels" was in part based on comparison to marine aquatic standards even though the surface of the landfill is generally 10 to 14 feet above sea level and high tide. These surface conditions will not support marine organisms. [3]

Response: The surface water on the landfill surface was only compared to freshwater AWQC, not to marine AWQC as the commentor suggests.

Data Use/Interpretation Comments

11.84 **Comment:** Commentor asserted that the use of unvalidated chemistry data is not appropriate. [3]

Response: All data used in the Streamlined Risk Assessment was validated. The Streamlined Risk Assessment states that EPA did not perform <u>additional</u> quality control on the validated data submitted by the Respondents. EPA, however, reviewed the validation reports submitted by the Respondents. In addition, all split sample data was validated by EPA. For a discussion about the quality of the 1988 data, refer to the Responses to Comments 10.1 - 10.4.

11.85 **Comment:** Commentors asserted that because on-source surface water data are sufficiently old and were collected during on-site disposal activities with heavy

equipment present, that the data may not reflect current conditions at the site. [2] [3]

Response: EPA agrees that surface water data collected in 1988 may not be reflective of current site conditions. Refer to the Responses to Comments 2.9.2 and 2.9.3 for information about how EPA considered the 1988 surface water data.

Regarding the second part of the comment which suggests that the 1988 on-site disposal activities may have contaminated the samples taken in 1988 and therefore, may not be representative of current conditions at the Site, refer to the Response to Comment 11.7.

Subcomments: Several additional concerns with this data were raised.

- Commentor asked if detection limits for this data were evaluated and within risk-based concentration levels.

Response: Detection limits were not evaluated in the Streamlined Risk Assessment. It was not necessary to evaluate detection limits in the Streamlined Risk Assessment because only detected concentrations were compared to criteria. A thorough review of detection limits is provided in Appendix L of the Remedial Investigation report prepared by the Respondents (HLA, 1995).

- Commentor asked what kind of off-source area data was being referred to in the Risk Assessment, and in which year it was collected.

Response: The off-source data that were used are identified in Section 2 of the Streamlined Risk Assessment. This data was collected in 1994 and 1995 during the RI (HLA, 1995) by the Respondents.

- Commentor asked where the data used in the Risk Assessment are summarized?

Response: The off-source data used in the Streamlined Risk Assessment are summarized in Section 4 of the RI report (HLA, 1995) and in Section 2 of the Streamlined Risk Assessment.

- Commentor stated that a summary table is required in Section 2 of the Risk Assessment which identifies the number of samples collected by media, the frequency of detections, the range of

detections, and average and maximum concentrations by depth interval.

Response: This information is provided in Section 4 of the RI (HLA, 1995). EPA believes it would be inappropriately redundant to duplicate this information in the Streamlined Risk Assessment.

11.86 **Comment:** Commentor requested that the citation for data obtained from duplicate samples collected by EPA be provided. [3]

Response: Copies of the validated split sample results are available for public review in Section 3.8 of the AR for the interim ROD.

11.87 **Comment:** Commentor stated that the draft Risk Assessment did not discuss risk-based detection limits relative to the analytical detection limits. Commentor suggested that this information is important for evaluating the data reliability for Risk Assessment purposes. [3]

Response: A discussion of analyte detection limits is contained in Appendix L of the Remedial Investigation report (HLA, 1995). It was not appropriate to include discussion of detection limits in the Streamlined Risk Assessment because only <u>detected</u> concentrations were compared to criteria. However, lower risk-based detection limits would allow the addition of more contaminants into the evaluation process.

11.88 **Comment:** Commentor asked why EPA did not use the "$700,000 worth of data collected" by the Respondents in the "screening risk assessment." And, if EPA didn't intend to use it, why EPA required the data to be collected? [1] [2]

Response: <u>See</u> Response to Comment 11.6. The data the commentor is referring to was not used in the Streamlined Risk Assessment because the data was not available at the time the Streamlined Risk Assessment was being developed. The data was not available because of analytical problems with the data submitted by the Respondents. This data has been corrected to meet Agency standards and the Agency plans to incorporate these data into the ongoing comprehensive baseline risk assessment. Additionally, some of the data (e.g., bioassays) will need to be quantitatively evaluated using statistical methods, and this type of in-depth evaluation was outside the scope of the

Streamlined Risk Assessment, which is a qualitative analysis of risk.

11.89 **Comment:** Conservative approaches used by EPA have biased the Risk Assessment results. EPA selected chemicals for inclusion in the Risk Assessment that were: (1) only infrequently detected; (2) for concentrations so low that they could only be estimated; and (3) for which standard laboratory and EPA procedures indicated the constituents were not present but for which EPA has decided to presume were present. [3]

Response: EPA believes the results of the Streamlined Risk Assessment are valid and sufficient for decisionmaking purposes with regard to an early, interim containment remedy at the Site. See Responses to Comments 11.26, 11.84 and 11.90.

11.90 **Comment:** Commentor stated that the use of estimated concentrations conservatively biased the results of the Risk Assessment. [3]

Response: Concentrations that are estimated (J) indicate there is a positive identification of a particular compound, however the "real" value could be either higher or lower than the estimate. Therefore, no conclusion can be made regarding the compounds' conservative or non-conservative bias. Risk assessment guidance states that all "J'd" values should be used in the risk assessment. In addition, these values were validated by the Respondents.

11.91 **Comment:** Commentor suggested that EPA's draft Risk Assessment inappropriately compared individual and maximum detected concentrations to arbitrarily selected benchmarks and should have calculated the concentration term as the upper 95th percentile of the mean concentration to estimate risk. Commentor also asserted that the Risk Assessment failed to employ proper guidance in determining the actual risk calculations by ignoring average exposure time, average exposure concentrations, and the frequency of detection of contaminants in environmental media. [3]

Response: Contrary to what the commentor has suggested, EPA compared all detected concentrations to comparison numbers (not just the maximum detected concentrations). The purpose of the Streamlined Risk Assessment was to evaluate the frequency and magnitude of exceedances of comparison numbers that are considered to be protective of human health and the

environment. For this type of qualitative evaluation, it is not necessary to calculate the upper 95th confidence level of the mean concentration. EPA disagrees that the comparison numbers were arbitrarily chosen - complete justification for the selection and use of the comparison numbers is contained Sections 3 and 4 of the Streamlined Risk Assessment.

The Streamlined Risk Assessment fully complies with CERCLA, the NCP, and EPA presumptive remedy guidance. Risk calculations were not prepared in the Streamlined Risk Assessment. Therefore, the comment that proper guidance was not used in preparing risk calculations is incorrect. EPA included the four steps prescribed in EPA guidance for conducting a risk assessment in the Streamlined Risk Assessment for the Tulalip site. For more information see the second paragraph of the Response to Comment 11.11.

11.92 **Comment:** Commentor argued that the use of total metals concentrations is inconsistent with EPA guidance. [3]

Response: The issue of the appropriateness of total vs dissolved metal analyses was the subject of a formal dispute under the RI/FS AOC (Gearheard, 1995b; Findley, 1995b). See also Response to Comment 2.11.1 and ROD Section 11.2.1.

EPA agrees with Respondents that the AWQC promulgated by the State, and most recently Federal Water Quality Criteria (FWQC) measure at least some of the water quality criteria using dissolved metals data. However, WAC 173-340-730(7)(c) states "(c)ompliance with surface water cleanup standards shall be determined by analyses of unfiltered surface water samples, unless it can be demonstrated that a filtered sample provides a more representative measure of surface water quality." Respondents did not demonstrate that this is the case and, based on available information, unfiltered samples provide a more representative measure of surface water quality.

Quantifying total, rather than dissolved, metals concentrations in leachate seeps is the most appropriate approach for assessing overall exposure (via all exposure routes including ingestion and dermal contact) and potential ecological risks to fish and invertebrates residing in the vicinity of the Tulalip Landfill. EPA does not consider the filtered leachate data to adequately characterize all potential risks to these receptors, and thus requires that total metals must be used for assessing such risks.

Even though EPA's position is that total metals (as opposed to filtered metals) are the more appropriate concentrations to use for risk evaluations at this Site, in the final Streamlined Risk Assessment document, both total and dissolved metal concentrations were compared to criteria. Using dissolved metal concentrations, several criteria exceedances were found.

11.93 **Comment:** Commentor recommended that the frequency and magnitude of exceedances be provided. [3]

Response: This information is provided in the interim ROD in Table 6-2 of the human health evaluation and Tables 6-4 and 6-5 of the ecological evaluation.

11.94 **Comment:** Commentor requested that the number of samples collected in surface water that measured lead at concentrations exceeding "screening guidelines" be provided. [3]

Response: Streamlined Risk Assessment Table 6-2 of the human health evaluation and Tables 6-4 and 6-5 of the ecological evaluation indicate that lead exceeded ecological comparison numbers in two on-source surface water samples and one off-source surface water sample. The human health evaluation indicated that lead did not exceed the human health comparison number. See Response to Comments 2.10.2 and 11.76.

11.95 **Comment:** Commentor stated that any discussion regarding the pattern of contaminant migration at the site requires a supporting reference. Further, the commentor stated that the conclusion that the site represents a potential source of exposure and adverse effects to receptors is not supported by specific scientific documentation. [3]

Response: Based on the results of the RI/FS and the Streamlined Risk Assessment, EPA believes the conclusion that the Landfill is a contaminant source is clearly supported, and the potential exposure of humans and environmental receptors to site contamination represents a potential threat to human health and the environment. Contaminant migration at the site is discussed in Sections 4 and 5 of the RI report prepared by Respondents (HLA, 1995). This report documents chemical concentrations detected in groundwater, leachate, and off-source soil and sediment and discusses potential fate and transport mechanisms for detected chemicals. Information in the RI indicates that the highest off-source chemical concentrations are

found directly adjacent to the landfill. The RI includes statements such as "(T)he highest concentration of constituents were generally reported in surface soil at the point of leachate seep discharge." (page 6-6). The conclusion that the site represents a source of exposure and potential adverse effects to receptors is supported, at a minimum, by the facts that landfill leachate can be seen discharging from the landfill berm to the surrounding environment, that many of the same chemicals were detected in leachate and off-source media, and that the RI observes a chemical concentration gradient in sediments and soils away from the seeps, and by the magnitude and frequency of criteria exceedances reported in the Streamlined Risk Assessment in all media, including perimeter berm leachate and sediments and soils near the leachate seeps.

11.96 **Comment:** Commentor stated that there are a number of reasons why elevated concentrations of phenol and 4-methylphenol in surface sediments are not suspected to originate from the landfill. Specific reasons given by the Commentor include the following: [3]

- The chemical concentrations associated with exceedances were, in all cases, higher at the mouths of tidal channels than at the base of the berm where leachate seeps occur. Commentor states that this reverse gradient suggests a source external from the landfill.

Response: It is clear that the landfill is a source of phenol and 4-methylphenol because these compounds were detected in leachate samples. It is possible that additional sources in addition to the landfill exist since phenols can be produced by aerobic degradation of aromatic organics, sewage, and wood wastes. However, EPA has received no information which demonstrates these exceedances are the result of sources other than the landfill. EPA notes that neither phenol nor 4-methylphenol were detected in the surface water surrounding the landfill, but both were detected in the leachate seeps. Therefore, it would be inappropriate to conclude that the origin of these sediment contaminants is a source other than the landfills.

- Both chemicals were found in levels above SMS at background and reference areas, also suggesting a source external to the landfill.

Response: The landfill was determined to be an on-going source of phenol and 4-methylphenol since these

compounds were detected in leachate samples. Evaluation of background and reference areas is currently being performed to determine if they are appropriate for comparison to site results. EPA expects this evaluation will be included in the comprehensive baseline risk assessment.

- The short half-lives of both chemicals indicate that neither of these chemicals can be persistent in the environment without a relatively continuous source of replenishment.

Response: Half-life for phenols has been found to be relatively short in laboratory treatability studies. Based on the results of the RI/FS and the Streamlined Risk Assessment, EPA has concluded that the landfill is a chronic source of contaminant loading to surrounding areas. The Landfill may be providing a continuous source of these contaminants to the off-source sediments.

- The physiochemical properties of phenol suggest that it would preferentially remain in aqueous phase. To maintain the concentrations observed in sediments, a source of phenol with a significantly higher concentration would be required.

Response: Phenol adsorbs moderately well to sediment, particularly when organic carbon levels are high (such as in the vicinity of the landfill). The leachate seeps provide a source of phenol, and none of the surface water samples taken in the vicinity of the landfill contained phenol; therefore, it seems appropriate to conclude that the phenol observed in off-source sediments originates from the landfill.

- The concentrations found in sediments are not explained by concentrations seen in media associated with the landfill.

Response: The sediment exceedances may be a result of landfill discharges. Modeling of contaminant concentrations across media was not performed as part of the Streamlined Risk Assessment. However, based on the organic carbon partition coefficient (Koc = 2884), one would expect water concentrations of phenol to be 100 times or more lower than sediment concentrations. This is consistent with concentrations observed at leachate seeps.

11.97 **Comment:** Commentor requested that EPA provide an explanation to support the link of off-source

contaminants to on-source contaminants. The commentor stated that all chemicals found in leachate were not found in off-source media, and numerous chemicals found in groundwater and surface water were not found in soil. As an example, the commentor noted that acetone and trichloroethane were found in soil samples but not in groundwater samples. [3]

Response: The Streamlined Risk Assessment states that site data suggests a link between on-source and off-source contamination. As stated in the Streamlined Risk Assessment (page ES-3, 2-4), many of the same contaminants were detected in both leachate exiting the landfill and in the areas adjacent to the landfill, which is evidence that the Landfill is acting as a source of contaminants that migrate to and persist in off-source areas (see Table 5-1 of the interim ROD). Additional information regarding fate and transport of site contamination is provided in Section 5 of the RI report prepared by the Respondents (HLA, 1995). Acetone was detected in Zone 2 groundwater, surface water, and leachate samples. Trichloroethane was not detected in any samples according to the electronic database delivered to EPA by the Respondents.

11.98 **Comment:** Commentor requested an explanation for possible discrepancies in the data. Specifically, the commentor expressed curiosity regarding why numerous constituents were detected in groundwater and on-source surface water, but were not present in on-source soil. [3]

Response: Information regarding the discrepancies in analytical data, trends in detections, and overall data quality is contained in Appendix L of the Remedial Investigation report (HLA, 1995). Some of the RI data discrepancies were due to matrix interference and elevated detection limits.

Generally, EPA does not require extensive sampling of on-source soils at landfills because on-source soil contamination is not what usually determines the remedy at a landfill. The presumptive remedy guidance for municipal landfills states on page 5 "(s)treamlining the risk assessment of the source area eliminates the need for sampling and analysis to support the calculation of current or potential future risk associated with direct contact" (EPA, 1993a). There was no requirement in the AOC to study on-source soils under the presumptive remedy approach. Therefore, EPA has limited on-source soil data for the Tulalip Site. Due to the limited number of on-source soil samples,

the Agency can not draw any conclusions about why many contaminants identified in the groundwater were not found in the on-source soil.

11.99 **Comment:** Commentor requested references for statements regarding the depth to groundwater at the different locations around the landfill. [3]

Response: The reference for statements made regarding depth to groundwater is Section 3.6.3, page 3-23 of the Remedial Investigation Report (HLA, 1995).

11.100 **Comment:** Commentor asserted that more data and scientific justification are needed to explain why it is believed that groundwater is discharging to the leachate and the adjacent sloughs. [3]

Response: Adequate data and scientific justification explaining the connection and relationship of groundwater to leachate and the adjacent sloughs is provided in Section 3.6.4 of the Remedial Investigation report (HLA, 1995) and in the SAC-4 report (Golder, 1995a). Based on EPA's review of the Respondents' work in these documents, the Agency believes that contaminated groundwater within the landfill discharges to the surrounding environment via the perimeter berm leachate seeps and the Zone 2 groundwater. These documents are included in the AR for the interim ROD.

11.101 **Comment:** Commentor requested references for the Zone 1 and Zone 2 groundwater data. [3]

Response: Zone 1 and Zone 2 groundwater data was obtained from Section 4.2 of the Remedial Investigation report (HLA, 1995). In summary, 16 volatile organic compounds, 20 semivolatile organic compounds, 2 semivolatile indicator compounds, 3 polycyclic aromatic hydrocarbons, 3 pesticides, and 20 metals were detected in the groundwater samples.

11.102 **Comment:** Commentor suggested the following additions and amendments: [3]

- Average concentrations, rather than maximum contaminant concentrations, be used for comparison to "screening values."

Response: As stated in the Response to Comment 11.91, all detected concentrations, not just maximum concentrations, were compared to criteria. In effect, this means that minimum, average, and maximum detected concentrations were evaluated.

- "Screening values" are erroneously identified throughout the document as criteria.

Response: As discussed in the Section 1.1, EPA's use of the term criteria and screening has been misleading and EPA used the terms too loosely in the draft Risk Assessment. Consequently, EPA adopted the term "comparison numbers" to better describe the numbers used in the Streamlined Risk Assessment. In compliance with the NCP and EPA guidance, the Streamlined Risk Assessment compares chemical concentrations found in various media (e.g., groundwater; leachate exiting the landfill; surface soil, water, and leachate on the landfill surface; and sediments, and soils adjacent to the landfill) at the Site with comparison numbers. These comparison numbers are established standards and promulgated criteria, and calculated risk-based concentrations, that are generally considered to be protective of human health and environment.

It is true the Region 3 risk-based concentrations that EPA used in the Streamlined Risk Assessment are not technically criteria in the sense that they are enforceable. However, EPA does is not required to use only enforceable criteria to evaluate risk. EPA will use enforceable criteria when evaluating risk if such numbers are available. But when enforceable criteria are not available, EPA will use risk-based concentrations to evaluate risk. See also Response to Comment 11.9.

- The overall range of exceedances of arsenic needs to be provided.

Response: Arsenic concentrations exceeded human health comparison numbers by 1 and 2 orders of magnitude. Ecological exceedances were within one order of magnitude. This information is provided in Figures 6-1 and 6-2, and in Tables 6-2, 6-4 and 6-5 in Section 6 of the interim ROD.

- The presentation of results for the human health is disorganized.

Response: The commentor did not specify how the data appeared to be disorganized so EPA can not respond directly to the commentor's concern.

11.103 **Comment:** Commentor contested that phthalates should be caveated because they are ubiquitous in the environment. [3]

Response: Phthalates are ubiquitous in the environment because they are associated with plastics, rubber, and paint coatings. However, phthalates were not caveated because they were also likely components of waste present in the landfill. Phthalate compounds were detected in both on-source groundwater and leachate from the landfill.

It would be inappropriate to infer that because phthalates are ubiquitous, exceedances of comparison numbers for phthalates do not represent a potential risk. Phthalates do not occur naturally in the environment; their ubiquitous nature is a result of anthropogenic sources such as the Tulalip Landfill.

11.104 **Comment:** Commentor suggested that Table 2-1 of the Risk Assessment appeared to indicate that some chemicals may not have been analyzed in certain media. [3]

Response: The commentor has misinterpreted Table 2-1. As the title of Table 2-1 indicates, the information presented in the table is limited to the name of analytes "detected", not "analyzed" in the media sampled. For a complete listing of <u>analyses</u> performed on these media, the commentor is directed to Section 4 of the Remedial Investigation report (HLA, 1995).

11.105 **Comment:** Commentor asked whether PCBs or DDT were measured in composite fish tissue samples collected from on-site tidal channels at concentrations above the detection limits. [3]

Response: As shown in Table 5-1 in the interim ROD, PCBs were detected in fish tissue samples. DDT was not detected in fish tissue samples.

11.106 **Comment:** Commentor asked if EPA has evaluated what the leachate discharges are today compared to 1980, 1986, and 1991. If so, the commentor asked, what the differences in quality and quantity were. [2]

Response: In its review of the Draft Remedial Investigation report (HLA, 1995), EPA requested that the Respondents conduct the evaluation the commentor has described (Winiecki, 1995b). The Respondents indicated in their response to EPA's comments on the Draft Remedial Investigation report (Flynn, 1995) that "Due to the lack of sufficient historical data, (leachate) trends will not be discussed in the (Remedial Investigation) report." At this time, EPA does not question the validity of the Respondents'

conclusion regarding the lack of sufficient historical data. Therefore, EPA has not conducted an independent evaluation of any trends.

The presumptive remedy approach does not require information about the quality and quantity of leachate over time and, therefore, is not needed prior to an EPA decision regarding the need for an early, interim containment action at the Site. It is clear that the Tulalip Landfill is a contaminant source to the surrounding environment.

11.107 **Comment:** Commentor asked if the surface soil of the landfill is contaminated. [1]

Response: The only soil samples taken on the landfill surface were collected in 1988 during the Site Inspection, and these samples showed detectable levels of several organic chemicals. For a more detailed discussion of chemicals detected in surface soil on the landfill surface, the commentor is directed to the Site Inspection Report for Tulalip Landfill (E&E, 1988), and the Streamlined Risk Assessment. See also Responses to Comments 2.9.2, 2.9.3 and 11.7.

11.108 **Comment:** Commentor stated that on Table 3-2 of the Risk Assessment, benzo(a)pyrene and mercury are inappropriately identified as detected in samples R1SBSB08A1 and R5LSSP02, respectively. [3]

Response: Based on data received digitally from the Respondents, benzo(a)pyrene was detected (and exceeded comparison numbers) in sample R1SBSB08A1, and mercury was detected (and exceeded comparison numbers) in sample R5LSSP02. The comment did not provide any supporting information for its claim that the compounds were inappropriately identified.

11.109 **Comment:** Commentor requested references for the data collection programs discussed in Section 2.3, entitled *Off-Source Data*. [3]

Response: These data collection programs are described in detail in Section 2 of the RI (HLA, 1995), which is included in the AR for the interim ROD.

11.110 **Comment:** The commentor requested the reference for the tissue data collection program cited in Section 2.3.7. of the Streamlined Risk Assessment entitled *Fish Tissue*. [3]

Response: The fish tissue data was collected as part of the RI at the Tulalip Landfill. The validated data was provided to EPA by the Respondents. A complete listing of this data is contained in Section 4 of the RI (HLA, 1995).

Background Issues

11.111 **Comment:** Several commentors expressed concern that a comparison of "reference" area concentrations to landfill media was not performed in the Risk Assessment. Arsenic was cited as an example of a contaminant requiring comparison to a reference area concentration. Also, a commentor cited levels of chemicals in fish collected in the reference areas as another example of data that should have been included in the Risk Assessment. [1] [2] [3]

Response: The Streamlined Risk Assessment compared landfill site chemical analysis data to available human health and ecological comparison numbers. This is an acceptable streamlined approach which is consistent with EPA presumptive remedy guidance. The Streamlined Risk Assessment also compared site data to published Washington State background concentrations.

Comparison of site data to reference area data was not performed during the Streamlined Risk Assessment for several reasons relating to the suitability of the sampled reference areas as being representative of background conditions. Bioassay tests on some reference area samples failed (i.e., the test organisms died in excessive numbers), and several organic chemicals including PCBs, pentachlorophenol, 4-methylphenol, and bis(2-ethylhexyl)phthalate were detected in many reference area samples at elevated concentrations. Data from the remedial investigation is insufficient to determine the origin or cause of the chemical concentrations in the reference areas, given the dynamic nature of the Snohomish River estuary environment and the close proximity of the reference areas to the landfill and other potential contaminant sources. Both the reference areas and the area around the landfill berm are flooded during very high tides and large storm runoff events. Flow reversals in Steamboat and Ebey sloughs adjacent to the landfill that occur due to landward movement of the saltwater wedge could also transport contaminants substantial distances upstream.

Because EPA has not determined the feasibility of using the background data collected in the remedial

investigation in time for completion of the Streamlined Risk Assessment, region-specific background concentrations for inorganics in the Puget Sound area were used for comparison in the Streamlined Risk Assessment. These concentrations were developed by the Washington State Department of Ecology (Ecology, 1994) and represent the 90th percentile concentrations for inorganics in soil in the Puget Sound Basin.

In the Streamlined Risk Assessment, site soil data for arsenic, aluminum, beryllium, chromium, copper, lead, manganese, and zinc in soil were all compared to published Washington State background concentrations. Even though the state background level is higher than health risk-based criteria, several exceedances were noted for the landfill site soil using the state background level of 7.3 mg/kg arsenic for soil in the Puget Sound area as a comparison number.

Given these problems with the data collected from sample locations that were intended to be "reference/background" locations, EPA's decision to use region-specific background levels developed by Ecology is a reasonable and appropriate approach which does not compromise the validity of the conclusions in the Streamlined Risk Assessment, nor EPA's conclusions based on the Streamlined Risk Assessment. EPA expects to continue evaluating whether the sample locations intended as background/reference locations sampled are appropriate for use in the comprehensive baseline risk assessment. Extensive statistical evaluation of this data will be conducted during preparation of the comprehensive baseline risk assessment, and feasibility of use will be determined at that time.

Evaluation of background fish tissue values was not part of the Streamlined Risk Assessment, however, it will be done as part of the comprehensive baseline risk assessment.

11.112 **Comment:** Commentor stated that by not considering available background data or collecting background samples of small mammal tissues, EPA ignored its own guidance for conducting risk assessments. Commentor stated that the Respondents petitioned EPA on more than one occasion to collect additional background data, but that EPA rejected their proposals. According to the commentor, the logic for this rejection cannot be reconciled either technically or based on timing. [3]

Response: EPA disagrees with the commentor. According to the Presumptive Remedy Guidances (EPA, 1990a, 1991,

1993a, and 1995a), EPA does not have to evaluate all potential exposure pathways in a streamlined baseline risk assessment. The Tulalip Landfill Streamlined Risk Assessment followed the Presumptive Remedy Guidances and consequently is sufficient for decisionmaking. EPA is not able to determine which guidance the commentor is referring to since he did not provide a reference with his comment. See Response to Comment 11.16

The Respondents participated in RI scoping and agreed to do the work specified in the resulting RI Work Plan. EPA never prohibited the Respondents from collecting small mammal background data. However, EPA did refuse to modify the approved RI Work Plan because the data was not needed for EPA to perform the streamlined baseline risk assessment and the Respondents request to collect additional data was made too late in the process. See Response to Comment 2.9.

The commentor did not explain why he thought EPA's "logic for this rejection cannot be reconciled either technically or based on timing." Consequently, EPA cannot specifically respond to that part of the above comment.

11.113 **Comment:** Commentors inquired about or expressed concern about EPA's conclusions regarding patterns of contaminant migration at the site and the relationship of the migration patterns to chemical concentrations in the reference/background areas. [1] [3]

Response: Chemical analysis data provided in the RI (HLA, 1995, Section 4) clearly indicate that many contaminants found inside the landfill (i.e., Zone 1 groundwater and leachate seep data) also occur at their highest concentrations in soil immediately adjacent to the seeps in the wetlands at the base of the landfill berm. Relatively lower concentrations of these landfill contaminants were found in wetland soil, sediment and surface water at greater distances from the landfill. Some of these same contaminants were also found in the "reference" sample locations.

The leachate seep sample results showed a significantly higher number of detected contaminants than were found in Zone 1 (refuse layer) groundwater, and most of the contaminants were found in higher concentrations in the seeps than in Zone 1 groundwater samples. Only four monitoring wells are screened within the refuse layer (Zone 1). Because the landfill was constructed as a series of refuse cells separated by internal berms, many landfill cells are not monitored by Zone 1 wells

and could contain contaminants not reported for Zone 1 groundwater in the remedial investigation report. Some of these "unmonitored" cells may discharge to some of the seeps, which suggests that the leachate seep data is the most complete available inventory of the contaminants present within the landfill.

As discussed in the Response to Comment 11.95 above, the environment around the landfill is dynamic; gradual concentration gradients of contaminants away from the landfill should not be expected. EPA believes the remedial investigation data clearly shows that contaminants originating from the landfill are migrating off-site and are accumulating in the surrounding wetlands. It remains unclear if the contaminants present in "reference/background" area samples are from the landfill or other sources. EPA will further evaluate this issue in the comprehensive baseline risk assessment.

11.114 **Comment:** Commentor expressed concern that the Landfill may not be the only contributor of contamination in the vicinity of the site, and wondered what actions EPA will take to eliminate/control other contaminant sources in the area. [1]

Response: EPA agrees that the landfill may not be the only contributor of contamination in the vicinity of the Site. Some of these other potential contamination sources are regulated under other laws. Sewage outfalls, for example, are required to obtain and comply with National Pollution Discharge Elimination System (NPDES) permits under the Clean Water Act. It is outside the scope of the Superfund process to evaluate and regulate all of the possible contaminant sources to the watershed in which a Superfund Site is located. However, by minimizing the contaminant contribution from the Tulalip Landfill to the surrounding areas, EPA expects that implementation of the selected interim remedy will result in reduced exposure of people and ecological receptors to chemicals exceeding comparison numbers at levels that are considered protective of human health and the environment. Contaminant loading due to landfill discharges would also be greatly reduced. Therefore, EPA concludes that implementation of an appropriate remedial action is necessary.

11.115 **Comment:** Commentor stated that EPA is ignoring its own guidance relating to the concept of "clean islands" by not considering background concentrations in the "screening level" risk assessment. [3]

Response: The commentor did not provide a reference to the guidance to which the comment refers; therefore, the Agency can not respond specifically to the commentor because EPA is not sure what the commentor means by "concept of 'clean islands.'"

The remediation of the Tulalip Landfill is required not only because the landfill is contaminated but also because the Site is a source of contamination to off-source areas. The purpose of the remedy selected for the Site is to minimize the continued release of contaminants into the environment from the landfill. EPA evaluated site data collected during the remedial investigation with regional background data in the Streamlined Risk Assessment and found exceedances of background. EPA did not use the site-specific background data collected during the remedial investigation in the Streamlined Risk Assessment because EPA did not have all the background data, e.g., (1) the clam data was not usable and new clam data had to be generated and (2) sediments had to be re-sampled. The site-specific background data will be evaluated in the comprehensive baseline risk assessment. See also Response to Comment 11.88.

Dilution/Mixing Zone Issues

11.116 **Comment:** Several commentors stated that AWQC were inappropriately applied to leachate in the Risk Assessment because a mixing zone was not allowed. Commentors asserted that surface water collected in the areas adjacent to the landfill has chemical concentrations below marine AWQC, indicating that leachate is sufficiently diluted to prevent a problem. One commentor stated that the concentration of contaminants should be measured in the media in which the receptors live. Commentors stated that it is inappropriate to screen leachate directly against marine AWQC because leachate must mix with surface water to attain the salinity necessary for survival of marine organisms. The commentor further stated that direct exposure of fish to leachate concentrations is not possible. [1] [2] [3]

Response: For the purposes of the Streamlined Risk Assessment, EPA chose to make an appropriately conservative assumption that bottom dwelling organisms residing in areas adjacent to the landfill would be in direct contact with leachate and groundwater. A mixing zone is inappropriate at the Tulalip Landfill because many organisms that EPA believes should be protected at the Site do not live in the water column. Many

organisms at the Site, such as amphipods, clams and sculpin, live in or frequently inhabit the sediment and are therefore likely to be directly and regularly exposed to undiluted concentrations of landfill contaminants in leachate or discharging groundwater when there is no "clean" estuarine water available for mixing and dilution because the tide is out. It is appropriate to be relatively conservative in evaluating the risk associated with chemical concentrations in an estuarine environment because not every species and life-stage is accounted for in the AWQC or can be evaluated in a risk assessment.

On February 17, 1995, the Respondents to the 1993 AOC for the conduct of the RI/FS invoked dispute resolution under paragraph 61 of the AOC with respect to a number of issues including the use of mixing zones for measuring compliance with AWQCs. On October 18, 1995, EPA's Region 10 Deputy Regional Administer issued a final determination that concluded that a mixing zone would not be used for measuring compliance with AWQC. (Findley, 1995b; Gearheard, 1995b). EPA's position is consistent with the Washington state regulations that are appropriate for the Site. WAC 173-340-720(6)(d) states that the mixing zone concept cannot be used pursuant to MTCA to determine the point of compliance for leachate contaminated groundwater discharging to surface water. Under the CWA and WAC 173-201A-040(3), the term "surface waters" includes wetlands, tidal channels, and mudflats: the kind of landscape found around the perimeter of the landfill. Results of the RI indicate that leachate is regularly discharging directly onto the wetlands and mudflats that surround the landfill. See also interim ROD Section 11.2.1.

Direct exposure of bottom-dwelling fish such as the staghorn sculpin to leachate chemical concentrations is also possible because sculpin or other bottom-dwelling organisms may receive direct exposure to undiluted leachate during periods of low tide. Sculpin also have a behavioral adaptation of burying into the sediment during periods of low tide that would increase the organisms' chance of exposure to undiluted flowing into the sediment.

11.117 **Comment:** Commentor indicated that, to their knowledge, all previous studies were conducted in the main slough near the site and these studies do not reflect on-site conditions. If these surveys are accepted, the commentor requested that EPA allow sufficient dilution for the leachate to reach these distant sloughs and tidal channel locations. [3]

Response: The EPA REAC study (Weston, 1992) evaluated the landfill surface, tidal channels, off-source wetlands, and the sloughs. The Respondents also evaluated the sloughs (Ecology and Environment, 1988). In addition, AOC Respondents seined the tidal channels in the off-source area during the remedial investigation and captured marine and estuarine organisms. A dilution factor is inappropriate because of the reasons stated in the Response to Comment 11.116.

12.0 COMPREHENSIVE BASELINE RISK ASSESSMENT

12.1 **Comment:** Commentor indicated that statements provided in EPA guidance documents and the preamble to the NCP are not promulgated regulations or laws themselves, and therefore they can't be used to justify not conducting a comprehensive baseline risk assessment, as is required by the NCP language itself. [2]

Response: EPA disagrees with this comment. Refer to the Response to Comment Sections 2.1, 2.2, 2.3 and 2.5.5.

EPA believes that its use of unpromulgated guidance documents to help guide EPA's decision-making process is justified. The purpose of EPA guidance is to provide EPA employees with a tool they can use to ensure that their decision-making processes at Superfund sites are consistent with CERCLA and the NCP. As part of that function, the guidance documents also assist EPA employees with their interpretation of the requirements of CERCLA and the NCP. These guidance documents are written by EPA personnel who are knowledgeable in a particular subject area and who have experience in dealing with issues that arise in that particular area. Thus, EPA believes that the use of guidance by EPA personnel is appropriate to ensure decisions that are made are consistent with CERCLA and the NCP.

12.2 **Comment:** Commentors stated that a comprehensive baseline risk assessment needs to be performed to establish the need for anything beyond the no-action alternative. Also, a commentor wanted to know if the comprehensive baseline risk assessment would be conducted and how long it would take. [2]

Response: Refer to the Responses to Comments 2.1, 2.2, and 2.3 for a Response to the first sentence. EPA plans to begin the comprehensive baseline risk

assessment in the Winter of 95/96 and expects that the comprehensive baseline risk assessment may take approximately 9 months to complete.

12.3 **Comment:** Commentors stated that a comprehensive baseline risk assessment which incorporates site-specific information and assumptions should be used to establish the need for remedial actions. [2] [3]

Response: Refer to the Responses to Comments 2.1, 2.2, and 2.3.

12.4 **Comment:** Commentors stated that the Risk Assessment for interim containment remedy is only a "screening level" risk assessment which substantially overestimates risk, and may in fact estimate risk that does not exist. Commentors stated that only a comprehensive baseline risk assessment estimates risk at the level of detail necessary to make final remedial decisions, and that, until the comprehensive baseline risk assessment is conducted, it is impossible to accurately assess the potential risks at the Tulalip Landfill. [2] [3]

Response: The Streamlined Risk Assessment estimates risk in a reasonable manner in accordance with EPA guidance on risk assessments for presumptive remedies. The Streamlined Risk Assessment is appropriate for the purpose of supporting EPA decisionmaking regarding whether an interim remedial action should be conducted at the Site, and, if so, what the remedial action should be. Many of the ecological comparison numbers used in the Streamlined Risk Assessment are effects-based concentrations values [the value used has a demonstrated negative response in the target receptor(s)]. Additionally, many of the ecological comparison numbers were in the mid-range of the gradient of adverse effects, which provides a more realistic estimation of risk.

The predicted toxicity of contaminants in the leachate seeps and groundwater has been evaluated using standard approaches (comparison with available criteria, standards and risk-based concentrations). In the absence of actual data concerning risk to wildlife or benthos, a reasonable conservative approach was taken.

Existing data from the Tulalip Landfill show clear indications of toxicity from landfill sources. At leachate seeps in particular, DDT and two Aroclors (1016 and 1232) had exceedances of 13 to 49 (DDT), 16 to 40 (Aroclor 1016), and 33 to 194 (Aroclor 1232)

times the water ecological quality criterion, respectively. These consistent, high level exceedances underscore the concern that leachate seeps represent an ongoing source that loads these persistent and bioaccumulative contaminants into the surrounding ecosystems. Of similar concern is mercury, which had concentrations in the leachate up to 15 times the water quality criterion. Even though these concentrations are likely to decrease with distance from the seep source, constant loadings could maintain the presence of these compounds in the surrounding media.

Without uptake data based on receptors present in the wetlands and sloughs, or detailed information on fate and transport, the linkage between landfill discharges and long-term loading that will affect environmental receptors can only be estimated. What has been clearly demonstrated, however, is that the landfill discharges contain contaminants in relatively high concentrations (i.e., exceeding water quality criteria) that are known to bioaccumulate and persist. In addition, these contaminants appear to be widespread at the landfill. For example, DDT and PCBs were found at numerous leachate sources (7 of 11 sources and 11 of 11 sources, respectively) at concentrations exceeding ecological water quality comparison numbers and present an ongoing pervasive threat to the nearby receptors.

12.5 **Comment:** Commentor asked if additional risk assessment information would be made available before the selection of the remedy. [1]

Response: EPA plans to begin the comprehensive baseline risk assessment in the Winter of 95/96. The comprehensive baseline risk assessment will be used in the selection of the final off-source remedy at the Site. However, the comprehensive baseline risk assessment will not be completed before the ROD for the interim remedial action at the Tulalip Site is issued.

12.6 **Comment:** Commentor stated that the Risk Assessment should discuss risk-based reporting limits and exceedances thereof, and, in particular should discuss how chemicals exceeding risk-based detection limits were handled in the Risk Assessment. [3]

Response: It was not necessary to include discussions of risk-based reporting limits in the Streamlined Risk Assessment because only <u>detected</u> concentrations were used in the analysis. Undetected chemicals were not included in the Streamlined Risk Assessment. EPA believes this to be an appropriate and acceptable

approach for a streamlined risk evaluation at this Site.

13.0 SELECTION OF PRESUMPTIVE REMEDY/REMEDIAL ALTERNATIVES

13.1 **Comment:** The commentor supports the preferred remedy (Alternative 4c) because the remedy fulfills the requirements of the NCP. The remedy achieves protection of health and the environment; complies with ARARs; is a proven technology; and is a cost-effective way to achieve statutory requirements of CERCLA, and the RAOs. Other alternatives may have lower capital or O&M costs, but they do not meet threshold requirements of CERCLA and the NCP (e.g., they are not protective of health and the environment, do not comply with ARARs). The commentor prefers the selected remedy because the remedy also achieves substantial risk reduction, is the least expensive remedy in the long-term, and will significantly reduce migration of hazardous substances into marine waters. The commentor stated that the selected remedy is the most implementable remedy. While the commentor generally supports EPA's analysis of alternatives, they believe EPA under-emphasized the true performance and benefits of the capping alternatives (e.g., the cap prevents leachate production which is clearly preferable to treating leachate). The commentor also supports the low-permeability cap to stop the generation and flow of contaminated leachate. Using the Respondents own modeling efforts, the 4c alternative will result in a greater than 99% reduction in the generation of leachate. Prevention of the generation of leachate is preferable to alternatives that do not include a low permeability cap.

The commentor expressed doubt that the treatment berm (Alternative 2a) would perform as well as the party that proposed it has stated. The commentor indicated that the "treatment berm alternative" proposed by the PRPs was flawed and the "Terminal 91 analogy is clearly false". In addition, the commentor stated that Dr. Greg Richardson, consultant for the Tulalip Tribes, indicated that the Terminal 91 solution was dilution (an unacceptable solution). He further stated that the treatment berm alternative does not address elimination of contaminant pathways (plant uptake, direct human exposure, methane gas release) that occur on the surface of the landfill. The commentor stated that he submitted extensive comments on August 17, 1995 regarding the use of a treatment berm remedy.

The commentor opposes the treatment berm (Alternative 2a) because: the filter design will not function and the approach is based on a dilution strategy which does not mitigate environmental loading of landfill contaminates; and the trenching technique may increase risk to the environment. The commentor has concerns about both short and long-term performance of the treatment berm. The commentor asserted that data that has been submitted in support of the treatment berm is not applicable to the Tulalip Site because the Terminal 91 Site is different from Tulalip. In addition, the commentor states that the treatment berm alternative is not as cost-effective as EPA's selected remedy.

In summary the commentor, stated that EPA's proposed interim remedial action is the most direct method and least expensive viable remedial action alternative to dramatically reducing leachate generation at the landfill. Furthermore, the commentor stated that Tulalip Landfill is ideally suited for the presumptive containment solution developed by EPA. [10]

Response: Comment noted.

13.2 **Comment:** Commentors expressed support for EPA's preferred alternative, 4c, Geosynthetic Cover with Passive Drainage, as being the only remedial alternative that will protect the estuary. The commentor opposes the No Action alternative and the hydraulic collection system alternative (identified as 2b in the Proposed Plan). Commentors stated that they do not believe that the hydraulic collection system will function over the long haul. Also the commentor concluded that the system appears to be an elaborate dilution technique and that dilution is not the "solution to pollution." [7] [11]

Response: EPA agrees with the commentor that the No Action Alternative and the 2b alternative are not viable remedial alternatives for the Tulalip Site. EPA only includes a No Action alternative in the Feasibility Study and Proposed Plan for purposes of comparison with other alternatives. EPA is also concerned with the potential long term viability of Alternative 2b. EPA has a number of concerns with Alternative 2b, including that the system will clog and require continual maintenance at yet undetermined costs. The party that proposed the 2b alternative did not submit to EPA persuasive information indicating that the proposed "treatment berm" would indeed treat leachate, as opposed to simply diluting out the contaminants in the leachate to undectable levels and

then releasing the contaminants into the environment. EPA is concerned that dilution would allow continued environmental loading of the contaminants in the wetlands and sloughs surrounding the Site.

13.3 **Comment:** The commentor conducted a complete review of the RI/FS Report and agrees with its conclusions. The commentor states that it is imperative to stop the leaking of hazardous substances permanently and completely. [7] [16]

Response: Comment noted.

13.4 **Comment:** Commentor asked how long it will take to construct the preferred Alternative 4c. [1]

Response: Remedial design and construction is expected to take about 2 years.

13.5 **Comment:** Commentor asked how long it will take before leachate seeps associated will the landfill are eliminated. [1]

Response: According to the feasibility study, implementing Alternative 4c would effectively eliminate rainfall infiltration [33] and reduce leachate generation, thereby eliminating seep groundwater discharges. Discharges of most leachate through the seeps would be expected to diminish in as few as two years.

13.6 **Comment:** Commentor asked how long the Alternative 4c cap is expected to last. [1]

Response: Landfill caps that have a geosysthetic component have been in use for the past two decades, and have become the standard in landfill closures. The longevity of the geosynthetic material can be predicted using an accelerated aging test, during which the material is subjected to intense temperatures, high stress, and various liquids. The studies indicate that geosynthetics can last almost indefinitely, assuming proper maintenance and that all the components of the cap are properly installed.

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[33] EPA notes that all low-permeability covers develop leaks over time, so infiltration will never be completely eliminated. However, with proper construction design, materials, techniques, quality assurance, and operation and maintenance, the number of leaks are minimized.

13.7 **Comment:** Commentor stated that the Tulalip Tribes support option 4c, and expressed concerns regarding option 2b because it is an unproved technology and would require more monitoring than 4c. The commentor further indicated that, in his opinion, the comprehensive baseline risk assessment will do nothing but further delay what the Tribe has been seeking for the past 25 years, which is to have the site capped. The commentor states that food fish and wildlife are in direct contact with contaminants from the site and are consumed by members of the Tribe. [2]

Response: Comment noted.

13.8 **Comment:** Commentor indicated that leachate is the primary risk that EPA has characterized. Commentor suggests that eliminating leachate generation is the preferred approach to control site risks and suggests that a low permeability cap is the standard solution to eliminating leachate. The commentor was opposed to the leachate collection and treatment approach due to high operating costs. Commentor stated that alternative 4c is the least costly alternative that would be protective of the environment and comply with NCP criteria. [2]

Response: Comment noted.

13.9 **Comment:** Commentor suggested that a low-permeability cap is the common-sense technology for landfills in western Washington. The commentor indicated that he was unaware of any landfills west of the Cascade Mountains that contain similar wastes and were closed without the use of a low-permeability cap. This, the commentor stated, is because landfills west of the Cascades receive high levels of precipitation. It is the opinion of the commentor that the use of a low-permeability cap is the most logical and applicable remedy. [2]

Response: Comment noted.

13.10 **Comment:** The commentor ideally would like the site capped with an impermeable cap and a leachate collection system. The commentor felt the leachate collection system was necessary in case of cap failure or catastrophic precipitation events. In the event of insufficient funding, the commentor thought the EPA selected remedy would be protective. [7]

Response: EPA concedes that installing a low-permeability cover at the Site, in conjunction with a

leachate collection system, would be more protective than the selected Alternative 4c, which only includes a low-permeability cover. Alternative 5 would be more protective, especially if the leachate collection system was constructed prior to the cover, because the leachate collection system would likely stop the ongoing flow of leachate through the perimeter berm within one year. However, in EPA's view, Alternative 5 is not as cost-effective as Alternative 4c because the incremental environmental benefit of the leachate collection system is not justified by its increased cost. The reason for this is that the groundwater modeling conducted by the Respondents during the RI/FS indicates that the selected Alternative 4c, will cause the leachate seeps to essentially "dry up" within 2 years of construction completion, by cutting off the infiltration of surface water into the landfill which feeds the seeps. The cost difference between Alternative 4c and Alternative 5 is approximately $3.2 million. EPA does not believe it is cost-effective to pay $3.2 million to install a leachate collection system that may become unnecessary within 2 years. A better approach is to install the low-permeability cover required by 4 and wait and see whether the leachate stops flowing in 2 years as expected. If it keeps flowing, at unacceptable levels, a leachate perimeter collection system could be added in the future.

13.11 **Comment:** The commentor supports the leachate collection and treatment alternative rather than the EPA selected alternative of capping the Site. The commentor concludes that the data does not warrant a cap and that all available data should be analyzed. Also the commentor states that objections to leachate collection and treatment system such as lack of waste containment could be addressed by the use of institutional controls. [12]

Response: EPA believes a cap for the site is preferable to a leachate collection system because a cap **prevents** the generation of leachate while a leachate collection system only collects leachate which then must be transported off site for treatment. EPA has concluded that alternatives 2b and 2b(ii) do not meet the two threshold criteria: overall protection of human health and the environment, and compliance with ARARs. See Section 9.0 - Summary of Comparative Analysis of Alternatives in the interim ROD. See also Appendix A in the interim ROD. EPA has identified a number of uncertainties regarding the leachate collection system proposed by Respondents, specifically

Alternative 2b(ii). See Appendix E for a more detailed assessment by EPA of Alternative 2b(ii). See also Memorandum, Eric Winiecki to The File, August 4, 1995, re: EPA Review of Alternative 2b - Treatment Berm" in the AR for this interim ROD (Winiecki, 1995d).

EPA has determined that the data from the RI/FS, including the Streamlined Risk Assessment, indicates that a containment response is necessary for the Tulalip Site. For details, refer to the Responses to Comments 2.16 and 13.13. EPA conducted an analysis of alternatives using the nine criteria specified in the NCP and determined that the least expensive alternative that would meet EPA's threshold criteria was Alternative 4c - the landfill cap. EPA has eliminated the leachate collection and treatment system proposed by the Respondents because of serious concerns that EPA has regarding the effectiveness and implementability of the system (in addition to the system failing to meet the NCP threshold criteria). The use of institutional controls will not address EPA's effectiveness and implementability concerns. The commentor did not identify specific institutional controls, so EPA can only speculate on what the commentor may have been referring to in his comment. Institutional controls (such as access restrictions due to fences) would perhaps mitigate human contact with the surface of the soil but would not control the flow of contaminated leachate into the neighboring wetlands, nor would they prevent wildlife from entering the landfill.

An EPA guidance for selecting remedial actions, "A Guide to Selecting Superfund Remedial Actions" (EPA, 1990b) states on page 1 "(i)nstitutional controls are most useful as a supplement to engineering controls for short- and long-term management. Institutional controls (e.g., deed restrictions, prohibitions of well construction) are important in controlling exposures during remedial action implementation and as a supplement to long-term engineering controls. Institutional controls alone should not substitute for more active measures (treatment or containment) unless such active measures are found to be impracticable." Because institutional controls have a very limited value in mitigating risks of concern at the Tulalip Site, EPA directed the Respondents to eliminate institutional controls as a stand-alone alternative during development of the SAC FS. The Respondents subsequently initiated a formal dispute resolution process under the AOC regarding institutional controls as a stand-alone alternative. EPA later issued a final determination, in accordance with the AOC, which found

that EPA had "provided a reasonable basis" for its position and that "this position (was) consistent with EPA's discretion, under CERCLA, the NCP, and the agreements made in the AOC."

13.12 **Comment:** Even the Tribes' consultant, Dr. Gregory Richardson, says that the less costly leachate collection and treatment remedy would perform as well and provide the same level of protection more quickly. [6] [8]

Response: EPA is unaware of any statements or documents made by Dr. Richardson that states "that the less costly leachate collection and treatment remedy would perform as well and provide the same level of protection more quickly." The commentor did not provide a reference to statement allegedly made by Dr. Richardson's, therefore, EPA cannot respond specifically.

A review letter from Dr. Richardson was submitted with public comments from The Tulalip Tribes on October 20, 1995. In that letter Dr. Richardson states "I feel that the proposed interim remedial action proposed by EPA is the most direct method to dramatically reduce future leachate generation at the Tulalip Landfill. Additionally, the proposed remedial action is the least expensive of viable remedial action alternatives in my opinion. The Tulalip site is ideally suited for the presumptive containment solution developed by EPA."

Dr. Richardson also clearly stated on several occasions while making his oral comments during the October 3, 1995 Tulalip landfill public meeting that "providing a cap, preventing the generation of leachate, has always been much less expensive than the treatment of leachate and collection of leachate" (Northwest Court Reporters, 1995).

13.13 **Comment:** Commentor stated that the proposed Alternative 2b would achieve remedial action objectives sooner than Alternative 4c. [2]

Response: EPA's evaluation of whether a remedial alternative is expected to meet the cleanup objectives for a remedial action is an important consideration under the NCP threshold evaluation criterion: "Overall Protection of Human Health and the Environment." The Remedial Action Objectives (RAOs) that EPA has identified for this interim action are described in the interim ROD in Section 7.0 - Cleanup Objectives for the Interim Remedial Action. Based on the results of the

RI/FS, the findings in the Streamlined Risk Assessment, and public comments received during the public comment period, and further EPA review and re-evaluation of all the alternatives under consideration, EPA has concluded that Alternatives 2b and 2b(ii) may not meet, or do not meet, all of the Remedial Action Objectives (RAOs)[34]. EPA believes there is considerable uncertainty regarding whether Alternative 2b and 2b(ii) would meet the following RAOs:

- *Zone 1 Leachate: Eliminate migration of leachate that exceeds potential surface water ARARs from, through, and/or under the source area berm.*

  Alternative 2b may not meet potential surface water ARARs at the face of the proposed "treatment berms" if the berms are not effective.

  EPA has expressed concern that there was insufficient justification to conclude that the leachate collection system proposed for Alternative 2b would meet the RAO to eliminate the leachate seeps[35]. EPA indicated that additional information would be needed to support the Respondents' claim that Alternative 2b would eliminate the migration of leachate that exceeds surface water ARARs from, through, and/or under the source area berm. EPA also expressed concern about the implementability and long-term effectiveness of the Alternative 2b system. The Respondents' subsequent submittal of Alternative 2b(ii) to EPA, which employs a similar collection system, does not provide the requested justification.

  In contrast, groundwater modeling conducted by the Respondents during the FS (Golder, 1995a) suggests that the selected alternative, 4c, would be expected to attain this RAO within two years. EPA considers the groundwater modeling results for the cover alternatives to be more certain because landfill covers are a proven technology with known effectiveness. Implementation of Alternative 4c, would attain this RAO by reducing the Zone 1

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[34] See Memorandum, Keith Pine of Weston to Eric Winiecki of EPA, February 6, 1996, in the AR for this interim ROD.

[35] See EPA's comments on Alternative 2b, transmitted in a letter from Eric Winiecki of EPA to Anthony Burgess, Golder, August 3, 1995, in the AR for the interim ROD.

leachate mound, causing the perimeter berm leachate seeps to cease flowing within 2 years of construction completion.

- *Zone 2 groundwater: Minimize migration of contaminated groundwater at levels exceeding background concentrations or surface water ARARs, whichever is less stringent, and prevent use of contaminated groundwater.*

  Alternatives 2b and 2b(ii) may not meet surface water ARARs at the sloughs if the unproven collection systems are not effective.

  In addition, according to the Respondents' predictions based on groundwater modeling, it is clear that the selected alternative would minimize the migration of contaminated ground water to a significantly greater extent over the long term. See Response to Comment 2.10.1.

  In contrast, the Respondents' groundwater modeling shows that Alternative 4c is expected to effectively stem the migration of leachate from the landfill over the long term. Alternative 4c performs significantly better than Alternatives 2b and 2b(ii) in this regard after about the first 5 years based on predicted annual leachate flux (Golder, 1995b, Figure 4-1)[36].

- *Landfill gas: Prevent inhalation and release of landfill gas exceeding ambient air standards established by the Puget Sound Air Pollution Control Authority (PSAPCA), and manage the gas to prevent stress on a cap system.*

  Alternatives 2b and 2b(ii) would not ensure that the first part of this RAO would be met. In general, gas production within landfills can stress vegetation growing on or near the site, result in a potential threat to public safety, or create an odor nuisance. Landfill gas is potentially explosive at certain concentrations, and usually contains hazardous substances. PSAPCA regulations provide requirements for allowable gas emission rates, air emissions detrimental to persons or property, and odor and nuisance control measures.

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[36] For the convenience of the reader, Figure 4-1 is included in Attachment B of this Responsiveness Summary.

Current landfill emission of methane gas at the Tulalip Landfill is estimated to be 228,000,000 cubic feet per year (HLA, 1994). The current rate of gas production at the Site may be suppressed because much of the waste is within the Zone 1 leachate mound, and therefore much of the waste is saturated, which would be expected to impede waste decomposition which produces landfill gas. However, if the leachate mound in Zone 1 were lowered as a result of installing the collection systems proposed for Alternatives 2b or 2b(ii), the rate of landfill gas production could substantially increase as more of the waste becomes unsaturated and begins to decompose. Thus, while implementation of Alternatives 2b or 2b(ii) could create or worsen a landfill gas problem at the Site, these alternatives do not provide for the possible need for gas collection and treatment.

EPA expects that Alternative 4c, which includes a landfill gas collection system and a contingent gas treatment system, would ensure that this RAO will be met.

Alternatives 2b and 2b(ii) would not meet the RAO to:

- *Minimize Infiltration: Minimize infiltration into the landfill wastes and resulting contaminant leaching to groundwater.*

  Alternatives 2b and 2b(ii) would collect a portion of the landfill leachate after it is generated, but would not prevent contaminant leaching to groundwater by minimizing the infiltration of precipitation into the landfill. Alternative 4c would meet this RAO by minimizing infiltration into the landfill, thereby effectively preventing the generation of new leachate.

Alternative 2b would not meet the following RAO:

- *Wetlands: Minimize loss of off-source wetlands, and mitigate for any destruction of or damage to, off-source wetlands from the remedial action.*

  Because Alternative 2b would require the dredging and filling of more off-source wetlands than other alternatives (in order to construct the treatment berms), Alternative 2b would not likely meet this RAO. There are other viable remedial alternatives, including 4c, that would require the

destruction of a lesser amount of off-source wetlands.[37]

Because Alternatives 2b and 2b(ii) would not, or may not, meet the RAOs discussed above. These alternatives also may not meet the RAO for:

- *Future Land Use: Provide final surface conditions suitable for all season subsistence (i.e., hunting and fishing), recreational, and light industrial and commercial use).*

For additional information regarding the remedial alternatives and the RAOs, see interim ROD Section 7.0 - Cleanup Objectives for the Interim Remedial Action, and Section 9.0 - Summary of the Comparative Analysis of Alternatives.

13.14 **Comment:** Commentor made several points comparing Alternative 2b to Alternative 4c: [2] [17]

a. Alternative 2b provides better short-term effectiveness and is approximately one-half the cost of Alternative 4c.

Response: With regard to short-term effectiveness, EPA notes that the potential effectiveness of Alternatives 2b and 2b(ii) is uncertain because their collection systems are unproven. According to the results of groundwater modeling conducted by the Respondents, Alternative 2b and 2b(ii) allow the continued migration of leachate into the Zone 2 aquifer. In the first ten years of operation, approximately 115 million gallons of leachate would be discharged into the environment (Golder, 1995b, Figure 4-2). This volume optimistically assumes the trench system would continue to function without clogging or other disruptions (EPA believes clogging would likely occur). Moreover, the volume of leachate discharging for Alternative 2b would remain at approximately 8 million gallons per year[38] in perpetuity, whereas leachate would virtually cease after 12 years following the installation of the cap as intended under Alternative 4c Golder, 1995b, Figure 4-1). Clearly, Alternative 4c is more effective at minimizing leachate migration in the long term, and the NCP gives preference to long-term effectiveness over

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[37] (Alternative 2b(ii) may meet this RAO if the proposed holding tank is not constructed in the off-source wetlands).

[38] (Golder, 1995b, Figure 4-2)

short-term effectiveness (Section 300.430(f)(1)(ii)(E) of the NCP). The effectiveness of Alternative 4c is much more certain because low-permeability covers are a proven standard landfill containment technology.

With regard to cost, EPA believes the relative costs of Alternatives 2b, 2b(ii) and 4c are comparable. Given the unproven nature and the uncertainties associated with Alternatives 2b and 2b(ii), EPA believes the Respondents have significantly underestimated the potential costs of Alternatives 2b and 2b(ii). Therefore, EPA has independently prepared cost estimates for these alternatives based on more realistic assumptions[39]. EPA's cost estimate for Alternative 4c is also different than the Respondents' estimate because EPA incorporated a contingency for landfill gas treatment:

Respondents Cost Estimate (in millions)	**EPA Cost Estimate** (in millions)	Alternative
$13.3	**$21.3**	2b - Leachate Collection with Discharge to Treatment Berm
$11.8	**$20.8**	2b(ii) - Leachate Collection with Discharge to POTW
$22.4	**$25.1**	4c - Geosynthetic Cover with Passive Drainage

Using EPA's more realistic cost estimates for Alternatives 2b, 2b(ii), and 4c, it is apparent that the costs of these alternatives are relatively comparable. The cost estimate for Alternative 4c is less than 20% higher than the cost estimate for the Alternative 2b(ii), the least expensive of the three alternatives.

b. Alternative 2b removes current leachate, while Alternative 4c allows it to migrate to the environment.

Response: After about the first 5 years of operation, Alternative 4c allows less leachate per year to migrate

[39] For information on why EPA believes these cost estimates are more realistic, see interim ROD Section 11.3 - Cost Effectiveness.

into Zone 2 (Golder, 1995b, Figure 4-1). The NCP states that long-term effectiveness is more important than short-term effectiveness 40 C.F.R. 300.430(f)(1)(ii)(E). Over the long term, Alternative 4c much more effectively minimizes leachate generation and migration to a significantly greater extent than either 2b or 2b(ii).

c. Alternative 2b results in less cumulative leachate release for the next ten years than Alternative 4c.

Response: The cumulative leachate released into the marine environment is initially (in the first 10 years of operation) less under Alternatives 2b or 2b(ii) than for Alternative 4c <u>if the untried leachate collection system works as well as the Respondents have predicted</u>. However, over the long term, the cumulative leachate production is substantially greater for Alternatives 2b and 2b(ii). According to estimates provided by the AOC Respondents (Golder, 1995b), the cumulative leachate flow out of the landfill into the environment for the leachate interception scenario will surpass the cumulative leachate flow anticipated from an FML cover in a period of 15 years. Furthermore, after 15 years the annual rate of leachate discharge for Alternative 2b continues to remain at approximately 8 million gallons per year. In contrast, the rate of leachate discharge for Alternative 4c remains at nearly zero after 15 years.

Also, EPA had a number of concerns regarding the use of a POTW as part of Alternative 2b(ii). These concerns include: (1) that the Alternative 2b(ii) system could not be considered to be permanent because of its relatively high O&M costs. The future viability of this Alternative is vulnerable to unforeseen increases in the price of POTW treatment and the cost of power to run the collection system pumps; (2) the uncertainty about whether the POTW treatment systems are capable of effectively treating all the contaminants of concern in the leachate; and (3) delays that could result from administrative difficulties with obtaining permits and access from construction of the proposed sewer line to the POTW. Access would need to be obtained to construct the pipe across at least one private property parcel and the pipe would also need to cross the Burlington Northern railroad tracks and a highway.

d. Alternative 2b provides treatment of landfill constituents and does not impact wetlands;

Alternative 4c does not treat landfill constituents and will impact wetlands.

Response: Alternative 2b would require the destruction of a significant amount of off-source wetlands to allow construction of the treatment berms. Some incidental impact to wetlands would be expected during the construction of Alternative 4c. See also Response to Comment 13.13.

Regarding treatment of landfill contaminants, EPA questions whether the "treatment berms" proposed for Alternative 2b would actually provide treatment of landfill contaminants, or merely dilute them before releasing them to the surrounding environment. Alternative 2b(ii) would likely provide adequate treatment of leachate. Although Alternative 4c is a containment remedy that does not include an active treatment system, some reduction of the toxicity of the landfill waste under Alternative 4c would be expected to occur as a result of biodegradation within landfill waste. Biodegradation in landfills is a process by which the solid organic particles are solubilized and converted to methane gas and carbon dioxide gas, which are typically vented or flared. In addition, Alternative 4c is expected to eliminate leachate production and contaminant loading to the off-source areas. As such, it will effectively "contain" the landfill wastes such that active treatment of the wastes is not required (or cost-effective).

13.15 **Comment:** Commentor asked whether incineration and disposal of the on-site waste had been considered. [1]

Response: Based on EPA's experience with remediation of landfills like the Tulalip Landfill, EPA has found that incineration as a remedy for source control of contamination is impracticable and expensive. EPA has found that containment remedies that effectively prevent contact with landfill wastes and prevent landfill contaminants from migrating to other areas are less expensive, and are generally protective of human health and the environment.

When EPA developed its presumptive remedy guidance for municipal landfills, the Agency reviewed remedies selected and implemented at 30 landfills around the country. EPA found that incineration was routinely eliminated from remedy selection because of cost. For more information refer to EPA's presumptive remedy guidances (EPA, 1990a, 1991, 1993a, and 1995a) and the AR for the Tulalip Site.

13.16 **Comment:** Commentor asked if Alternative 2b, the treatment berm, were capable of achieving the degree of treatment that it projected, would it be considered an acceptable alternative. [1]

Response: EPA believes that it would be difficult or impossible to determine whether treatment was occurring within the proposed treatment berms or whether the leachate was simply being diluted. To determine whether treatment was occurring, and to what degree, a rather long-term comprehensive evaluation system would be required. EPA would have to negotiate the terms, conditions, and costs of the evaluation with the parties responsible for remediation of the Site. EPA expects that this would be a rather lengthy process.

EPA also anticipates that the evaluation process itself would be of a long duration. The time that would be required to negotiate, implement, monitor, and interpret the result of such an evaluation system are a concern to EPA because it may take years before EPA could assess whether a reliable remedy had been implemented at the Site. If the remedy failed, then an impermeable cover, such as that described for Alternative 4c, would have to be installed on the landfill as a contingency. The interim remedy selected by EPA in this interim ROD, which includes a cap, has a long history of implementability and effectiveness -- neither of which has been demonstrated for the treatment berm system. To date, the Respondents have not submitted information which adequately supports the implementability or effectiveness of the treatment berm system. Implementability and effectiveness are two of the nine criteria used by EPA to evaluate alternatives.

See Responses to Comments 13.13 and 13.14 for more information about EPA's concerns regarding the reliability and effectiveness of Alternative 2b.

13.17 **Comment:** Commentor suggested that additional fill (demolition debris) could be imported to achieve the desired slope and that limestone could be used to adjust the leachate pH, which would reduce migration of contaminants. [2]

Response: EPA may consider the use of demolition debris as fill. However, the Agency has engineering and toxicity concerns regarding the use of demolition debris as fill at the Tulalip Site. Before accepting a specific source of demolition debris, the Agency would need information that addresses EPA's specific engineering and toxicity concerns. EPA would assess

the information before agreeing to accept a specific source of demolition debris. EPA would want to be sure that the debris under consideration would not contribute contamination to the Site.

Exposure of the landfill leachate to limestone would likely increase the pH of the leachate, making it more basic. As a result of raising the pH of the leachate, one would expect metals to precipitate out of solution. However, phenolic compounds, which have been detected in landfill leachate, tend to become more soluble under more basic conditions, so EPA believes it is unlikely that limestone would provide effective treatment for these types of contaminants. Limestone may not be effective at treating other contaminants of concern, such as pesticides or PCBs. Therefore, EPA does not consider the use of limestone to be a viable long-term treatment solution because it would not substantially reduce migration of all leachate contaminants, even in the short-term.

13.18 **Comment:** Commentor stated that the No Action Alternative (1), and Alternatives 2, 2b, 3, 4a, and 4b fail to meet the fundamental threshold requirements of CERCLA. [2]

Response: Comment noted.

13.19 **Comment:** Commentor stated that many different caps are currently available in addition to a FML cover. The commentor suggested that a geosynthetic clay liner (GCL) tolerates more damage, is more easily repaired, is a natural product, and can cost less. [2]

Response: EPA agrees geosynthetic clay liners (GCLs) can provide a viable alternative to FMLs. The interim ROD provides for either a minimum 50 mil FML or a GCL to be used as the low permeability layer in the Tulalip cover design (see ROD Section 10.1.3 - Landfill Cover Sysytem).

As pointed out by the commentor, GCLs have the capacity to "self heal" if punctured. However, GCLs are relatively new to the industry, and have not undergone extensive testing as FML have. In addition, GCLs can be slightly more expensive to install than FMLs (approximately $0.50 per square foot for GCLs versus approximately $0.40 per square foot for FMLs).

13.20 **Comment:** Commentor stated that there is not enough information available to conclude that the long-term

maintenance costs associated with impervious caps and caps with flexible membrane liners are negligible. [2]

Response: Some of the flexible membrane liners (FMLs) have been in use for two decades. This use has enabled engineers to develop some conclusions regarding maintenance requirements and costs. For the Tulalip Landfill, anticipated operation and maintenance (O&M) costs are estimated to be about $170,000 per year for the selected alternative (Golder, 1995b.) When evaluated over a 30-year period using present worth value analysis and assuming a 5% discount rate, this long-term maintenance cost amounts to $2.6 million.

This cost is comparatively lower than other alternatives that were evaluated. For instance, the EPA estimates that Alternative 2b would cost an estimated $465,250 per year (with a present worth cost of over $7 million in 30 years). Operation and Maintenance costs for other alternatives provided in the "Feasibility Study for Source Area Containment (SAC-4)" (Golder, 1995a) and "Comparison of the Leachate Collection and Treatment alternative (2b) with the FML Cover Alternative (4c), Feasibility Study for Source Area Containment (SAC-4)" (Golder, 1995b) include the following:

ALTERNATIVES	ANNUAL O&M	PRESENT WORTH O&M*
Alternative 2 (Active Seep Interception)	$220,000	$3,400,000
Alternative 2b(ii) Leachate Collection and Treatment	$386,000	5,900,000
Alternative 3 (Seep and Zone 2 Controls)	$620,000	$9,600,000
Alternative 5 (Cover, Seep Controls)	$220,000	$3,400,000
Alternative 6 (Cover, Seep, Zone 2 Controls)	$280,000	$4,300,000

* Calculated over 30 years with a 5% discount rate. O&M costs for contingent landfill gas treatment are not included because it is not certain that gas collection and treatment will be necessary.[40]

The relatively lower O&M costs predicted for Alternative 4c are largely due to the passive and self-contained nature of engineered caps.

13.21 **Comment:** Commentor stated that EPA's preferred Alternative 4c, the FML cover, is significantly more expensive than and provides minimal additional benefit over proposed Alternative 2b, Alternative Collection and Treatment. [2]

Response: EPA disagrees. Alternative 4c meets the nine NCP criteria and Alternatives 2b and 2b(ii) do not. Alternative 4c is cost-effective and is not significantly more expensive than Alternatives 2b and 2b(ii), see ROD Section 11.3 - Cost Effectiveness and Response to Comments 13.14. Alternative 4c provides significant additional benefits, see ROD Section 9 - Summary of Comparative Analysis of Alternatives and Response to Comments 13.13.

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[40] EPA notes that the need for continued operations and maintenance (O&M) could exceed 30 years.

13.22 **Comment:** Commentor expressed concern that the $25 million clean-up cost may be grossly underestimated and suggested that the cost could grow as high as $90 million. [1]

Response: The commentor's suggestion that the cost of the selected remedy could grow as high as $90 million is highly unlikely. Both EPA and the Respondents have independently performed cost estimates for the proposed cap (Alternative 4c). EPA has determined that the $25 million cost estimate is within an acceptable range of accuracy (i.e., +50 percent to -30 percent of the final construction cost).

Review of the $25.1 million cost estimate shows that it is very sensitive to changes in imported soil quantity. Current grading plans presented in the "Revised Feasibility Study for Source Area Containment (SAC-4)" (Golder, 1995a) provided an estimate of 637,000 cubic yards of imported fill at a total cost of $6.8 million (import soil and top soil) plus an additional $1.2 million for regrading surface soil and waste. To account for the commentor's estimated cost increase to $90 million, the quantity or cost of fill and regrading would likely need to increase nearly an order of magnitude above current estimates. At this time, there is no reason to believe this may occur.

Finally, comparison of actual costs for landfill cap installation has shown that the $25.1 million cost estimate is generally consistent on a per acre basis with other sites of similar magnitude [41].

13.23 **Comment:** Commentor suggested that Alternative 4c was selected because it is the most protective and least costly approach. Commentor also stated that the proposed costs of the other alternatives may be overstated, and costs of these alternatives could be lowered with creative use of resources and engineering. [2]

Response: Comment noted.

13.24 **Comment:** Commentor stated that the Respondents have evaluated Alternative 4c and agreed that it could cost $25 million; however, the cost could increase to $40

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[41] See Responsiveness Summary Appendix A: EPA Review Comments on the Comparison of the Leachate Collection and Treatment Alternative (2B) with the FML Cover Alternative (4C), Specific Comment Number 17; also interim ROD Section 11.3 - Cost Effectiveness.

million depending on the amount of re-grading and additional fill needed. [3]

Response: The cost estimates that are used in the interim ROD are Feasibility Study (FS)-level cost estimates. In general, EPA expects that actual remedy costs will fall within a range of +50 percent to -30 percent of a FS cost estimate. The main purpose of FS cost estimate is not to estimate the cost of each remedial alternative with precision, but to allow a comparison of the relative costs of the remedial alternatives that are under consideration. Typically, at Superfund Sites, a more accurate cost estimate for the selected alternative would be prepared during the Remedial Design phase of the process, which would usually begin after a remedy is selected in a ROD. In EPA's view, therefore, the commentor's statement that the actual cost of implementing one of the alternatives may significantly exceed the cost estimate is premature.

Nevertheless, based on current information, EPA believes it is unlikely that the actual cost of implementing the selected remedy, Alternative 4c, would grow to $40 million dollars. EPA considers this cost figure to be extreme. Comparison of actual costs for landfill cap installation has shown that the $25 million cost estimate is relatively consistent on a per acre basis with other sites of similar size (<u>see</u> Response to Comment 13.22). At this time, EPA believes that the actual costs of Alternative 4c are equally likely to be lower or higher than the $25 million cost estimate. EPA notes that Dr. Greg Richardson, a technical consultant who has worked for the Respondents and The Tulalip Tribes, stated at the second public meeting that he believed the cost estimates for all of the alternatives may be higher than the actual costs will turn out to be (Northwest Court Reporters, 1995). <u>See also</u> ROD Section 11.3 - Cost-Effectiveness.

13.25 **Comment:** Commentor suggested that a protective and effective remedy could be implemented (either a partial cap or leachate collection and treatment alternative) for $7.5 to 15 million, which is 30 to 60% less than EPA's approach. [3]

Response: EPA estimates that a more realistic cost for the Alternative 2b(ii) leachate collection and treatment system is $21 million. The Alternative 4c cap is expected to cost from about $22 million to $25 million, depending on whether gas treatment will be

necessary. Given that the leachate collection system has so many uncertainties regarding its constructibility, long-term operation, and effectiveness; from a cost standpoint alone, EPA believes the Alternative 4c cap is a more cost effective remedy.

13.26 **Comment:** The Tulalip Tribes plan to develop the property, so a cap is redundant anyway because buildings and asphalt can be good covers as long as they are maintained. Why not make this the Tribe's responsibility? [12]

Response: There are other parties in addition to The Tulalip Tribes who are liable for cleanup costs at the Site. These other parties include other parties that operated the Site, transported waste to the Site, or generated waste that was sent to the Site. The Tulalip Section 17 Corporation[42] is participating in the allocation process to determine the fair share of response costs to be allocated at the Site (see Responses to Comments 5.1 and 5.2).

EPA selected an impermeable cap with a 2% grade to stop the generation of leachate and to prevent pooling of water on the surface. EPA selected the impermeable cap because it satisfies, better than other alternatives, the criteria by which EPA must evaluate response action alternatives, including ARARs. One ARAR identified for the Site is the Washington State MFS for landfill caps. The MFS specify the design specifications for the construction of caps. For the type of cap required for the Tulalip Site, the placement of buildings and asphalt on the Site as a cap would not meet the design standards specifications in the MFS for the Site. For more details see ROD Section 10.1 - Description of the Selected Remedy.

13.27 **Comment:** EPA is ignoring its guidelines that match cost-effective cleanups to the intended use of the site. There was no mention of the intended use of the site. [12]

Response: The commentor is incorrect. Future use of the Site is summarized in the Proposed Plan (see pages 7 and 17), and is described in greater detail in the document entitled "Big Flats Land Use Program" (Tulalip

[42] The Tulalip Section 17 Corporation leased the Site to the Seattle Disposal Company for landfill operations and was also involved in post-1980 capping operations at the Site.

Tribes, 1994), which is available in the AR for the interim ROD. Future use is also considered in the ROD as one element of the "Community Acceptance" NCP evaluation criterion (see ROD Section 9.0 - Summary of the Comparative Analysis of Alternatives).

The interim ROD, Section 10.2 - Integrating the Interim Action with Land Use Plans, states "The selected interim remedy shall allow the on-source area of the Site to be productively used by people, with some restrictions necessary to prevent damage to the interim remedy. To a reasonable and feasible extent, as determined by EPA, the selected interim remedy shall be designed and constructed to allow for the types of future use activities described in the Big Flats Land Use Program" (Tulalip Tribes, 1994). The Tulalip Tribes have identified recreational, light industrial, and commercial uses for the source area of the Site, and traditional hunting and fishing uses for the off-source wetland areas.

EPA has concluded that the selected interim remedy (Alternative 4c) is cost effective (see ROD Section 11.3 - Cost Effectiveness) and is compatible with these future land use objectives. The selected interim remedy is the least expensive alternative that is protective of human health and the environment, and meets all ARARs.

13.28 **Comment:** Commentor expressed concern that the landfill site will be available for light industrial/commercial use following the implementation of the remedy. The commentor specifically wanted to know what effect on-site development would have on the cap and what landfill sites in the country have experienced similar development following the installation of a landfill containment system. [1]

Response: The selected interim remedy should allow the on-source area of the Site to be productively used by people, with some restrictions necessary to prevent damage to the interim remedy. The selected interim remedy shall be designed and constructed to be compatible with the types of future use activities described in the "Big Flats Land Use Program" (Tulalip Tribes, 1994). This document is available for review in the AR for the interim ROD.

Any activity on the cover beyond normal cover maintenance activities shall be approved in advance by EPA to help ensure that damage to the remedy will not result. The degree of development to occur on the

landfill will be dependent on the cap design and other factors. It is feasible, and has been supported by the Respondents, that development could include construction of small structures for commercial or light industrial use without detrimental impact to the cap. Special provisions and restrictions, such as utility and structural foundation placement, would most likely be applicable based on the final cap design. This level of development is consistent with the intention of the Tulalip Tribes as described in the "Big Flats Land Use Program" (Tulalip Tribes, 1994).

EPA[43] plans to conduct a national study of remediated landfills to determine potential uses for such sites: however, to date the Agency has not routinely compiled data about post-remedial uses of capped landfills. But the Agency is aware that some capped landfills have been used for recreational uses. Examples of some landfill caps which have supported development include a municipal landfill in Riverview, Michigan which features downhill ski runs, a golf course, and several single- and multiple-family homes; and a 50-acre landfill near Cambridge, Massachusetts, which is to be developed with bicycle paths, ball fields, tennis courts, and a running track.

13.29 **Comment:** Commentor asked how long it will take before light industrial development will be permitted to occur at the site following the implementation of the remedial action. [1]

Response: Development and beneficial use of some portions of the site could begin immediately following the cap construction with further development to occur over a period of time. The Tulalip Tribes' Land Use Program (Tulalip Tribes, 1994) provides a sequence of expected uses on the landfill cover. According to the Plan, light industrial use of the Site is expected to begin 10 years after construction is complete.

13.30 **Comment:** The commentor believes that the remedial investigation results support the need for remedial action. The commentor supports EPA's selected interim remedial action for the Site. The commentor concurs with the observations in the Proposed Plan regarding the importance of the Snohomish River Delta as an important fish and wildlife habitat. Specifically, the commentor states that the delta areas at risk are

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[43] Personal communication between Lynda Priddy, Environmental Scientist, EPA, Region 10 with Ken Skahn, Office of Emergency and Remedial Response, EPA Headquarters on 2 February 1996.

critical areas for important ecological functions and are critical habitat to animals. [16]

Response: Comment noted.

13.31 **Comment:** The commentor stated that the remedial action must include and integrate effective fish and wildlife habitat restoration. None of the alternatives identified in the Proposed Plan integrate cleanup with habitat restoration which should be vital to selecting the remedy. The commentor concluded that integrating the remedy and restoration is less costly than treating the issues separately. An integrated strategy maximizes environmental benefits. [11]

Response: The Proposed Plan for Interim Remedial Action at the Tulalip Landfill Superfund Site only addresses remediation of the on-source area of the Site. The on-source area is the area of the landfill itself including the perimeter berms. EPA is presently evaluating data to determine whether and to what extent the off-source area (the surrounding wetlands) have been adversely affected by the landfill and whether additional remediation of the wetlands will be necessary.

The proposed remedy reflects EPA's determination that it is not possible to achieve complete fish and wildlife habitat restoration at this Site through the remedy selected by EPA. The natural resource trustees have been satisfied with EPA's level of coordination and consultation with them in reaching this decision. Although EPA's proposed remedy does not restore lost or damaged resources, the natural resource trustees for the Site have identified a project to acquire and protect from development property in the vicinity of the landfill which represents the equivalent resources that have been damaged or lost due to the release of hazardous substances at the landfill. The natural resource trustees for the Site will work with EPA to determine whether additional restoration activities will be required to restore lost or damaged off-site natural resources.

EPA offered the de minimis parties an opportunity to settle their natural resource damages liability as part of the de minimis settlement for the remediation of the Tulalip Landfill Site. As of February 16, 1996, approximately 80% of the de minimis parties have signed up for the natural resource damages settlement, contributing approximately $660,000.

13.32 **Comment:** Commentor stated that approximately 17 inches of precipitation may run off of the cap, if installed. In light of this, the commentor asked if anyone had evaluated the effects of such conditions on juvenile salmon utilizing wetlands associated with the landfill. [2]

Response: EPA requested that the Respondents conduct such an evaluation in the feasibility study for source area containment. The Respondents replied that such an evaluation should be done during remedial design and that it was premature to evaluate this type of effect of a remedy during the RI/FS. Design changes can be made during remedial design to address potential problems.

13.33 **Comment:** Commentor stated that the proposed remedy has the potential to significantly impact the wetlands and estuarine tidal channels surrounding the landfill, resulting in a violation of EPA's "no net loss of wetland" policy. Commentor stated that EPA has not adequately evaluated the potential impacts of the proposed remedy because it has neither required, nor allowed the types of studies needed to evaluate these impacts. [2] [3]

Response: Although implementation of the selected remedy, Alternative 4c, will change the hydraulics of the surrounding wetlands (for example, the selected alternative is expected to result in the elimination of landfill leachate seeping through the perimeter berm onto the surrounding wetlands within two years), EPA believes that the benefits of greatly reducing contaminant migration from the landfill will likely offset any potential harm to the off-source wetlands due to altered hydraulics. If the off-source wetlands are harmed as a result of the selected interim remedial action, the damaged wetlands would need to be restored, mitigated, or replaced.

Wetlands systems are extremely complex. In EPA's view, it would be very difficult to design a study that could assess potential changes in the wetlands that would be expected to result from hydraulic changes due to implementation of the selected remedial action. Conducting such a study would likely be expensive, time intensive, and the results may be of questionable value.

EPA has determined that the most appropriate way to remediate the Site is in phases. Thus, the source area will be remediated and, as stated above, the remedial

measures taken on the source area are expected to result in a benefit to the surrounding wetlands through a reduction of leachate flow to the surrounding wetlands. The second phase of the remediation includes completing the comprehensive baseline risk assessment for the off-source area to determine the extent of contamination and appropriate response measures for the off-source area. Additionally, the natural resource trustees for the Site have identified a project to acquire and protect from development property in the vicinity of the landfill which represents the equivalent resources that have been damaged or lost due to the release of hazardous substances at the landfill. The natural resource trustees for the Site will work with EPA to determine whether additional restoration activities will be required to restore lost or damaged off-site natural resources. All of these measures combined are likely to result in a determination and implementation of the appropriate response measures to be taken on the surrounding wetlands.

13.34 **Comment:** The Commentor expressed the concern that none of the proposed remedial alternatives will be effective in the wetland areas of the site. Consequently, they request that the selected remedial alternative eliminate any potential threats to human and environmental health. [4]

Response: EPA believes that the selected remedy will effectively halt the generation of leachate after the cap has been installed. The volume of leachate already in the landfill will decrease and within about ~~2~~ years cease discharging from the landfill through the perimeter berm into the wetland. Therefore, future contamination of the wetland area is expected to stop.

To assess the present condition of the wetland or off-source area, EPA will be conducting a comprehensive baseline risk assessment on the wetland area around the source-area. Based on the results of that comprehensive baseline risk assessment, EPA will determine whether additional remedial work is needed to protect/restore the wetland. EPA will request public comment on the Proposed Plan for the off-source area. The Proposed Plan will specify remedial action, if any, necessary for the off-source or wetland area surrounding the Landfill.

13.35 **Comment:** Commentor asked if any of the existing landfill is considered wetlands and if so, if the landfill closure will require a permit from the Army Corps of Engineers. [1]

Response: An evaluation of the landfill surface and surrounding areas is being conducted by EPA to determine the approximate size and type of any wetland areas. EPA expects that this habitat assessment will be completed in the spring of 1996. Pursuant to CERCLA Section 121, EPA is not required to obtain a permit for remedial activities at a Superfund site.

Wetlands species have begun to establish themselves on parts of the landfill surface. For purposes of the selected interim remedy, the source area on the landfill will fall under section 402 of the CWA, which is administered by EPA, rather than Section 404, which is administered by the Corps. See Section 11.2 - Compliance with ARARs, for more information. See Response to Comment 13.31.

13.36 **Comment:** The Tulalip site is in an estuarine environment which should not only call for but require a broader range of alternatives than are applicable to typical upland landfills on which the presumptive remedy is based. [3]

Response: At some point in the RI/FS process, EPA has given full consideration to every interim remedial containment alternative that has been suggested by the Respondents. EPA delayed issuing the Proposed Plan in order to fully evaluate Alternative 2b, which the Respondents submitted to EPA after the Source Area Containment FS was completed. EPA also solicited additional input during the public comment period on the Proposed Plan.

EPA notes that the "treatment berm" concept proposed as part of Alternative 2b is not a technology that is at all suitable to a "typical upland landfill." The treatment berm concept, as proposed by the Respondents depends on the presence of tidal waters to mix with leachate within the berms.

13.37 **Comment:** Commentor asked how long a monitoring program would be conducted before the remedy was considered successful. [4]

Response: An EPA-approved, post-construction monitoring plan will be prepared for the Site. The monitoring plan require data which will be used to evaluate the effectiveness of the remedy and to assess whether the remedy remains protective of human health and the environment. After the first two years of post-construction monitoring are complete, EPA may re-evaluate the frequency of collection of post-monitoring

data and of quarterly monitoring reports. See also ROD Section 10.1.5 - Post-Construction Care for additional information.

13.38 **Comment:** Commentor asked if a monitoring program would continue after the off-source containment area remedy was established. [4]

Response: Monitoring may be required after a ROD is issued for the off-source remedy. At this time it is unknown what monitoring needs there may be for the off-source areas. EPA expects to establish monitoring requirements for the off-source area in the final ROD.

13.39 **Comment:** Commentor asked who will be responsible for maintenance repair work (e.g., the gas collection treatment system) of the landfill. [4]

Response: It is not known at this time who will be responsible for operations and maintenance (O&M) of the selected interim remedy. This would depend on the results of future negotiations EPA expects to conduct with the PRPs, the Tulalip Tribes, and other parties, regarding construction of the selected interim remedy and other issues. O&M responsibilities would likely be part of these negotiations.

13.40 **Comment:** Commentor asked what actions EPA will take to resolve further contaminant migration issues if the remedy fails to meet established success criteria. [4]

Response: See Response to Comment 13.37. If, as a result of site monitoring, EPA concludes that the interim remedial action is unsuccessful at containing the landfill wastes, additional containment actions, such as construction of a perimeter leachate collection system, may be necessary.

13.41 **Comment:** Commentor asked how the condensate associated with the gas collection treatment system operations would be handled. [4]

Response: Details regarding the handling of landfill gas collection system condensate are normally determined during remedial design.

13.42 **Comment:** Commentor asked whether the cap would require additional maintenance if differential settlement occurs at the Site and whether the $25 million cost estimate takes this into consideration. [1]

Response: The O&M at the Tulalip Landfill site would include repairing any damage that may occur due to differential settlement. Anticipated expenditures for this type of O&M activities have been factored into the cap's cost estimate.

13.43 **Comment:** Since EPA only required leachate controls when the Agency approved the reopening of the Tulalip Site, then EPA should only require these same controls when they are closing the site. [12]

Response: EPA evaluated the use of several leachate collection systems in its evaluation of remedial alternatives in the Tulalip Landfill Feasibility Study. In EPA's evaluation of remedial alternatives in the FS, the Agency concluded that leachate collection systems alone as a remedial solution would not be protective of human health and the environment or meet ARARs identified for the site. The Agency has serious concerns about construction and operation of certain types of leachate collection systems.

Regulatory controls dictated by regulations in the past (such as controls that may have been state-of-the-art or regulatory requirements at the time the landfill was open) that are now known to be ineffective in protecting human health and the environment are not appropriate remedies. EPA must make its decisions consistent with good science and existing regulations which are based on knowledge and technology which have advanced since the early 1980's. EPA screened out for consideration remedial alternatives clearly would not meet the remedial response objectives identified for the Site and which did not meet the other criteria EPA must consider in selecting a remedy. Given that EPA had concluded that leachate systems alone could not address human health and environmental concerns identified at the Site, EPA selected another remedial alternative that would address the migration of contaminated leachate from the site and exposure to landfill contents.

Leachate seep control alternatives 2, 2b, and 2b(ii) would allow continued migration of contaminated Zone 2 groundwater to the sloughs, and would not prevent contact with landfill contaminants. These alternatives may not meet the RAO to prevent inhalation and release of landfill gas that exceeds ambient air standards. The seep control alternatives may not meet surface water ARARs where Zone 2 groundwater discharges to the sloughs or, in the case of Alternative 2b, at the face of the treatment berm if the berm is not effective.

Alternatives 2, 2b, and 2b(ii) do not comply with MFS because they do not include a landfill cover. Alternative 2b may not meet Section 404(b) of the Clean Water Act because it requires dredging and filling of off-source wetlands, and there are protective, ARAR-compliant alternatives (i.e., the selected interim remedy) that would require the destruction of significantly less off-source wetlands. The leachate collection system alternatives 2b and 2b(ii) carry significant risk of failure, including the potential for clogging and other problems, and therefore may not be protective in the long term. For more information on seep control versus landfill cover alternatives see Section 9.0--Summary of the Comparative Analysis of Alternatives, in the ROD for interim remedial action. See also Responses to Comments 2.12.1 and 2.12.2.

13.44 **Comment:** Commentor wanted to know why an interim remedy was warranted for the site given the letter drafted by Bill Glasser, RPM, U.S. EPA, in 1992, stating that there were no imminent or acute threats to human health or the environment posed by the site. Commentor wanted to know what had changed at the site between the time the letter was drafted and now. [2]

Response: See Response to Comment 2.8.2. The document the commentor is apparently referring to is not a letter (Glasser, 1992). It is a "removal assessment."

13.45 **Comment:** Commentor stated that the observation of ponded water on the landfill at various times of the year indicates that the cover presently out there is not highly permeable, as suggested by EPA. [2]

Response: Ponded water on the surface of the landfill may be caused by the Zone 1 water table intersecting the landfill surface in some areas and by perched water (leachate or rainwater) over poorly draining surface soils in other areas. For example, leachate seep SP-01 in the eastern portion of the landfill is a location where the Zone 1 water table intersects the landfill surface, resulting in a leachate seep and an area of ponded leachate alongside the landfill access road. In other areas, there may be some areas of less permeable surface soils. However, water levels in the refuse layer vary by as much as 3 feet with the highest water levels measured during the rainy winter months and the lowest water levels measured during the summer. The seasonal variation in water levels clearly shows that rainfall infiltrating through the relatively porous surface soil is the primary source of groundwater recharge to the refuse layer. This observation is

further supported by the relative absence of surface water runoff pathways from the landfill surface to the surrounding wetlands.

EPA notes that permeability is relative. For example, sand is highly permeable relative to clay, but gravel is highly permeable relative to sand.

13.46 **Comment:** Commentor stated that it has not currently been shown that migration of leachate into groundwater and into surface water poses an unacceptable risk. Therefore, the need to actually decrease migration of leachate into groundwater has not been fully established. [2]

Response: The number and magnitude of comparison number exceedances by chemicals in leachate, as identified in the Final Tulalip Landfill Risk Assessment for Interim Remedial Action (Weston, 1995b) is sufficient justification to state that leachate poses a potential threat to human health and the environment. This potential threat justifies the need for action. This action includes containment, including control of the leachate. See Response to Comment 2.10.1.

13.47 **Comment:** Commentor stated that EPA shouldn't rush ahead with a presumptive remedy but should instead take plenty of time and thoroughly explore all of the available alternatives. [2]

Response: At some time during the RI/FS process, EPA has carefully evaluated all of the interim remedy options that the Respondents have proposed. EPA has evaluated 11 interim remedial action alternatives in the interim ROD, including a No Action alternative, alternatives that do and do not include a landfill cover, and alternatives that are proven and unproven technologies for containing and treating landfill wastes. At every Superfund Site, EPA must weigh the benefits of obtaining additional data or conducting additional evaluations against the benefits of expeditiously proceeding with selection and implementation of a response action, if appropriate, to address potential threats to human health and the environment posed by a Site. The NCP states that EPA should consider this weighing process with a "bias for action" (see Response to Comment 2.5.4). In the case of Tulalip Landfill, at this time, EPA believes that a sufficient number and range of interim containment alternatives have been evaluated, that there is sufficient information regarding potential risks to

conclude that the Site represents a potential threat to human health and the environment, and that, based on the evaluation of alternatives required by the NCP, Alternative 4c is the most appropriate alternative to implement as an early/interim remedial action.

13.48 **Comment:** Commentor argued that the zero-sloped trench throughout the landfill will immediately fail and that such an alternative will be impossible to "back-flush". [2]

Response: EPA shares the commentor's concerns with Alternative 2b and 2b(ii). EPA anticipates that clogging of the leachate collection system pipes and drainage media with biological solids and inorganic precipitates would be a severe and costly maintenance problem that would be further compounded by the proposed zero-slope trench design.

In addition, EPA notes that clogging of the pipe and drainage media may be difficult to detect. To ensure proper functioning, such a collection system would require periodic maintenance to prevent an unscheduled or unintended interruption. Furthermore, replacement of the drainage system, including piping, drainage media, and pumps would likely be required during the course of its operation.

13.49 **Comment:** Commentor stated that the presumptive remedy should not be, by default, an impervious cap. Commentor suggested that the Tulalip Landfill should not be considered a typical landfill in Western Washington given the physical features of the area and its location in an estuary. [2]

Response: The presumptive remedy for the Tulalip Landfill is <u>containment</u>, not an impervious cap. The Respondents evaluated many containment alternatives in the feasibility study for source area containment (Golder, 1995a) including various combinations of permeable soil covers, relatively impermeable caps, leachate interception, leachate containment by vertical barriers, and groundwater containment by vertical barriers. EPA has thoroughly considered and evaluated all of the alternatives proposed by the Respondents and has solicited public comment during the 80-day public comment period on the Proposed Plan.

13.50 **Comment:** Commentor asked if lateral or tidally influenced flow of groundwater was present through on-site waste, and if so, how the current recommended action would prevent horizontal contaminated

groundwater flow from influencing zone 1 and 2 groundwater. [4]

Response: See Response to Comment 9.1

13.51 **Comment:** Commentor asked what criteria would be used to evaluate the source area containment remedy. [4]

Response: The nine evaluation criteria contained in the National Contingency Plan (NCP) have been used to evaluate the source area containment remedy alternatives (see ROD Section 9 - Summary of Comparative Analysis of Alternatives).

13.52 **Comment:** Commentor asked what the areal extent of surface soil contamination is, and if the contamination associated with the surface soil is the vehicle driving the preferred capping remedy. [1]

Response: The extent of surface soil contamination, as it relates to exceedances of human health and ecological-protective criteria, is identified in the Final Tulalip Landfill Risk Assessment for Interim Remedial Action (Weston, 1995b).

Surface soil contamination is not the major reason for taking remedial action at the Site. The need for interim remedial action is driven by numerous exceedances of health-based comparison numbers and biological effects-based comparison numbers in landfill leachate discharging to the wetlands, groundwater discharging to surface water, wetland soil around the perimeter of the landfill, and surface water and sediment in the tidal channels surrounding the landfill. However, the primary reason for the remedial action at the Site is the exceedances of effects-based comparison numbers in the leachate.

13.53 **Comment:** Commentor asked if EPA has evaluated trends in contaminant concentrations at other un-capped landfills with similar leachate problems. [1]

Response: The Agency has not studied trends in contaminant concentrations in leachate from either covered or uncovered landfills[44].

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[44] Personal communication between Lynda Priddy, Environmental Scientist, EPA, Region 10 and Ken Skahn (contact in EPA Headquarters for Superfund municipal landfill presumptive remedies), Environmental Engineer, Office of Emergency and Remedial Response, Environmental Protection Agency on 2 February 1996.

13.54 **Comment:** Commentor suggested that the proposed Interim Action is not consistent with EPA's regulatory guidance. The commentor explained that EPA defines the reasons for taking an interim action as "the need to take quick action to protect human health and the environment from an imminent threat in the short-term while a final remediation solution is being developed." It is the opinion of the commentor that because no "imminent hazard" is clearly defined and agreed upon at this site that the use of an interim remedy is a misapplication. [2]

Response: EPA's "Guidance on Preparing Superfund Decision Documents" (OSWER Directive 9355.3-02, July 1989, page 9-11), states that EPA may determine that it is appropriate to implement an interim action at a site. The guidance states that interim actions "which may be removal or remedial actions, can be taken to respond to an immediate site threat or to take advantage of an opportunity to significantly reduce risk quickly."

EPA's designation of the remedy selected in the ROD as an interim action is appropriate and consistent with EPA guidance. Data gathered at the Site during the RI/FS confirm that an immediate threat to human health and environment exists at the landfill. Based on the results of the RI and the Risk Assessment, EPA has concluded that the Site may pose an imminent and substantial endangerment to human health and the environment. This finding suggests that it is appropriate for EPA to take action in the form of an interim action to contain discharges at the Site in a prompt and effective manner. An emergency situation requiring immediate response is not necessary in order for EPA to implement an interim remedy. EPA has other mechanisms, such as removal actions, which may be used in emergency situations. EPA believes that it is appropriate to institute an interim remedy at the source area of the landfill rather than to allow the leachate to continue to be generated and released into the environment unabated until a final remedy which addresses site-wide environmental problems can be selected and implemented.

EPA's Guidance further states that "interim actions are limited in scope and are followed by other operable units that complete the steps to provide definitive protection of human health and the environment for the long-term." Consistent with this statement in the Guidance, the PRPs, pursuant to an AOC, have conducted studies of the source area of the landfill and the

information gathered has provided an adequate basis on which to evaluate risks and alternatives for remediation for the source area. A complete evaluation of the off-source area of the Site has not been completed and it is premature to determine the appropriate response action to be taken for the off-source area. Thus, EPA determined, given the documented existence of hazardous substances on the source area which pose a risk to human health and the environment, that it would be prudent and appropriate to address those threats through the use of an interim remedy and to address off-source threats through a final remedy.

13.55 **Comment:** Commentor indicated that a cap is standard practice for a landfill. [2]

Response: Comment noted.

13.56 **Comment:** Commentor stated that a zero-infiltration cover over the landfill is not required, and that a certain amount of infiltration can be tolerated while still eliminating seeps. [2]

Response: There is no such thing as a "zero-infiltration cover," because all cover systems develop leaks over time. However, groundwater modelling conducted by the Respondents during the FS suggests that the perimeter berm leachate seeps may be eliminated if infiltration into the landfill can be reduced from its current level of 17.1 inches per year to approximately 0.07 inches per year (Golder, 1995c, Appendix A, page A-2, Section A.3 and page A-4, Section A.5). This infiltration reduction is achievable only with a cap with a low permeability layer consisting of an FML, or with a cap that has a low permeability layer such as a GCL with a maximum permeability of 1×10^{-9} centimeters per second. Alternative 4a, for example, which is a soil cover, would not achieve the required infiltration reductions.

13.57 **Comment:** Commentor stated that in rare instances the treatment of leachate can be cost-effective. However, as a rule, preventing and minimizing leachate is far less costly than treating leachate. [2]

Response: In general, EPA agrees that in most cases, it is more cost effective to prevent and minimize leachate than to treat it. This is the main reason that remedies for landfills like the Tulalip Landfill are almost always containment remedies that include a

low permeability cover. Operation and maintenance (O&M) costs for collection and treatment of leachate at the Tulalip Landfill site are considerably higher than O&M costs associated with preventing formation of the leachate. When considering long term operation, the relatively higher cumulative O&M costs for leachate treatment tend to offset any savings gained from the relatively lower capital costs associated with construction of leachate treatment systems.

13.58 **Comment:** Commentor stated that EPA Region 10 has determined that the surface of the landfill is contaminated based on data from one leachate seep on the surface of the landfill. Commentor further stated that this area represents less than one-quarter of one acre of the 143 acre landfill surface, or less than 0.2% of the surface area. Commentor argued that this data is insufficient to justify a capping remedy. [3]

Response: EPA based the decision for interim remedial action and selected a containment remedy, including a cover, for the Tulalip Site based on the Agency's concern for contaminant migration via leachate from the on-source area of the Site to the off-source area of the Site. The reason the surface of a landfill is covered is primarily based on the need to eliminate leachate generation over the long-term in a reliable and effective manner, not to prevent exposure of people and environmental receptors to surface or subsurface soils. See Response to Comment 11.23.

The EPA presumptive remedy guidance "Presumptive Remedy for CERCLA Municipal Landfill Sites," page 5 (EPA, 1993), states "(s)treamlining the risk assessment of the source area eliminates the need for sampling and analysis to support the calculation of current or potential future risk associated with direct contact." The Agency has found in its experience with landfill remediation that surface and subsurface soil data play a small role in the data used to select a remedy. Therefore, for the Tulalip Site, the Agency did not focus on gathering subsurface soil data or additional surface soil data beyond what was already available.

EPA disagrees that EPA "determined that the surface of the landfill is contaminated based on one leachate seep on the surface of the landfill." See Response to Comments 2.9.2, 2.9.3 and 11.7 for a discussion of EPA's evaluation of the landfill surface.

14.0 MICROBIOLOGICAL STUDIES

14.1 **Comment:** Commentor stated that the microorganism research at the site does not support the conclusion of human health risks from microorganisms leaching from the landfill. For example, the commentor claims the microbiological data presented in Appendix C of the Risk Assessment document do not suggest that microorganisms pose risks at the landfill. [3]

Response: EPA presented microbial data from samples taken over a period of twenty years at and around the Tulalip Site. Based on that data, EPA concluded in the Streamlined Risk Assessment for the Site that "microbial contamination at the site may pose a potential health risk to humans." However, in EPA's microbial analysis, the Agency did not attempt to "conclusively" link the microbial contamination in off-source matrices to the landfill. EPA has not, nor will the Agency claim, that the microbial data represents a "microbial risk assessment." At most, the Agency observes that some risk may occur from exposure to matrices that are contaminated. It is not within the scope of the RI/FS investigation and review at the Tulalip site to assess the degree of risk that may result from exposure to microbial organisms at the Tulalip site. There are no pathogen risk-based concentrations on which to perform such an analysis. EPA's purpose in mentioning a potential risk from exposure to these microbial organisms is to note that data is available to suggest a potential risk.

However, EPA believes that with the installation of a cover over the landfill that over time the microbial population of concern will decrease. The population is expected to decrease as the leachate seeps dry up, thus eliminating the transport of microorganisms from the landfill through the leachate seeps into the environment surrounding the landfill.

14.2 **Comment:** Commentor expressed the opinion that the data presented in a memo prepared by Mr. Dean Boening of ICF (3/17/95) lacked any clear description of a sampling plan, including sampling plan objectives; sampling locations; and methods of sample collection, handling, transport, and laboratory analysis. The commentor also did not understand the rationale for selecting the three indicator groups and five species of bacteria included in the study. The commentor suggested that the chosen organisms were useful in determining the presence of human fecal coliform contamination and the potential for transmission of enteric pathogens. [3]

Response: Microbiological investigations followed the Quality Assurance Project Plan for the Site. Sampling locations were determined according to locales selected from earlier investigations that produced elevated levels of microbial contaminants. Leachate samples were collected from characterized leachate seeps. Sample collection, handling, transport, and laboratory analysis was conducted according to:

> **APHA.** 1989. *Standard Methods for the Examination of Water and Wastewater, 18th ed.* American Public Health Association., Washington, D.C.
>
> **Food & Drug Administration Bacteriological Manual, 5th ed.** 1984. American Public Health Association., Washington, D.C.
>
> **E.P.A.** 1978. *Microbiological Methods for Monitoring the Environment, Water and Wastes.* EPA-600/8-78-017.

The microbial data was collected over a period of 20 years. Therefore, much of the data conforms with the standards and protocols normally associated with collection of the microbial samples. The initial site investigations (in the 1970s) were conducted according to NPDES regulations, which regulated these bacterial indicators. These early investigations preceded the Superfund program. Currently, local, state and federal agencies conducting microbiological monitoring programs also commonly analyze for the indicators (total coliform (TC), fecal coliform (FC) and fecal streptococci (FSc)) identified in the Streamlined Risk Assessment for the Tulalip site. Evaluated populations of TC, FC and FSc are considered to be indicative of the presence of pathogenic bacteria. Also, FCs were analyzed for because published standards are available for FCs, making "exceedances" easier to regulate. Infectious microorganisms originating from hospitals (E. coli, C. perfingens, S. aureus and P. aeuruginosa) which could survive at a landfill would mainly be bacteria associated with eye, ear, nose, throat, genitourinary, respiratory, and staph infections. These five bacterial species were of interest because they are common etiologic agents in these infectious episodes.

The above commentor also had the following comments:

a. Several potential significant sources of microorganisms, including antibiotic resistant organisms, are known to exist in the area,

including sewage treatment plant wastewaters, dairy farms, septic tanks, wildlife, and urban runoff.

Response: In general, effluent from these practices can be sources of antibiotic resistant bacteria. However, EPA is not aware of any peer-reviewed literature that substantiates the claim that these bacteria are "known to exist in the area" surrounding the landfill.

b. Background and off-site concentrations of microorganisms were similar to on-site concentrations.

Response: The size of a microbial population is not necessarily predictive of the risk of infection from that organism. For example, exposure to a small population of metabolically dormant organisms during the winter months may be just as infective as an exposure to a larger, metabolically active population of the same organism during the spring and summer months. Because microbial agents may replicate in the field, the concept of concentration (e.g., chemical) as an indicator of toxicity is not necessarily considered to be an indicator of infectivity for microbial agents. Opportunistic pathogens may be ubiquitous in an area, but that does not make them less pathogenic.

Also, comparison of on-site population numbers to background or off-site populations numbers (in addition to reasons explained above) may not be indicative of a risk because even an ubiquitous population requires a host to be infective and these organisms are very species-specific. In other words, even if the microbial population at the landfill was less than background, if a host was present at the landfill then infection is possible through direct and indirect contact.

Investigations from 1970 to 1992 show that on-site microbial populations at the Tulalip Site were higher than background or off-site populations. However, sampling in 1992 and 1993 indicated that on-site populations are similar to background and off-site populations. This decrease over the last couple of years does not decrease EPA's concern about the infective potential of these organisms for reasons stated below.

c. A consistent trend of decreasing microorganism concentrations were measured in the area over time.

Response: Generally, the concentration of microbial populations at most upland landfills decrease over time. For example, facultative aerobic bacteria persist up to 10 years in a standard upland landfill. However, conditions at the Tulalip Site (abundant nutrients and oxygen), provides a conductive milieu for most aerobic/facultative populations to persist far beyond this 10 year period. Therefore, EPA believes that the Tulalip Site may be a longer-term source of bacterial indicators than would be generally expected.

d. Standard protocols for testing for antibiotic resistance were not used.

Response: Standard protocols (Kirby-Bauer disk agar diffusion procedure) were followed. This is the protocol used worldwide by clinical and applied microbiologists. The citations are as follows:

Federal Register. 1972. Rules and regulations. Antibiotic susceptibility disks. 37 Fed. Reg. 20525-20529 (Erratum: 38;2756, 1973).

National Committee for Clinical Laboratory Standards. 1992. Fourth informational supplement: M 100-S4. Performance standards for antimicrobial susceptibility testing. NCCLS, Villanova, PA.

e. Antibiotic resistance of background and off-site microorganism samples were similar to on-site samples.

Response: EPA agrees. However, the assumption that this statement is based on (resistance patterns of background organisms are "innocuous") may not be true. In other words, these antibiotic resistant strains **may** or **may not** have originated from the landfill and migrated into nearby sediments.

Resistance traits are carried on and transferred via extrachromosomal plasmids. These transfers occur among a variety of bacteria, including the fecal coliform

family[45]. Exactly how long an environmental bacterium will retain these plasmids is unknown but some authorities have observed that bacteria possessing multiple resistance factors are more hardy and less subject to environmental stress than native strains lacking resistance factor plasmids.[46]

f. The indicators and specific species evaluated are ubiquitous in the environment.

Response: See Response to Comment 14.2(b) above.

g. The presence of antibiotic resistance in any of the organisms does not necessarily qualify them as pathogens.

Response: The expression of antibiotic resistance is unrelated to the classification of a bacterium as a pathogen. The pathogens that have been a concern at the landfill are "opportunistic." That is, these ubiquitous organisms can take advantage of any opportunity to invade a human host either directly or indirectly.

14.3 **Comment:** The commentor stated that the microbiological study did not evaluate viruses or other agents that could impact human health. Commentor asked if there is concern that such agents may potentially be present. [4]

Response: EPA did not evaluate the possibility that viruses or "other agents" were present at the Tulalip Site. Animal viruses do not "grow" in the environment and would not be expected to survive in the long-term outside of a host, especially while exposed to ambient environmental conditions. EPA assumes that what the commentor means by "other agents" is protozoan agents. EPA's purpose was not to perform a full-fledged microbial risk assessment but to summarize microbial data that was primarily already available from previous investigations conducted over the last twenty years. EPA is not claiming that viruses or "other agents"

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[45] Kelch, W.J. and J.S. Lee, 1978. Antibiotic Resistence Patterns of Gram-negative Bacteria Isolated from Environmental Sources. Appl. Environmental. Microbiol. 36:450-456.

[46] Grabow, W.O.K., I.G. Meddendorff and O.W. Prozesky. 1973. Survival in Maturation Ponds Containing Coliform Bacteria with Transferable Drug Resistance. Wat. Res. 7:1589-1597.

(apart from the microbiological data) may pose a significant risk, or any risk for that matter, at the Tulalip Site. Similarly, EPA only concluded from the bacterial data that a risk to human health **may** exist.

14.4 **Comment:** Commentor stated that the microbiological data (Appendix C in the Risk Assessment document) are not consistent with the summary presented in Section 2.4 of the document. [3]

Response: Tables 1 through 9 of Appendix C were present in the Draft Final Streamlined Risk Assessment (Weston, 1995a). These Tables were inadvertently left out of the Final Streamlined Risk Assessment (Weston 1995a). No changes were made in the Tables and the information in the Tables was present in the AR (e.g., Draft Final Streamlined Risk Assessment) during the comment period on the Proposed Plan.

14.5 **Comment:** Commentor stated that the microorganism concentrations reported in the corrected "most probable number" data tables dated January 31, 1994, and presented at the end of Appendix C of the Streamlined Risk Assessment do not correspond to the data presented in EPA's memo dated March 17, 1995. [3]

Response: The data tables from January 31, 1994 and March 17, 1995 do correspond. The January 31, 1994 data tables do not conflict with the data in Tables 1 through 9, but instead augments it. The January 31, 1994 data was inadvertently left out of the data summary presented in Tables 1-9.

15.0 FUTURE SITE STUDIES

15.1 **Comment:** Commentor asked if other studies are being performed on biota of different trophic levels in the future. If so, the commentor asked if the study would be similar to the study of PCBs and eagles in the Hood Canal area. [4]

Response: EPA is currently working on a comprehensive baseline risk assessment that will include an assessment of the potential impacts of site contaminants on upper trophic levels. This study will be significantly different than the study of PCBs and eagles in the Hood Canal area. The comprehensive baseline risk assessment will use Site data to evaluate potential risk to upper trophic levels using the off-source areas of the Site, such as the Northern Harrier (Marsh Hawk) and the Great Blue Heron, from exposure to

Site contaminants, which include but are not limited to PCBs. The Hood Canal study, on the other hand, covered a larger geographical area (the Hood Canal area), but focused more narrowly on a specific species (eagles) and specific contaminants (PCBs).

16.0 MISCELLANEOUS COMMENTS

16.1 **Comment:** The commentor believes "...the EPA staff, in the science and engineering disciplines, is unqualified to render the decisions that they have put forth." The commentor believes there is a huge disparity between the EPA's staff credentials and those of the PRPs. Consequently, the commentor states that EPA should withdraw the Proposed Plan because: (1) EPA has not completed the baseline risk assessment; (2) EPA staff is not qualified to select the remedial action; (3) the Proposed Plan ignores the language in HR 2099 which is part of EPA's continued funding in HJR 108; (4) the Proposed Plan does not take into account EPA's administrative reforms published on October 2, 1995; (5) the remedy is not consistent with other remedies selected at NPL landfills in Region 10 or the Agency's presumptive remedy AR; and (6) EPA has not responded to the University of Washington's appeal to remove the Site from the NPL. [5]

Response: EPA is confident in the qualifications of its staff and in the individual staff members' competency in conducting the duties which EPA is mandated to perform. Referrals to responses to the above comments, are as follows:

(1) EPA has not completed the baseline risk assessment: ^See Responses to Comments 2.1, 2.2, and 2.3;

(2) EPA staff is not qualified to select the remedial action: See Response to Comment 16.1;

(3) the Proposed Plan ignores the language in HR 2099 which is part of EPA's continued funding in HJR 108: See Responses to Comments 2.6 and 2.17;

(4) the Proposed Plan does not take into account EPA's administrative reforms published on October 2, 1995: See Response to Comment 2.6;

(5) the remedy is not consistent with other remedies selected at NPL landfills in Region 10 or the Agency's presumptive remedy AR: See Responses to Comments 2.4 and 2.14; and

(6) EPA has not responded to the University of Washington's appeal to remove the Site from the NPL: See Response to Comment 4.1.

ATTACHMENT A

DE-MINIMIS SETTLEMENT ISSUE AND OTHER LIABILITY COMMENTS

EPA received comments regarding liability issues, primarily about the de minimis settlement, during the public comment period for the Proposed Plan. The public comment period was for the Proposed Plan, EPA's evaluation and selection of a remedy for the Tulalip Landfill. EPA has responded to those comments in the Responsiveness Summary. However, comments about liability issues that were given at the public meeting are addressed, separately, in this attachment because they do not directly relate to the selected remedy for the Site. EPA will respond directly, in writing, to commentors who submitted de minimis liability comments in writing to EPA during the public comment period and were not given at the public meeting.

1.0 **Comment:** Commentor asked if all de-minimis parties have been contacted, including public bodies, and if they were on both a list and an invoice list. [2]

Response: EPA used several sources to prepare a master list of approximately 6,500 parties associated with the Tulalip Landfill. The sources included Marine Disposal Company logbooks, as well as information supplied by Rubatino Refuse Company and Waste Management, Inc. EPA is offering de minimis settlements to appropriate parties on the master list, including public bodies, who contributed between 0.01 and 0.6 percent of the total waste at the site. The settlement offers are being conducted in three rounds.

Those parties with waste volumes below 0.01% of the total waste volume at the Site are not being offered settlements. These parties have been determined by EPA to be de micromis parties, and consistent with EPA guidances and policy, are not being asked to contribute a portion of the response costs incurred at the Site.

In addition to the master list, EPA has in its possession approximately 28,000 ledger cards supplied by the Seattle Disposal Company. To date, EPA has reviewed this ledger card information for those parties already on the master list and identified as eligible for a de minimis settlement. EPA is initiating a comprehensive review of these ledger cards in order to determine if additional parties, beyond those already identified, are eligible for a de minimis settlement.

2.0 **Comment:** Commentor asked if there was a mechanism in place to return money to the people on the de minimis list if the Tulalip site was taken off of the NPL list. [2]

Response: No. Even in the unlikely event that the Tulalip site is taken off of the NPL, EPA retains its authority to take enforcement action to compel cleanup at the site.

3.0 **Comment:** Commentor asked if the post-1980 users are being asked to contribute to the settlement. [2]

Response: The Tulalip Section 17 Corporation[47], U.S. Navy, and other post-1980 users of the site are currently participating in a formal allocation process. The purpose of this process is to determine fair and equitable cleanup cost shares for these and other parties.

4.0 **Comment:** Commentor asked what action the EPA would take if the de minimis invoice parties did not pay their bill within the 30-day period. [2]

Response: The settlement to de minimis parties is offered in the form of an administrative order on consent (AOC). The AOC provides for each settling party to make a cash payment to the Unites States for a proportionate share of past and future response costs at the site. Payments will be due only after the AOC becomes effective. After receiving binding signature pages from the settling parties, EPA will sign the AOC and it will be made available for public comment. Following the public comment period, the AOC will become effective after the settlement is approved by the United States Department of Justice. EPA will then send notice to each settling party that the AOC is effective. Payments by the settling parties will be due 30 days after receiving notice that the AOC is effective.

EPA will not determine in advance the action it will take to enforce the terms of the AOC against a party who signs the settlement but fails to make the required payment. By signing and returning the AOC signature page to EPA, Settling Parties agree to be bound to the terms of the settlement, which requires each party to

[47] The Tulalip Section 17 Corporation leased the Site to Seattle Disposal Company for landfill operations and was also involved in post-1980 capping operations at the Site.

submit specified payments within 30 days after receipt of notice of the effective date of AOC. Parties who do not do such, will be considered in violation of the AOC, and subject to enforcement proceedings. As stated in Paragraph 23 of the AOC, pursuant to Section 122(l) of CERCLA, a Settling Party who fails or refuses to comply with a term or condition of the AOC is subject to a civil penalty of up to $25,000 per day of such failure or refusal. In addition, a party who fails to make the payments will not gain the benefits of a covenant not to sue from the United States, and will not enjoy contribution protections provided settlors under CERCLA.

5.0 **Comment:** Commentor, identifying himself as a former customer of Rubatino Refuse, asked how it was that EPA determined 516 tons of scrap wood materials were hauled from his property and disposed of at the landfill. Based on the content of the public meeting's proceedings, the commentor expressed that he was not prepared to enter into a de minimis settlement that the EPA requested. The commentor is not convinced the liability to those participating will be eliminated because leachate may continue to migrate from the site following the implementation of the remedy. [1]

Response: The total tonnage attributed to each generator customer of Rubatino Refuse Removal, Inc. (RRR) was based on documents prepared by RRR at the time of landfill operations, including daily trip reports, and on sworn testimony of RRR drivers. Where driver information showed a consistent waste generating activity for a party during the period 1975-1979 - such was the case for WW Wells Millwork - EPA calculated the total volumetric contributions of each generator customer for that period using the average monthly volume of documented waste activity during the 1978 period as the basis. The waste volume was then converted to tonnage using a conversion factor of 283 pounds/cubic yard.

The public meeting that the commentor attended was for the purpose of discussing the Proposed Plan for the Tulalip Landfill Superfund Site, not the details of the de minimis settlement. EPA held separate informational meetings with de minimis parties, and made all information upon which party-specific volume decisions were made available to the de minimis parties for review and comment prior to responding to the settlement offer.

The commentor is correct that response actions at the site may be ongoing for some time. However, the de minimis settlement is an opportunity for eligible parties to settle their potential liability for response costs with regard to the site. As noted in the Response to Comment 4.0 above, the settlement provides important benefits to settling parties, including a covenant not to sue and contribution protection, in exchange for paying a share of past and future response costs at the site. Taken together, a covenant not to sue, contribution protection, and other de minimis settlement terms provide a high level of certainty that settling parties will be protected from future legal actions related to the matters addressed in the settlement.

6.0 **Comment:** Commentor asked why the pre-1980 users of the landfill are being asked to pay to clean up the site. [1]

Response: Pre-1980 users of the landfill are being asked to pay to clean up the Site because EPA has evidence that the waste they brought to the Site contained hazardous substances. The pre-1980 users of the landfill fall within the definition of liable parties under section 107 of CERCLA, 42 USC 9607, and are therefore responsible for the payment of response costs.

EPA is issuing de minimis settlement offers to parties who contributed between 0.01 and 0.6 percent of the total waste at the site. Parties with waste contributions above 0.6 percent are not eligible for a de minimis settlement offer, but have been or will be invited to participate in an allocation process. There are thousands of parties who contributed less than 0.01 percent. EPA has no plans to offer settlements to these very small contributors at this time because of the substantial administrative costs that would be incurred relative to the very minor contributions likely to be recovered.

7.0 **Comment:** Commentor wanted to know what the impact of the baseline risk assessment would be on the current time table for PRPs who have and have yet to receive de minimis settlement offers. The commentor also asked about the cost basis for parties who are potentially liable who have not yet received de minimis offers and whether those that have will have their offers re-evaluated. [2]

Response: The comprehensive Baseline Risk Assessment will have no effect on the time table for the de minimis settlements. The two processes are proceeding independently. In addition, EPA does not expect the cost basis for the de minimis settlements to change. This is an early de minimis settlement and therefore total site costs are estimated as accurately as possible based on current information. Early settlement offers give parties an opportunity to "cash out" early in the process so as to avoid further involvement at the site. The actual total site costs may turn out to be lower or higher than the amount estimated for purposes of the settlement offer. Thus, though settling de minimis parties risk that the costs will be lower than anticipated by EPA, EPA risks that the costs will be higher than anticipated and EPA will not be able to seek those extra costs from the parties who have already settled.

8.0 **Comment:** Commentor suggested EPA use the concept of periodic payments to settle the PRP's liability rather than a lump sum. Commentor stated that this payment philosophy, as described by the commentor, is modeled from personal injury tort litigation. The commentor explained that an advantage of this method is that the defendant can typically settle the case for less money and the plaintiff can typically receive more money. The commentor also suggested that favorable tax consequences often result for both parties. The commentor explained that the defendant receives the current tax deduction for their expenses for the settlement case. In addition, the defendant is able to settle the case at a lower cost because the settlement is spread out over time and it is, in effect, annuitized. Consequently, the commentor explained that the plaintiff faces no tax consequences. [2]

Response: EPA appreciates the commentors suggestion.

ATTACHMENT B

FIGURES

4-1

AND

4-2

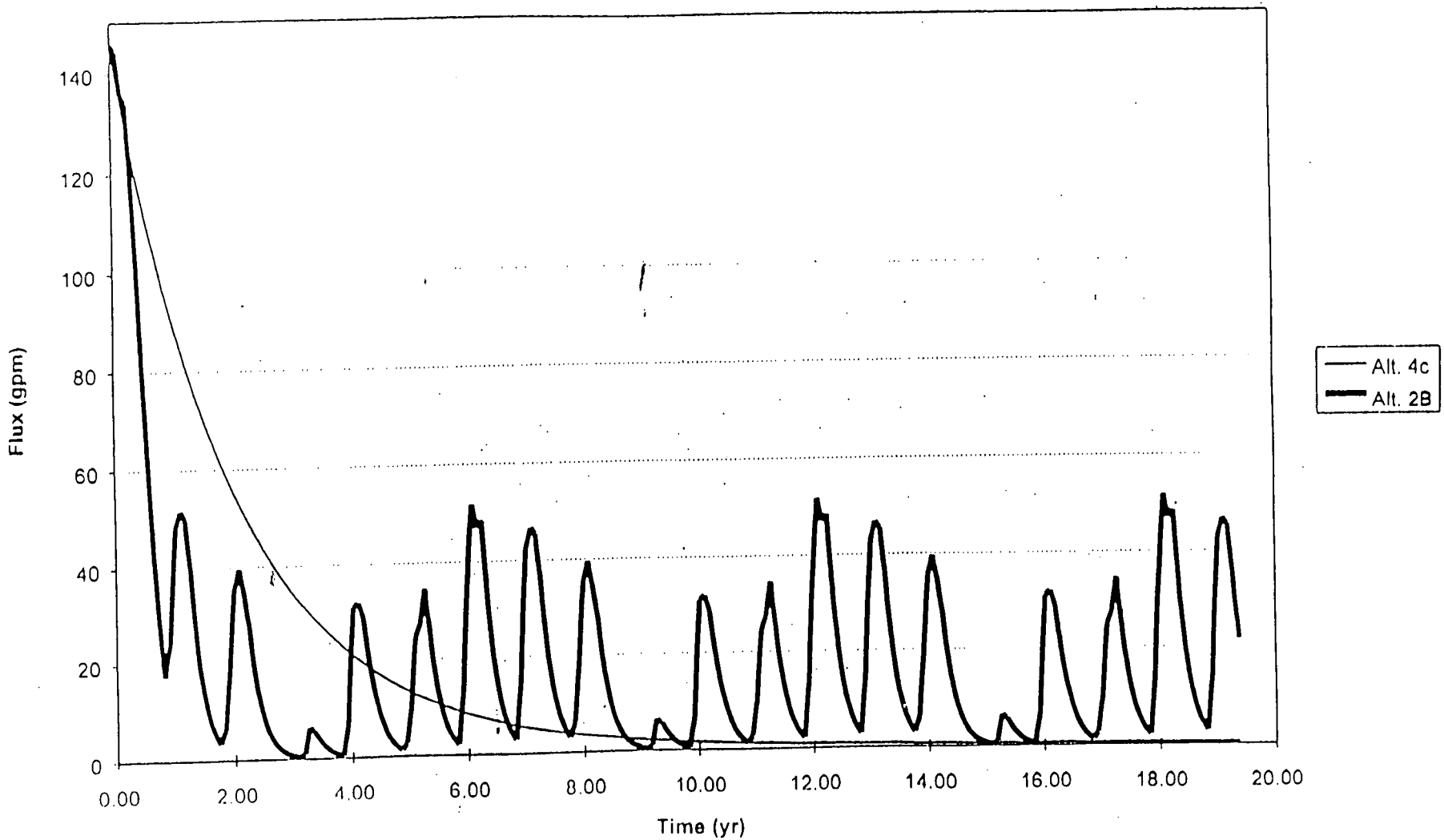

FIGURE 4-1
PREDICTED FLUX OUT OF LANDFILL INTO ZONE 2
TULALIP LANDFILL/WA

Golder Associates

C:\JGS\9501225\63530 10/18/95

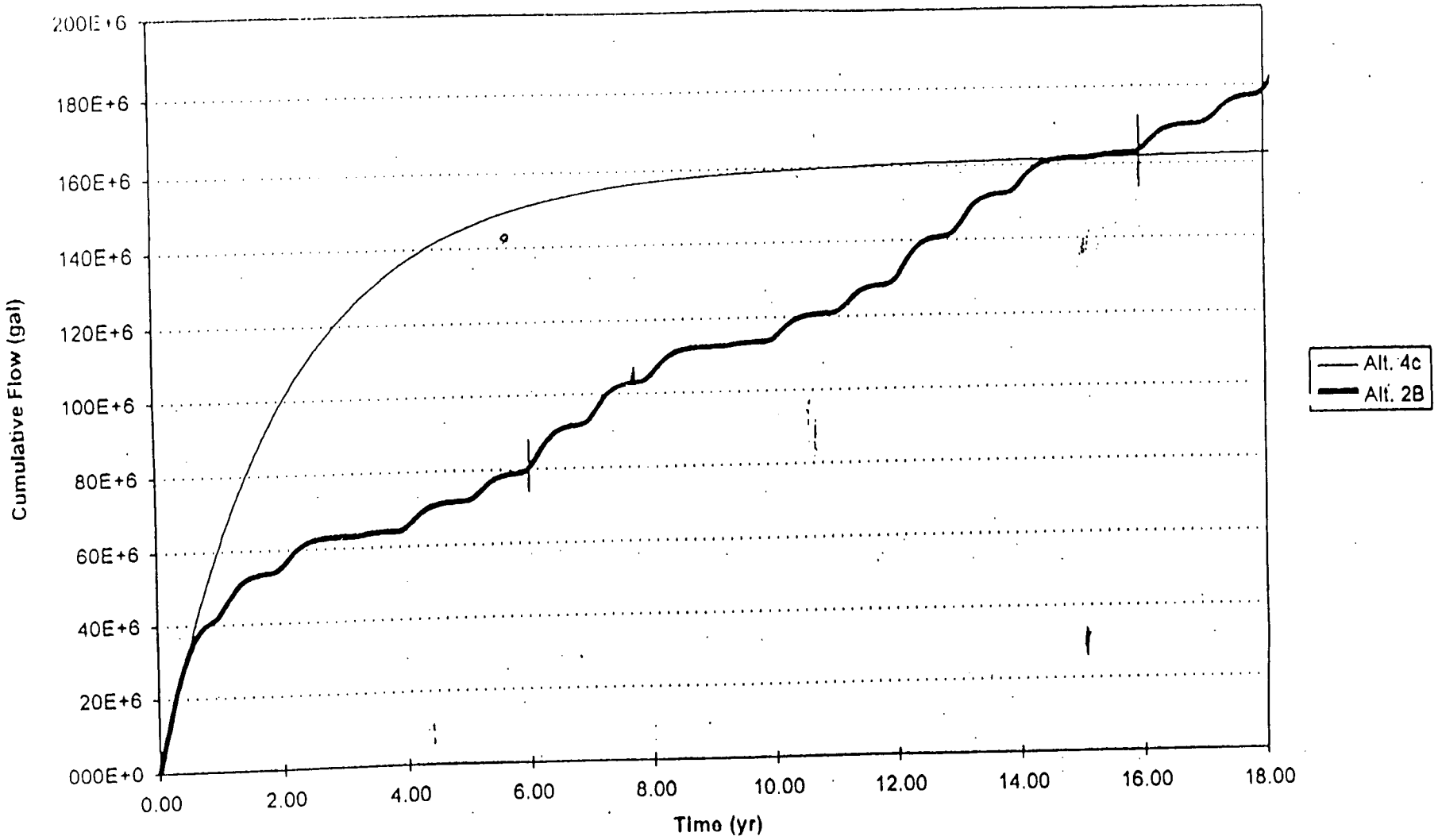

FIGURE 4-2

CUMULATIVE LEACHATE FLOW OUT OF LANDFILL INTO ENVIRONMENT

TULALIP LANDFILL/WA

Golder Associates

C:\JSS\9531225\63531 10/23/95

ATTACHMENT C

LIST OF REFERENCES

This List of References is meant to assist the reader in locating documents cited in this Responsiveness Summary and is not meant to serve as an exclusive listing of all documents EPA relied on in determining the need for remedial action or selecting the remedy for the Tulalip Landfill Site.

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The Administrative Record is available for public review at the United States Environmental Protection Agency, Records Center, 1200 6th Avenue, Seattle, Washington and at the Marysville Public library in Marysville, Washington. To request a copy of a document in the Administrative Record, call the EPA Records Center at (206) 553-4494.

Interim Remedial Action ROD

APPENDIX E

APPENDIX E

EPA REVIEW COMMENTS
ON THE
COMPARISON OF THE LEACHATE COLLECTION AND THE TREATMENT ALTERNATIVE (2B) WITH THE FML COVER ALTERNATIVE (4C), DATED OCTOBER 24, 1995

During the public comment period for the Proposed Plan, the Respondents submitted new information to EPA regarding a variation of Alternative 2b - Leachate Seep Collection with Treatment Berms. This document, dated October 24, 1995, is entitled *"Comparison of the Leachate Collection and Treatment Alternative (2b) with the FML Cover Alternative (4c)"* (Golder, 1995b). The document provides detailed information on sending collected leachate to an off-Site sewage treatment plant, or Publicly Owned Treatment Works (POTW), instead of through treatment berms. EPA has evaluated both of these variations in the interim ROD, differentiating them as follows:

- Alternative 2b - Leachate Seep Collection with Treatment Berms; and
- Alternative 2b(ii) - Leachate Seep Collection with Discharge to POTW.

Alternatives 2b and 2b(ii) use the same basic leachate collection system. The main difference between the two alternatives is that one would send the collected leachate to treatment berms, the other to a POTW. According to the proposal, under Alternative 2b(ii) the leachate would be sent to either the Marysville or Everett POTW where it would be treated along with other effluent streams received by the POTW.

This Appendix presents EPA's technical comments on the October 24, 1995 submittal. For EPA's evaluation of Alternative 2b(ii) using the NCP criteria, refer to interim ROD Section 9.0 - Summary of the Comparative Analysis of Alternatives, and interim ROD Appendix A.

GENERAL COMMENTS

1. Alternative 2b and Alternative 2b(ii) share the same basic leachate collection system. Many comments EPA has made previously about the collection system proposed for Alternative 2b also apply to the Alternative 2b(ii). However, many of EPA's concerns were not addressed in the October 24, 1995 submission (Golder, 1995b). EPA expressed the following concerns about alternative 2b:

- difficulty of constructing trenches for the leachate collection system through landfill waste;
- difficulty of installing level collection pipes in several feet of standing water at the bottom of the trenches;
- difficulty in accessing the collection pipes for repairs;
- clogging of collection pipes over time;
- relatively high operation and maintenance (O&M) costs; and
- lack of adequate data or technical analyses to support the Respondents' claims that the proposed collection system would eliminate leachate seepage.

These concerns are also applicable to 2b(ii) because of the similarities between the two systems. The October 24, 1995 submittal could have, but did not, attempt to address these concerns relative to 2b(ii). In EPA's August 3, 1995, letter to the Respondents (Eric Winiecki, EPA, to Anthony Burgess, Golder Associates) transmitting EPA's review of the "Development and Evaluation of the Treatment Berm Alternative (Golder, 1995c), which describe Alternative 2b, EPA stated on page 7:

> The SAC reports submitted to date, including the subject report, have not provided adequate justification to support the statement that all leachate seepage would be eliminated by the treatment berm or similar leachate interception alternative.

To date, this justification has not been provided to EPA.

2. There are numerous uncertainties associated with the leachate collection and treatment alternative. Adequate trench design and spacing is heavily dependent on hydraulic properties of the waste. There is reference to aquifer testing to try to confirm these properties. However, EPA notes that these are landfill waste materials, which are expected to be less homogenous than soil media or sediments. The boring and testing programs for defining the hydraulic properties to allow a reasonable confidence level with the design of the spacing of the trenches is likely to be extensive. The trench spacing provided in the Respondents' submittals is highly conceptual, a best guess, based on very limited data in Zone 1. The trench depth, as proposed, ranges from 12-25 feet with a minimum width of 3 feet, depending on waste consistency. The volume of waste to be

excavated is consequently also very speculative, as it is dependent on all the above. EPA questions the viability of returning all of excavated waste to the same trenches as proposed, versus the potential need for other, additional disposal options. This has not been sufficiently evaluated.

3. The document inappropriately downplayed the potential for plugging and its impact within the leachate collection system. The cost estimate for the leachate collection and treatment alternative should have specifically identified, in addition to contingency for unexpected events, corrective actions to be followed (e.g., digging up and replacement of portions of the interceptor trench, etc.) to address plugging within the interceptor trenches, including operation and maintenance (O&M) funds to implement these corrective actions.

4. The advantage of using low permeability landfill covers to reduce infiltration into landfills and consequently reduce leachate production is that it is a proven technology with respect to materials, installation, and the ability to operate and maintain the system. Construction and Quality Assurance (CQA) procedures for installation and repair of FML landfill cover systems are well established, including ASTM standards and EPA guidances. In contrast, the Respondents who proposed the 2b(ii) approach did not submit information that supports 2b(ii) as a technology that is proven for the use and circumstances for which it has been proposed.

5. Based on evaluations performed by the Respondents, the selected alternative (4c) is expected to result in lower rates of leachate migration to Zone 2 than Alternatives 2b or 2b(ii). The lower rate of leachate migration to Zone 2 expected from Alternative 4c has a relatively high degree of certainty because low permeability landfill covers are a proven technology with relatively predictable results. The leachate migration rates associated with Alternatives 2b and 2b(ii), on the other hand, are relatively uncertain because Collection systems of this type are unproven. Consequently, the expected rate of leachate migration that may result from implementation of Alternates 2b and 2b(ii) is subject to numerous uncertainties (see the following comments). Because the estimated lower leachate migration rates associated with Alternative 4c are considered to be more certain estimates, the fact that these numbers are lower must be viewed as very significant. Alternative 4c is expected to meet all RAOs without the need for additional contingencies. During the detailed design phase, Alternative 4c can be optimized to minimize waste excavation and soil importation.

6. It is likely that the cost estimate for the leachate collection and treatment alternative 2b(ii) is significantly underestimated due to the critical inputs (i.e., trench spacing, etc.) into the analysis being really more appropriately characterized as best guesses versus conservative or non-conservative assumptions. A more realistic cost estimate for Alternative 2b(ii) has been prepared by EPA (see Table 1 in this Appendix).

7. Some information was provided for the Everett POTW that was not provided for the Marysville POTW. Information should have been provided for both POTWs since both were proposed as potential recipients of landfill leachate.

8. Current landfill gas emission of methane at the Tulalip Landfill is estimated to be 228,000,000 cubic feet per year (HLA, 1994b). This quantity would likely increase as the water levels in the landfill decrease thereby enabling additional refuse degradation. Furthermore, constituents of landfill gas can cause offensive odors or threaten human health. PSAPCA regulations provide requirements for allowable gas emission rates, air emissions detrimental to persons or property, and odor and nuisance controls measures. Landfill gases generated under the scenario depicted by Alternative 2b or 2b(ii) would be released to the atmosphere since these alternatives possesses no provisions for containment of such gases.

   For alternative 4c, a gas collection system consisting of a piping and trench network would be installed beneath the low permeability cover. The recovered gases could then be treated by incineration or flares as necessary.

SPECIFIC COMMENTS

1. Page 3, Section 2.1: It is unclear from the description of the biopolymer slurry technique how the drainage media (both drain piping and filter pack) would be installed, and what impact residue from the slurry would have on the interceptor trench's performance. Supporting documentation and references for the biopolymer slurry technique should have been provided.

2. Page 4, Section 2.1.1: The reference to treatment berms in the first sentence appears to be incorrect, since Alternative 2b(ii) does not include treatment berms.

3. Page 6, Section 2.2: a) Copies of the chemical and flow data presented to personnel at the Everett and Marysville POTWs should have been provided in an appendix to the report.

b) A discussion of the compliance status for each of the POTWs should have been provided. CERCLA wastewaters are prohibited from being sent to a facility that is not in compliance with its permits.

c) The mechanisms (e.g., monitoring and reporting requirements) that each POTW would employ to ensure that the wastestream will be acceptable to its treatment system over the long term should have been provided.

d) The hydraulic capacity of each POTW is discussed. However, discussion of other technical issues should also have been provided, such as the organic loading capacity of each POTWs treatment system; the suitability of each POTW's treatment systems for the wastestream; and whether each treatment system would be expected to treat the leachate constituents, and to what degree.

4. Page 7, Section 2.3: This section should have included descriptions of the monitoring measures required to maintain the system. As a minimum, these measures should have included float controls, redundant processes for mechanical equipment, and performance monitoring of the trenches and piping network. Monitoring controls for this alternative are likely to be more numerous, substantial, and costly than for Alternative 4c.

5. Page 8, Section 2.5.1: a) Clogging of the interceptor trenches from siltation or biofouling remains an important concern for this alternative since detection of a localized blockage would be difficult. The appropriate selection of aggregate and/or geotextile would be difficult due to the variability of soil and refuse across the site. Moreover, correct placement of these materials may prove complicated, particularly when using a slurry to maintain trench integrity. These issues should have been discussed in more detail.

b) The comparison of a trench pipe system to a screen in a well is not a valid comparison. A drainage trench such as those proposed for Alternative 2b(ii) cannot be developed in a similar manner to a well screen because a trench has different fundamental characteristics than a well, including horizontal position, long lengths, and inability to create the forces necessary to move the fine material near the screen.

6. Page 9, Section 2.5.2: More information should have been provided regarding the potential need for pretreatment of the leachate prior to discharge to each POTW. According to the Department of Ecology, the results of dilution effects testing and a stream loading study of the Snohomish River is

anticipated to result in modifications to the Everett POTW's NPDES permit limitations. Both the Everett POTW and Ecology have indicated the potential for ammonia to be included in future effluent limits.[48] This could result in the need for the leachate to be pretreated prior to discharge to a POTW.

7. Page 10, Section 3.1: a. The statement that all RAOs are achieved by this alternative [2b(ii)] is incorrect. The RAO for landfill gas requires prevention inhalation and releases of landfill gas exceeding ambient levels or PSAPCA regulation standards. Leachate collection and treatment Alternative 2b(ii) will not likely meet this RAO, and may not meet many others (see Response to Comment 13.13.)

   b. The document should have specified whether the pipeline(s) between the landfill and the POTW would be dedicated to the Tulalip Landfill leachate, or if they would be linked to other sanitary or storm sewer systems, nor did it include a discussion of appropriate containment measures for the wastestream.

8. Page 10, Section 3.2: This document has not provided adequate justification to support the statement that all leachate seepage would be eliminated by the proposed leachate collection system. This concern remains unaddressed.

9. Page 11, Section 3.3: This section should have indicated whether the POTWs were willing to accept the leachate for the entire duration of the discharge (potentially indefinitely), and should have provided supporting documentation of this from the POTWs.

10. Page 12, Section 3.3: The claim that the interception system for Alternative 2b(ii) "provides greater certainty that this RAO will be achieved than the FML cover alternative (4c)" is inconsistent with Figures 4-1 and 4-2. Predicted flux out of the landfill into the Zone 2 aquifer is significantly greater with leachate interception than with Alternative 4c, particularly after 5 to 6 years. The cumulative leachate flow into the environment from the landfill under the leachate interception scenario exceeds the amount for Alternative 4c. Further, supporting evidence for the interception system's "high degree of reliability that the leachate seeps will be eliminated" has not been provided (see comment 8 above).

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[48] EPA notes that ammonia nitrogen is also a major contaminant of concern discharging from the Tulalip Landfill.

11. Page 13, Section 3.6: The technical implementability discussion should have included consideration of the long term potential need for pretreatment requirements that could be set by the receiving POTW based upon new effluent limits. As indicated in the comment regarding Section 2.5.2, both Ecology and the Everett POTW anticipate new limitations.

12. Discussions of administrative implementability should have included the following:

    a. Effluent limits for the Marysville POTW were recently developed based on the current wastestreams. New wastestreams could require revisions to the permit. The POTW authority may be hesitant to go through this process again so soon. Also, contacts at this POTW indicate that several months of continuous monitoring data would be required to assess the characteristics of the wastestream prior to acceptance. Local limits for the discharges to the POTW are expected to be developed sometime next year, and may also trigger pretreatment requirements.

    b. Local ordinances can restrict POTWs from accepting waste streams from outside their established service areas. This issue should have been evaluated and discussed for the Everett and Marysville POTWs.

13. Page 13, Section 3.7: Given the numerous technical uncertainties associated with Alternative 2b(ii), EPA has developed a more realistic cost estimate for the alternative using assumptions that are more appropriately conservative. EPA estimates the cost for Alternative 2b(ii) to be $20.8 million (see attached table). EPA's assumptions used for the cost estimate include:

    - A lower horizontal permeability for the refuse was assumed and the trench spacing was reduced to 200 feet.

    - Conventional excavation techniques were assumed with trench integrity being maintained by shielding or trench boxes or sloping. Excess trench spoils were assumed to be disposed in a municipal landfill.

    - Due to the likelihood of trench spoils being saturated, it was assumed the spoils were dewatered on a pad of HDPE and drainage media.

    - EPA assumed regrading, placement of imported cover material, and revegetation of over 1/2 of the landfill would be necessary to prevent human exposure of wastes and contaminated soil.

- The quantity of gravel backfill was increased to 23,000 cubic yards. This amount assumes the trench to be 4.2 feet wide and the depth of gravel to be 5 feet (5' deep x 4.2' wide x 29,600' long = 23,022 cubic yards).

- Waste disposal costs were increased to $60/cubic yard to reflect disposal facility tipping fees ($42/cubic yard) as well as loading and hauling costs ($18/cubic yard).

- Operation and maintenance (O&M) costs for the 24 extraction sumps was increased to $30,000. This value assumes monthly inspections and periodic repair and/or replacement of each pump at an annual cost $1,250 per pump.

- Costs for POTW disposal were increased based on estimates from the POTWs.

- Annual maintenance of the sumps and trenches to eliminate siltation build-up and biofouling; includes periodic replacement of drainage media in the interceptor trenches.

14. Page 15, Section 4.1:

- The third sentence of the second paragraph is incorrect. Evidence suggests that potential surface water ARARs are <u>not</u> achieved at the point where groundwater discharges to surface water.

- The document's claim that degradation of a low permeability cover should be expected as a result of "surface activities and natural weathering" is unfounded. As the Respondents in the past have stated, an engineered cap would support the expected future land use activities. Further, exposure of the cover, and therefore degradation to natural weathering would not normally be expected. To suggest that degradation from future land use or weathering is eminent or even likely is misleading.

15. Page 17, Section 4.3: The last sentence is misleading and should have been omitted. Deterioration of an FML layer in a properly constructed cover system is improbable; membrane liners subjected to intense accelerated aging tests have routinely demonstrated that geosynthetics should last almost indefinitely. Other potential breaches from punctures or tears are equally unlikely when accounting for the anticipated loading with respect to the design strengths of the geosynthetic materials available. Field seams would be aggressively tested to insure water-tightness, and a quality

assurance program, as well as field placement oversight, would provide a final safeguard against leaks caused by improper installation.

16. Attachment A: The data provided by the Respondents to the POTW regarding the Respondent's expectations of the leachate and its wastewater characteristics should have been provided in this attachment.

17. Page B-1, Attachment B: This attachment provides an "apples-to-oranges" comparison because it treats sites that include caps the same as sites that don't. For a proper comparison, the average cost per acre should only include costs for sites employing low permeability caps. In doing so, the appropriate average cost per acre for landfills that are truly greater than 80 acres is $173,000, compared to an estimated cost of $171,000 per acre for Alternative 4c. In addition, EPA notes that the cost estimates presented on page B-1 should have been adjusted for inflation, which would further increase the $173,000 figure relative to the selected Alternative (4c). EPA concludes that the cost per acre for Alternative (4c) is comparable or less than the cost per acre for landfills of similar size.

EPA Cost Estimate for Alternative 2b(ii) - Leachate Seep Collection with Discharge to Publicly Owned Treatment Works (POTW)

Table 1

Item	Quantity	Units	Unit Cost	Cost	Notes
CAPITAL COSTS					
Signs	24	each	$500	$12,000	
Deed Modification	1	LS	$5,000	$5,000	
Monitoring Plan	1	LS	$50,000	$50,000	
Clearing and Grubbing	18	Acres	$3,500	$63,000	
Surface Regrading	1	LS	$100,000	$100,000	
Pre-design Testing	1	LS	$500,000	$500,000	
Permitting/Easements/Crossings	1	LS	$200,000	$200,000	
Interceptor Trench					
Excavate Trench & Haul to Stockpile	78,620	CY	$8	$628,960	17 ft average depth, conventional
Stockpile Pad	10,000	SF	$3	$30,000	
Place Perforated Pipe	29,600	LF	$12	$355,200	12 in dia. pipe
Gravel Backfill	23,000	CY	$14	$322,000	5 ft deep
Waste Disposal	32,360	CY	$60	$1,941,600	Municipal Landfill
Soil Cover	15,350	CY	$10	$153,500	2 ft deep
Extraction Sumps	24	Each	$15,000	$360,000	
Cover					
Regrade on-site Soil	150,000	CY	$2	$300,000	Assumes covering 1/2 the landfill
Cover Material	118,000	CY	$12	$1,416,000	Locally available select material
Vegetation	73	Acre	$1,500	$109,500	Conventional seeding
Prepare Cover Material	118,000	CY	$1	$118,000	Roll
Pipeline					
On-site Pipeline with Trench	4,000	LF	$25	$100,000	3 ft deep, 2 ft wide
Pump Station	1	LS	$100,000	$100,000	400 gpm pump
Pipeline to POTW with Trench	21,000	LF	$25	$525,000	3 ft deep, 2 ft wide
Pipeline Monitoring/Controls	1	LS	$30,000	$30,000	
POTW Hookup Charges	58	MGal/yr	$33,000	$1,914,000	
Subtotal Capital Costs				$9,333,760	
Contractor Overhead & Profit			10%	$933,376	
Engineering			8%	$746,701	
Construction Surveillance			3%	$280,013	
Contingency			25%	$2,333,440	
Total Capital Costs				$13,627,290	
Operation and Maintenance (O&M) Costs					
POTW Discharge fees	58	MGal/yr	$4,400	$255,200	
POTW Insp./Monit. Fees		*per annum*	$4,000	$4,000	
Pump Station Operation/Maintenance		*per annum*	$10,000	$10,000	
Trench Maintenance/Cleanout		*per annum*	$20,000	$20,000	Includes sediment removal
Sump Maintenance		*per annum*	$30,000	$30,000	
Annual Groundwater Monitoring Costs		*per annum*	$50,000	$50,000	
Sign & Gate Maintenance		*per annum*	$3,000	$3,000	
Subtotal O&M Costs				$372,200	
Contingency			25%	$93,050	
O&M Costs				$465,250	
Present Value of O&M Costs	30	years		$7,152,033	Discount Rate = 5%
Total Alternative Cost (Net Present Value)				$20,779,322	

APPENDIX B

STATEMENT OF WORK
ON-SOURCE CONTROL REMEDIAL DESIGN/REMEDIAL ACTION
TULALIP LANDFILL SUPERFUND SITE
MARYSVILLE, WASHINGTON

July 25, 1997

LCM:SOW8

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1. INTRODUCTION

1.1 Purpose

The purpose of this Statement of Work (SOW) is to set forth requirements for designing and implementing the portion of the remedial action described in the interim Record of Decision (ROD), which was signed by the Regional Administrator of the United States Environmental Protection Agency (EPA), Region 10 on March 1, 1996, for the Tulalip Landfill Superfund Site (Site). Major elements of the selected remedy include the following:

- Capping the landfill;
- Installing a landfill gas collection system, and, if necessary, a gas treatment system;
- Defining potential uses of the site that are protective and compatible with the landfill cap;
- Providing for environmental monitoring to ensure the selected remedy is adequately containing the landfill waste; and
- Providing for operation and maintenance (O&M) to ensure the integrity of the cap system.

Washington Waste Hauling & Recycling, Incorporated (WMI) shall follow the EPA *Superfund Remedial Design and Remedial Action Guidance*, the ROD, the approved RD/RA Work Plan, provisions of the Administrative Order on Consent (AOC) or Consent Decree (CD), this Statement of Work (SOW), and any additional guidance provided by EPA for the design and construction of the Interim Remedial Action at the Tulalip Landfill. WMI shall conduct O&M immediately following certification of the construction completion. WMI's obligation to conduct O&M shall be based upon the criteria contained in Section 4.6.4 and shall extend for 3 to 5 years, as determined by EPA in writing when EPA approves the final Remedial Design. The Tulalip Tribe will conduct O&M after WMI completes their O&M obligation.

2. SUBMISSION OF DELIVERABLES

2.1 List of Deliverables and Schedule

WMI shall submit to EPA for review and approval three (3) paper copies of the following deliverables. EPA may request up to five copies of certain documents for review purposes. Two paper copies of each deliverable shall be submitted to the Tulalip Tribes. The deliverables include the following:

- Monthly Progress Reports
- Remedial Design/Remedial Action Work Plan which includes the Design and Sampling Analysis Plan, Field Investigation Quality Assurance Project Plan, Health and Safety Plan, Contingency Plan, and Site Management Plan

- Preliminary Design Submission
- Pre-final Design Submission.
- Final Design Submission
- Construction Quality Assurance/Quality Control Plan
- Remedial Action Support Plans which include the Regrading Erosion Control Plan, Well Abandonment Plan, Monitoring Well Installation Plan
- Operation and Maintenance Plan
- Post-construction Monitoring Plan
- Institutional Controls Plan
- Remedial Action Report

Except as otherwise provided herein, WMI shall submit the deliverables in accordance with the following major milestone schedule:

- RD/RA Work Plan Outline (Design Basis discussion) - within 15 days after EPA's issuance of an authorization to proceed.
- Draft RD/RA Work Plan - within 30 days after EPA's issuance of an authorization to proceed.
- Preliminary Design - within 60 days after receipt of EPA approval of the RD/RA Work Plan.
- Pre-final Design - within 60 days after receipt of EPA comments on the Preliminary Design submission.
- Final Design - within 30 days after receipt of EPA comments on the Pre-final Design submission.
- Construction of Remedial Action - as approved in the schedule included in the Pre-final Design submission.
- Notification of Completion of Construction - within seven (7) days following completion of the construction phase.
- Final Inspection - within 15 days following notification of construction completion.
- Remedial Action Report - within 60 days following Final Inspection.

This schedule does not specify due dates for all deliverables and activities listed above because it is not possible to schedule all future work at this time. WMI shall propose due dates for approval by EPA for specific due dates not included above.

2.2 Review of Deliverables

EPA, coordinating with the Tulalip Tribe will review deliverables submitted by WMI to determine if the deliverables meet the objectives and requirements outlined in this SOW and the ROD. In instances where EPA requests modification to the deliverables, WMI shall incorporate the required modifications and resubmit the deliverable or an addendum for approval within a reasonable time frame specified by EPA.

2.3 Confirmation of Deliverable Due Dates

WMI shall confirm the date for submission of a deliverable in the monthly progress reports to allow EPA to schedule review of the deliverable(s).

3. WMI KEY PERSONNEL

3.1 Key Personnel

All aspects of the work to be performed by WMI shall be under the supervision of a qualified project manager.

A Construction Quality Assurance (CQA) Official shall perform oversight during RA to confirm to EPA and WMI that the selected remedy is constructed to meet project requirements. The CQA Official shall be a registered Professional Engineer who is either a self-employed consultant, or an employee of an independent consulting firm (ie. a person, agency, or firm not related to, or an entity of, WMI or RUST Environment and Infrastructure). Staff working in the field directly under the CQA Official do not need to be registered Professional Engineers.

3.2 Laboratory Qualifications

WMI shall provide documentation of its testing laboratories' qualifications in the RD/RA Work Plan or as an addendum to that deliverable when laboratory services are required.

4. WORK TO BE PERFORMED

4.0 Performance Standards

4.0.1 Remedial Design and Remedial Action Performance Standards

WMI shall construct the landfill cover system in accordance with the approved final design and in such a way that it also meets the following performance standards:

(a) Prevent direct contact of people, animals, and surface water with landfill waste.
The landfill cover system shall be designed and constructed to prevent people, animals, and surface water from coming in contact with the landfill waste.

(b) Prevent landfill waste from being wind blown.
During construction, dust will be controlled as provided for in the Construction Quality Assurance Plan, the RD/RA Work Plan and other work plans. The landfill cover system shall be designed and constructed to prevent

landfill waste from being wind blown during and after construction.

(c) Provide long term minimization of migration of liquids through the landfill.

The landfill cover system design requires, among other things, the placement of a low hydraulic conductivity layer over the landfill waste. The landfill cover system shall be designed and constructed to minimize infiltration of rainfall through the landfill.

(d) Function with minimum maintenance.

1) The landfill cover system shall be designed and constructed with enough slope to accommodate short and long term settlement and maintain positive drainage such that maintenance for ponding surface water will be minimal.

2) The landfill cover system shall be designed and constructed so that short and long term erosion is minimized.

3) A perimeter road and internal roads shall be designed and constructed to accommodate specified maintenance activities contained in the O&M Plan.

4) Landfill cover system building materials, including fill materials and all exposed and relocated waste, shall be properly compacted, as specified in the Remedial Design, to minimize future settlement.

5) All surface areas of the landfill cover system shall be designed and constructed so that it can be walked on, and driven on with low pressure vehicles, anytime during the year for maintenance.

(e) Promote drainage and minimize erosion or abrasion of the cover.

The landfill cover system shall be designed and constructed with enough slope to accommodate short and long term settlement and maintain positive drainage. The cover and vegetative layer (or other approved surface materials) shall be designed and built with shallow slopes to minimize wind and runoff erosion. Swales shall also be designed to minimize erosion with energy dissipators at the ends as necessary.

(f) Prevent damage to the cover from a 100-year flood event.

The landfill cover system shall be designed and constructed so that its integrity will be maintained during a 100-year flood event and other major storm events (eg. a 24 hour, 25 year storm event).

(g) Accommodate settling and subsidence so that the cover's integrity is maintained.

Geotechnical field and laboratory tests will be conducted to evaluate the characteristics of the landfill and landfill cover system to ensure final grades are designed and constructed to accommodate short term and long term subsidence and settlement.

(h) Ensure that the perimeter berm or edge of the landfill is structurally stable.

Slope calculations will be performed as part of the geotechnical analyses to ensure the final design and configuration of the landfill and its perimeter are stable.

(i) Establish and implement a construction quality assurance (CQA) program for the cover system to ensure that the constructed cover meets or exceeds all design criteria and specifications. This shall include, but shall not be limited to, aggressive testing of field seams to ensure water tightness, and field placement oversight.

A CQA plan shall be developed as required in the SOW and the RD/RA Work Plan and will address all phases of construction, including the relocating waste, and construction of the landfill cover system. The Tribe will assist EPA in providing its field oversight during construction of the landfill cover system.

4.0.2 Operation and Maintenance Performance Standards

WMI shall conduct O&M immediately following certification of the construction completion. WMI's obligation to conduct O&M shall be based upon the criteria contained in Section 4.6.4 and shall extend for 3 to 5 years, as determined by EPA in writing when EPA approves the final Remedial Design. The Tulalip Tribe will conduct O&M after WMI completes their O&M obligation. Even if the cover system is built in accordance with the approved final design, but the cover system is not meeting the performance standards specified below, EPA may require additional work by the responsible party to correct the problem. This additional work excludes work directly related to failure of the Interim Remedial Action, which involves construction of a leachate collection system because of persistent seeps. The cover system shall be operated and maintained by the party conducting O&M activities to meet the following performance standards:

(a) Prevent direct contact of people, animals, and surface water with landfill waste.

The party performing O&M shall maintain the integrity of the landfill cap by implementing the approved O&M Plan described in the SOW. The continued maintenance of the cover system will prevent people, animals, and surface

water from coming in contact with the landfill waste. Routine inspections for burrowing animals will also be conducted.

(b) Prevent landfill waste from being wind blown.
The party performing O&M shall maintain the landfill cover system to meet the approved O&M plan. The proper O&M of the cover layer and vegetation layer over the waste will prevent landfill waste from being wind blown.

(c) Provide long term minimization of migration of liquids through the landfill.
Properly maintained, the landfill cover system will continue to minimize infiltration of rainfall through the landfill. Routine inspections for burrowing animals will be conducted and repairs performed as appropriate. Future land use activities shall be consistent with the institutional control plan and future land use plan to ensure the landfill cover system continues to function as designed.

(d) Function with minimum maintenance.
The party performing O&M shall perform maintenance as provided for in the SOW and approved O&M Plan. Reoccurring maintenance problems (eg. frequent or chronic erosion problems, distressed vegetation, etc.) in specific areas will be corrected so they don't keep occurring. These problems will be addressed as necessary through re-engineering and re-construction to prevent short and long term damage to the cover system.

(e) Promote drainage and minimize erosion or abrasion of the cover.
The party performing O&M shall maintain the landfill surface so that ponding is minimized and positive drainage is maintained. Swales shall also be maintained to promote proper drainage.

(f) Prevent damage to the cover from a 100-year flood event.
After a 100-year flood event or a major storm (eg. a 24 hour, 25 year storm event) the party performing O&M shall inspect the cap and side slopes around the perimeter of the site and promptly repair damage as necessary to maintain the integrity of the cap.

(g) Accommodate settling and subsidence so that the cover's integrity is maintained.
The party performing O&M shall inspect the cap on a routine basis as provided for in the O&M plan. The party performing O&M shall make necessary repairs to maintain the cover's integrity. Future land uses will be planned to minimize differential settling and unnecessary stress

and strains to the seams.

(h) Ensure that the perimeter berm or edge of the landfill is structurally stable.
The party performing O&M will maintain and repair the perimeter slopes as necessary to maintain its integrity.

4.1 General Requirements for Remedial Design/Remedial Action

4.1.1 Meetings

WMI shall conduct status meetings with EPA and the Tulalip Tribe representative(s) to discuss the progress of the work during RD/RA. The status meetings shall cover the following topics: progress and activities performed; significant findings; problems and corrective measures taken; quality assurance/quality control activities and findings; coordination issues impacting the work; significant future activities.

As requested by EPA, WMI shall participate in meetings other than those described above to discuss the RD/RA work and progress.

4.1.2 Monthly Progress Reports

WMI shall submit to EPA with a copy to the Tulalip Tribe, monthly written progress reports during RD/RA. The progress reports shall address the following topics with respect to each reporting period:

- Progress made;
- Problems resolved;
- Problem areas and recommended solutions;
- Deliverables submitted;
- Schedule updates;
- Summary of key personnel changes;
- Summary of changes made in the RD/RA;
- Summary of contacts made with representatives of the local community, public interest groups, or State government; and
- Projected work for the next reporting period.

4.2 Remedial Design/Remedial Action Work Plan

WMI shall prepare and submit to EPA for approval a RD/RA Work Plan which shall document the overall management strategy for performing the design and construction of the Remedial Action. The RD portion of the Work Plan shall provide for design of the remedy set forth in the ROD and shall include plans and schedules for implementation of all RD tasks described in this SOW. A meeting schedule shall also be developed. The RA portion of the Work Plan shall include implementation schedules and procedures for construction of the remedy in accordance with the ROD, this SOW, and the approved Final Design Submission.

Site access agreements required to implement RD and/or RA shall be identified by WMI in the RD/RA Work Plan and implemented prior to initiation of the Remedial Action or additional studies. Site access shall extend for the duration of construction and as necessary operation and maintenance.

The RD/RA Work Plan shall also include the following:

4.2.1 Design Sampling and Analysis Plan

The RD/RA Work Plan shall include a Design Sampling and Analysis Plan addressing field activities at the Site for data collection for the design. The plan shall describe the type, frequency and schedule for sampling and shall address sample collection and analyses methods, and analytical parameters.

4.2.2 Field Investigation Quality Assurance Project Plan

The RD/RA Work Plan shall include a Field Investigation Quality Assurance Project Plan (QAPP). This plan shall address quality assurance sampling and analysis procedures for samples collected under the Design Sampling and Analysis Plan. As necessary, the QAPP shall be consistent with the requirements of the EPA Contract Lab Program (CLP) for laboratories proposed outside the CLP.

4.2.3 Health and Safety Plan

The RD/RA Work Plan shall include a Health and Safety Plan to address the activities to be performed at the Site to conduct the RD and implement the RA. The Health and Safety Plan shall be developed to protect on-site personnel from physical, chemical and other potential hazards which may be posed by the Site during RD and RA activities.

4.2.4 Contingency Plan

The RD/RA Work Plan shall include a Contingency Plan to address responses to releases of waste material to the environment during RD field activities, RA construction, and Operation and Maintenance (O&M). The Contingency Plan will set forth procedures WMI shall follow to protect the potentially affected local, off-site population and environment. For example the RA contingency plan section shall address potential releases of waste materials to surrounding wetlands, release of gases, and the release of fuel from construction equipment.

4.2.5 Site Management Plan

The RD/RA Work Plan shall include a Site Management Plan describing requirements to be met by WMI to assure site security and control during RD/RA.

4.3 Remedial Design

Upon EPA approval of the RD/RA Work Plan, WMI shall prepare and submit to EPA for approval, construction drawings and specifications to implement the Remedial Action. The design submissions shall be developed in phases as described below.

4.3.1 Design Submissions

WMI shall submit to EPA by the deadlines specified in the approved RD/RA Work Plan, the following documents relating to the design of the Remedial Action:

4.3.1.1 Preliminary Design Submission

The Preliminary Design shall represent approximately 30% of the total design effort. The Preliminary Design shall reflect a level of effort such that the technical requirements and specifications of the project have been addressed and outlined so that they may be reviewed to determine whether the Final Design will provide an operable and usable Remedial Action. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the program. WMI shall include with the Preliminary Design submission design criteria, results of additional field sampling, preliminary plans, specifications in outline form, and calculations/modeling reflecting the same percentage of completion as the designs they support. The preliminary design shall include a detailed grading plan and erosion control plan, drainage plan and remaining RA support plans in outline form.

4.3.1.2 Pre-final Design Submission

The Pre-final Design shall represent approximately 90% of the total design effort. WMI shall include with the Pre-final Design submission, plans and specifications ready for procurement and implementation by WMI, and calculations/modeling supporting the design. WMI shall submit the RA Support Plans described in Subsection 4.4 of this SOW concurrent with submission of the Pre-final Design submission.

4.3.1.3 Final Design Submission

WMI shall incorporate any necessary modifications resulting from review of the Pre-final Design submission by EPA. For the Final Design submission, WMI shall submit to EPA either revised Technical Memoranda and/or addenda that document and incorporate the modifications.

4.4 Remedial Action Support Plans

WMI shall submit to EPA for approval the following plans, which support RA activities, concurrent and consistent with the Pre-final and Final Design submission.

4.4.1 Construction Quality Assurance/Quality Control Plan

WMI shall submit to EPA a Construction Quality Assurance/Quality Control (QA/QC) Plan which will address the following:

- Responsibility and authority of the organizations and key personnel involved in the construction of the Remedial Action;
- Qualifications of the CQA Official and supporting inspection personnel;
- Observations and tests that will be used to monitor the construction, and inspections to verify compliance with all health and safety procedures, and environmental requirements;
- Sampling requirements; and
- Reporting requirements for the construction QA/QC activities.

4.4.2 Regrading Erosion Control Plan

WMI shall submit to EPA a Regrading Erosion Control Plan. This plan shall incorporate appropriate erosion control measures to ensure that regrading activities do no result in erosion of on-source soil to off-source areas.

4.4.3 Well Abandonment Plan

If EPA determines it necessary, WMI shall submit a Well Abandonment Plan to EPA. This plan shall address well abandonment during RA and O&M. The Well Abandonment Plan shall include the following: wells to be abandoned and rationale for abandonment; procedures to be used for well abandonment; and schedule for well abandonment.

4.4.4 Monitoring Well Installation Plan

WMI shall submit to EPA a Monitoring Well Installation Plan. This plan shall address well/piezometer installation during RA. The Monitoring Well Installation Plan shall include the following: wells/piezometers to be constructed; well/piezometer construction specifications; and schedule for well/piezometer installation.

4.5 Remedial Action

Following completion of the Remedial Design, the Remedial Action will commence in accordance with the schedule approved by EPA.

4.5.1 Construction Administration

WMI shall execute the RA according to the requirements and procedures developed in the approved RD/RA Work Plan.

Proposed change directives that do not affect the final designs will not require EPA approval, but must be confirmed in writing. Proposed change directives that do affect the final design require EPA prior approval, and WMI is not authorized to grant approval for such changes.

The CQA Official shall perform construction oversight activities on behalf of WMI and shall attend all regular construction meetings and all emergency meetings.

WMI shall provide EPA and the Tulalip Tribe with access to the RA construction records and shall provide copies of such records upon request by EPA. These records shall include:

- Daily records, diaries, and weekly summary reports of construction activities;
- Construction submissions;
- QC test results and construction inspection reports;
- Updated drawings that reflect ongoing construction activities.

4.5.2 Preconstruction Inspection and Meeting

WMI shall conduct a Preconstruction Inspection and Meeting. The participants shall include EPA, representatives of the Tulalip Tribe, WMI's project manager, the contractor(s) and the CQA Official. The purpose of the meeting shall be to:

- Introduce all attendees and their affiliations and review roles and responsibilities of all parties;
- Review the general project scope requirements and project schedule;
- Review documentation and reporting procedures;
- Discuss procedures to obtain approval of modifications to the RA and the CQA Plan that may be required during construction;
- Review work area security and safety protocol; and
- Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood, and to review material and equipment storage locations.

WMI shall prepare a meeting summary and distribute it to all attendees within two (2) weeks following the Preconstruction Inspection and Meeting.

4.5.3 Notification of Construction Completion

WMI shall notify EPA in writing within seven (7) days following completion of the construction phase. The CQA official shall also

make a written certification of the construction completion.

4.6 Operation and Maintenance

Operation and Maintenance (O&M) means activities required to maintain the effectiveness of the RA. WMI shall conduct O&M immediately following certification of the construction completion. WMI's obligation to conduct O&M shall be based upon the criteria contained in Section 4.6.4 and shall extend for 3 to 5 years, as determined by EPA in writing when EPA approves the final Remedial Design. The Tulalip Tribe will conduct O&M after WMI completes their O&M obligation.

4.6.1 Operation and Maintenance Plan

Concurrent with preparing the RD/RA Work Plan, WMI shall also prepare a schedule for developing an O&M Plan. The schedule will include submissions to EPA for review and comment, of an outline, a draft, and a final O&M Plan. The final O&M Plan shall be submitted to EPA for approval concurrent with the Pre-final Design submission. The O&M Plan shall include the following: a description of each system and its intended performance; a list of O&M activities (e.g., periodic inspections) and records to be maintained; typical repair procedures; an emergency action plan for release of waste material; if appropriate, planned procedures for startup, operation, and shutdown of the landfill gas extraction and treatment system, equipment O&M manuals and data provided by equipment vendors, and maintenance procedures and required frequencies.

4.6.2 Post-construction Monitoring Plan

WMI shall submit to EPA for approval a Post-construction Monitoring Plan which shall provide for evaluation of the effectiveness of the remedy and whether the remedy remains protective of human health and the environment. The plan shall address monitoring and reporting requirements for perimeter leachate seeps, Zone 1 piezometers, the landfill gas collection system, and, if required the landfill gas treatment system. As part of this plan, WMI shall also design a monitoring well maintenance program. This plan shall be submitted concurrent with the O&M Plan submission.

4.6.3 Institutional Controls Plan

WMI shall submit to EPA for approval an Institutional Controls Plan that is consistent with the requirements of the ROD. The plan shall address implementation and maintenance of institutional controls to assure continued effectiveness of the interim Remedial Action and to prevent human exposure to contamination remaining at the Site at concentrations above health-based risk levels. The plan shall be submitted concurrent with the O&M Plan submission.

4.6.4 O&M Timeframe Selection Criteria

WMI shall conduct O&M immediately following certification of the construction completion. WMI's obligation to conduct O&M shall extend for 3 to 5 years, as determined by EPA in writing when EPA approves the final Remedial Design. The Tulalip Tribe will conduct O&M after WMI completes their O&M obligation. EPA shall use the following criteria to determine the period of time WMI will be required to conduct O&M:

Cover System With Swales

- Slopes of 2.5% and 1% swales, and less than 140,000 cubic yards of waste regraded: Five Years

- Slopes of 3.0% and 2% swales, and less than 140,000 cubic yards of waste regraded: Three Years

- Slopes of 3.0% and 2% swales, and more than 140,000 cubic yards but less than or equal to 210,000 cubic yards of waste regraded: Five Years

Cover System Without Swales (pyramid)

- Slopes of 2.5% and no swales, and less than 140,000 cubic yards of waste regraded: Three Years

- Slopes of 2.5% and no swales, and more than 140,000 cubic yards but less than or equal to 210,000 cubic yards of waste regraded: Four Years

In consultation with WMI, EPA will evaluate other design options based upon the above criteria and determine the period of time WMI will be required to conduct O&M not to exceed 5 years.

5. COMPLETION

5.1 Certification of Completion of Remedial Action

5.1.1 Final Inspection

Within 15 days after WMI has concluded that construction is ready for certification, WMI shall schedule and conduct a final inspection on a date acceptable to EPA and the Tulalip Tribe. Final inspection participants will include the participants of the Preconstruction Inspection and Meeting. In the event that additional work is required to address outstanding, incomplete, or incorrect construction items identified during the inspection, WMI shall schedule a follow-up inspection upon completion of the additional work on a date acceptable to EPA.

WMI shall notify the inspection participants in writing at least

two (2) weeks in advance of the scheduled inspection(s). Notification shall be in the form of a letter and shall not be part of status reporting.

5.1.2 Remedial Action Report

Within 60 days after the Final Inspection, WMI shall submit to EPA with a copy to the Tulalip Tribe, a Remedial Action Report containing a construction chronology, a list of construction modifications, inspection corrections, and documentation substantiating that the construction in this SOW has been performed. The report shall also provide a summary of the construction activities completed (including a photographic log, appendices with daily logs, material acceptance certifications, test results, etc.), a description of the process startup activities, problems encountered, and the methods and measures required to solve them. The report shall describe any process changes required for WMI to achieve reliable and consistent operation of the RA, shall include the record drawings showing all revisions to the approved construction drawings and will have appended to it summaries of all QA/QC testing. The report shall also contain all of the elements described in EPA publication 9355.0-39FS, "Remedial Action Report."

APPENDIX C

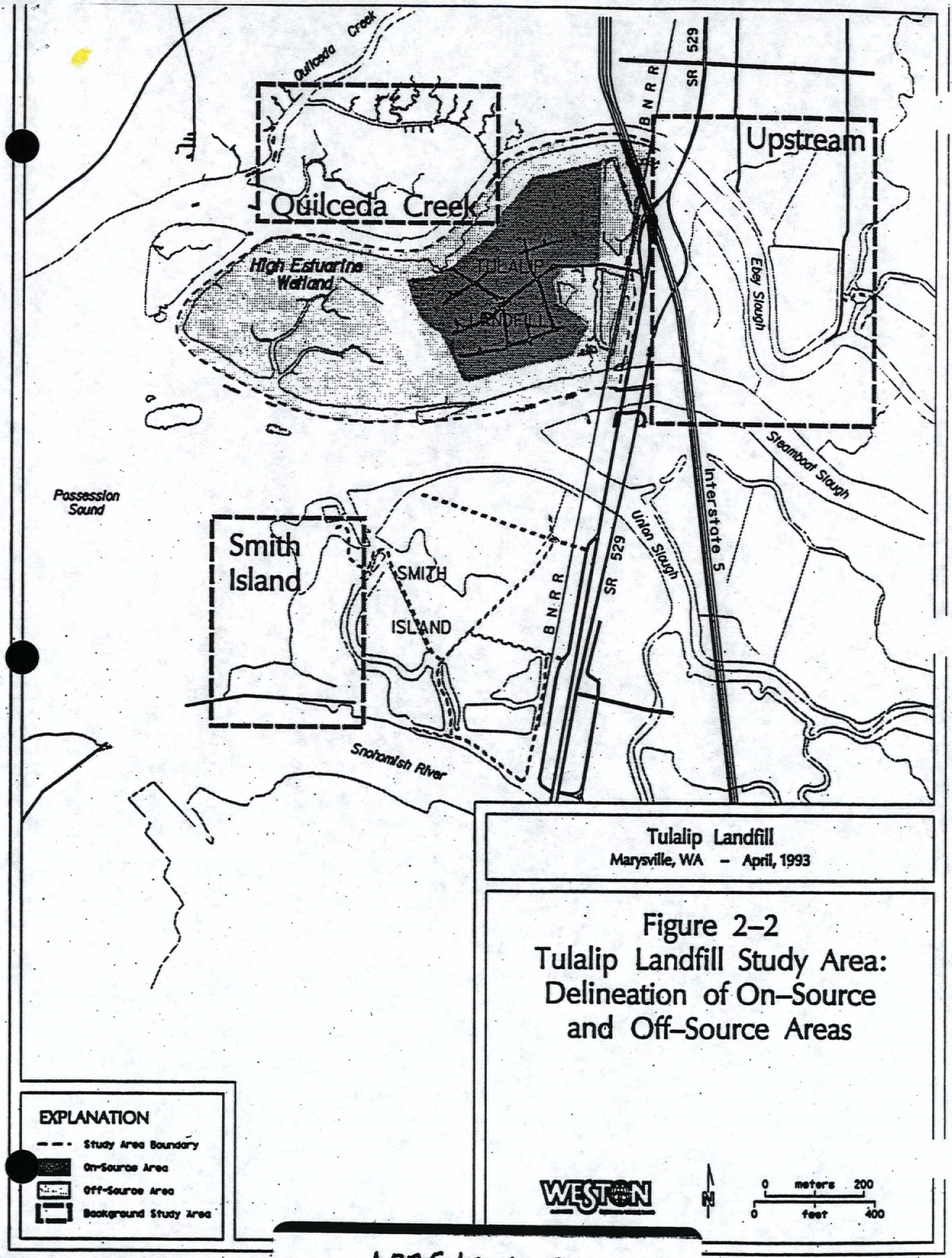
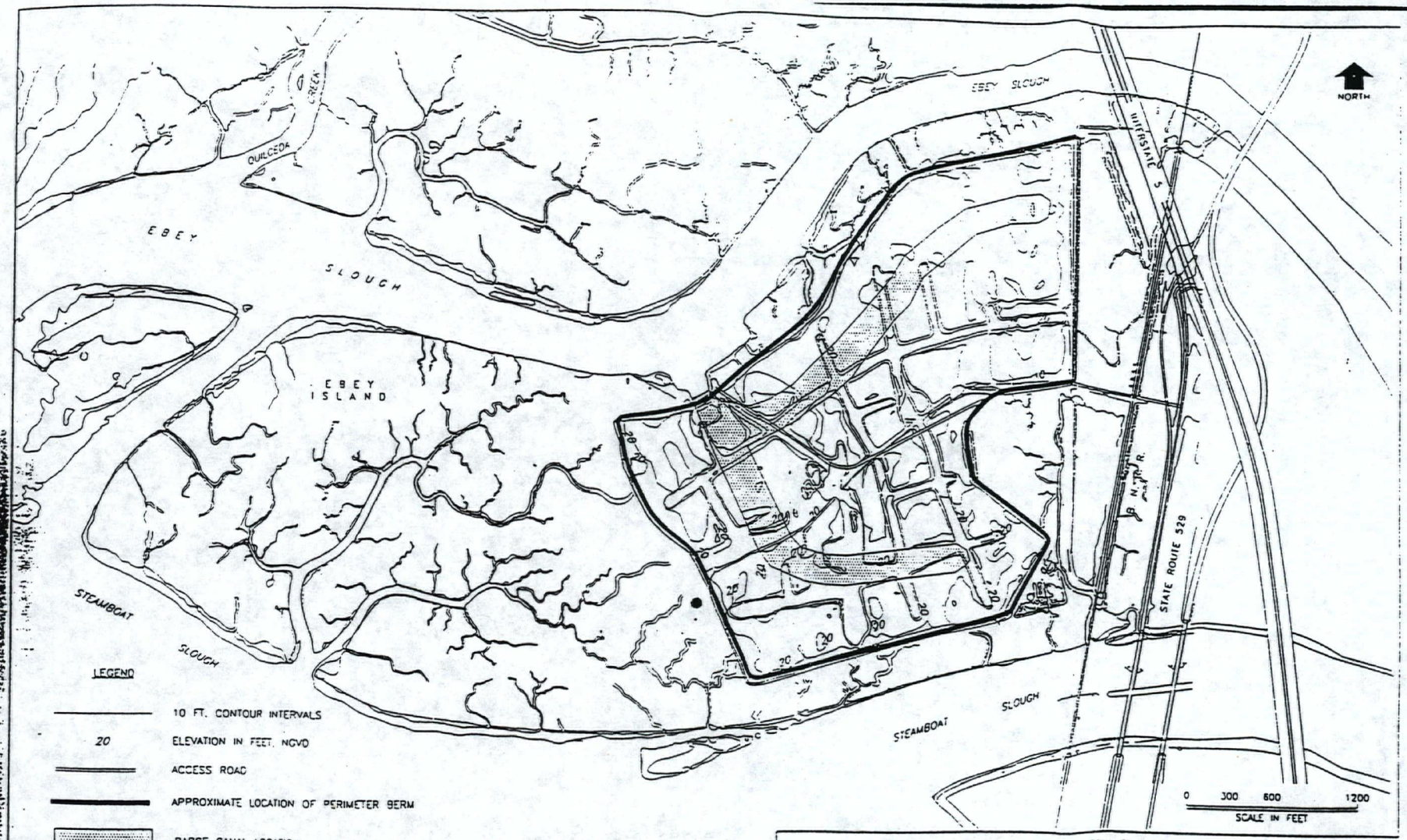


Figure 2–2
Tulalip Landfill Study Area:
Delineation of On–Source
and Off–Source Areas

APPENDIX C



SOURCE: U.S. ARMY CORP OF ENGINEERS, U.S. ENVIRONMENTAL PROTECTION AGENCY.
DATE OF MAP PREPARATION NOVEMBER 1992.

Site Plan

Tulalip Landfill
Marysville, Washington

Figure 1-2

APPENDIX D

APPENDIX D

Settling Federal Agencies are:

(1) United States Department of the Interior, Bureau of Indian Affairs ("BIA")

(2) United States Department of the Navy

APPENDIX E

APPENDIX E

APPLICATION PROCEDURES FOR MIXED FUNDING

PART 307—COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) CLAIMS PROCEDURES

Subpart A—General

Sec.
307.10 Purpose.
307.11 Scope and applicability.
307.12 Use of number and gender.
307.13 Computation of time.
307.14 Definitions.
307.15 Penalties.

Subpart B—Eligible Claimants; Allowable Claims; Preauthorization

307.20 Who may present claims.
307.21 Nature of eligible claims.
307.22 Preauthorization of response actions.
307.23 EPA's review of preauthorization applications.

Subpart C—Procedures for Filing and Processing Response Claims

307.30 Requesting payment from the potentially responsible party.
307.31 Filing procedures.
307.32 Verification, award, and administrative hearings.
307.33 Records retention.

Subpart D—Payments and Subrogation

307.40 Payment of approved claims.
307.41 Subrogation of claimants' rights to the Fund.
307.42 Fund's obligation in the event of failure of remedial actions taken pursuant to CERCLA section 122.

APPENDIX A TO PART 307—APPLICATION FOR PREAUTHORIZATION OF A CERCLA RESPONSE ACTION

APPENDIX B TO PART 307—CLAIM FOR CERCLA RESPONSE ACTION

APPENDIX C TO PART 307—NOTICE OF LIMITATIONS ON THE PAYMENT OF CLAIMS FOR RESPONSE ACTIONS, WHICH IS TO BE PLACED IN THE FEDERAL REGISTER PREAMBLE WHENEVER SITES ARE ADDED TO THE FINAL NPL

APPENDIX D TO PART 307—NOTICE OF LIMITATIONS ON THE PAYMENT OF CLAIMS FOR RESPONSE ACTIONS, WHICH IS TO BE PLACED IN PUBLIC DOCKETS

AUTHORITY: 42 U.S.C. 9601 *et seq.*; sections 4 and 9, E.O. 12580, 52 FR 2923, 3 CFR, 1987 Comp. p. 193.

SOURCE: 58 FR 5475, Jan. 21, 1993, unless otherwise noted.

Subpart A—General

§ 307.10 Purpose.

This part prescribes the appropriate forms and procedures for presenting claims for necessary response costs as authorized by section 112(b)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (herein referred to as CERCLA, or the Act) (42 U.S.C. 9601 *et seq.*). Such claims may be presented to the Hazardous Substance Superfund (the Fund) established by section 9507 of the Internal Revenue Code of 1986. See section 101(11) of CERCLA.

§ 307.11 Scope and applicability.

(a) The following may be submitted only through the procedures established by this part: claims for responses to a release or substantial threat of release of a hazardous substance into the environment; claims for responses to a release or substantial threat of release of any pollutants or contaminants into the environment, which may present an imminent and substantial danger to public health or welfare; and claims for response actions undertaken pursuant to settlement agreements in which the Federal Government agrees to reimburse a portion of the cost. Under this part, persons may bring claims for necessary costs incurred in carrying out the National Contingency Plan (NCP) (40 CFR part 300) developed under section 311(c) of the Federal Water Pollution Control Act (33 U.S.C. 1251 *et seq.*) and revised pursuant to section 105 of CERCLA. Only response actions that EPA has preauthorized are eligible for reimbursement through the claims process of section 112 of CERCLA. Authority for the payment of claims for response costs is provided by section 111(a)(2) of CERCLA. Authority for the reimbursement of certain costs incurred by parties to a settlement agreement entered pursuant to section 122 of CERCLA is provided by section 122(b) of CERCLA.

(b) This part does not affect the terms and conditions contained in Preauthorization Decision Documents (PDDs) issued prior to the effective date of this part. However, a potential claimant may elect to comply with the provisions of this part, rather than the terms and conditions of a PDD issued prior to the effective date of this part, if he so chooses. Written notice of this election must be provided to EPA by the potential claimant prior to such provision taking effect, but not later than the time of the submittal of any claim to EPA. EPA will provide a written acknowledgement of the potential claimant's election and may revise the PDD as appropriate.

§ 307.12 Use of number and gender.

As used in this part, words in the singular also include the plural and vice versa, and words in the masculine gender also include the feminine, as the case may require.

§ 307.13 Computation of time.

In computing any period of time described or allowed in this part, except as otherwise provided, the day of the event from which the designated period begins to run shall not be included. Saturdays, Sundays, and Federal legal holidays shall be included. When a stated time expires on a Saturday, Sunday, or Federal legal holiday, the stated time period shall be extended to include the next business day.

§ 307.14 Definitions.

Terms that are not defined in this section or restated herein, shall have the meaning set forth in section 101 of CERCLA or the 1990 NCP or any final revision thereto. As used in this part, the following words and terms shall have the meanings set forth below:

Act or *CERCLA* both mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986.

Administrative hearing means an administrative adjudication required by section 112(b)(2) of CERCLA in the event a claimant contests a determination of his claim made by the U.S. Environmental Protection Agency (EPA).

Assistance agreement means the legal instrument EPA uses to transfer money, property, services, or anything of value to a recipient to accomplish a

public purpose. It is either a grant or cooperative agreement (see 40 CFR part 35) and will specify: budget and project periods; the Federal share of eligible project costs; a description of the work to be accomplished; and any special conditions.

Claim means a demand in writing for a sum certain presented to the Fund in accordance with sections 111 and 112 of CERCLA.

Claimant means any person who presents a claim to the Fund for reimbursement under section 112(b)(1) of CERCLA.

Contractor claim means the disputed portion of a written demand or written assertion by any contractor who has contracted with a person (i.e., the owner) for the conduct of a preauthorized response action, seeking as a matter of right, the payment of money, adjustment, or interpretation of contract terms, or other relief, arising under or related to a contract, which has been finally rejected or not acted upon by the owner and which is subsequently settled by the owner or is awarded by a third party in accordance with the disputes clause of the contract document.

Eligible claim means any claim that has satisfied the requirements set forth in §307.21(b).

Facility as defined by section 101(9) of CERCLA, means any:

(1) Building, structure, installation, equipment, pipe or pipeline (including any pipe into sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft; or

(2) Any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

Fund means the Hazardous Substance Superfund established by section 9507 of the Internal Revenue Code of 1986.

Hazardous substance as defined by section 101(14) of CERCLA, means:

(1) Any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act (33 U.S.C. 1251 *et seq.*);

(2) Any element, compound, mixture, solution, or substance designated pursuant to section 102 of CERCLA;

(3) Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 U.S.C. 6801 *et seq.*) (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress);

(4) Any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act;

(5) Any hazardous air pollutant listed under section 112 of the Clean Air Act (42 U.S.C. 7401 *et seq.*); and

(6) Any imminently hazardous chemical substance or mixture with respect to which the Administrator of EPA (Administrator) has taken action pursuant to section 7 of the Toxic Substances Control Act (15 U.S.C. 2601 *et seq.*). The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under paragraphs (1) through (6) of this definition, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

National Contingency Plan, or *NCP* means the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR part 300) developed under section 311(c) of the Federal Water Pollution Control Act and revised pursuant to section 105 of CERCLA.

Necessary costs means "necessary response costs" as required by section 111(a)(2) of CERCLA for Fund reimbursement of a preauthorized response action. Necessary response costs are costs determined to be:

(1) Required (based upon the site-specific circumstances);

(2) Reasonable (nature and amount do not exceed that estimated or which would be incurred by a prudent person);

(3) Allocable (incurred specifically for the site at issue); and

(4) Otherwise allowable (consistent with the limitations and exclusions under the appropriate Federal cost principles). See OMB Circular A-122

(non-profit organizations); OMB Circular A-87 (States and political subdivisions); and 48 CFR part 31, subparts 31.1 and 31.2 (profit-making organizations).

NPL means the National Priorities List established pursuant to section 105 of CERCLA and 40 CFR 300.425, which consists of uncontrolled hazardous substance facilities in the United States that need to be addressed under CERCLA authorities. Only NPL sites are eligible for Fund-financed remedial action.

Operable unit means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site. Operable units will not impede implementation of subsequent actions, including final action at the site.

Party means EPA or a claimant.

Perfected means the point at which EPA determines that the written demand for a sum certain (i.e., claim) has the documentation necessary to substantiate the appropriateness of the amounts claimed; i.e., the claim is technically complete.

Person as defined by section 101(21) of CERCLA, means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States Government, State, municipality, commission, political subdivision of a State, or any interstate body.

Political subdivision means any general purpose unit of a local or State government.

Pollutant or *Contaminant* as defined by section 101(33) of CERCLA, includes, but is not limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such organisms or their offspring. The term does not include petroleum, including crude oil and any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under section 101(14)(A) through (F) of the Act, nor does it include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

Preauthorization means EPA's prior approval to submit a claim against the Fund for necessary response costs incurred as a result of carrying out the NCP. The process of preauthorization consists of three steps:

(1) EPA's receipt of the application for preauthorization;

(2) EPA's review and analysis of the application; and

(3) EPA's issuance of the Preauthorization Decision Document, which sets forth the terms and conditions for reimbursement.

Preauthorized response actions are response actions approved through the preauthorization process.

Respond or *Response* as defined by section 101(25) of CERCLA, means remove, removal, remedy, and remedial action, all such terms (including removal and remedial action) including enforcement activities related thereto.

Response claim means a preauthorized demand in writing for a sum certain for response costs referred to in section 111(a)(2) of CERCLA, including certain costs of actions referred to in section 122(b)(1) of CERCLA.

§ 307.15 Penalties.

(a) If any person knowingly gives a material statement or representation in the application for preauthorization or in the claim that is false, misleading, misrepresented, or misstated, and EPA relies upon such a statement or

representation in making its decision, the preauthorization or the award by EPA may be withdrawn following written notice to the claimant.

(b) Any person who knowingly gives, or causes to be given, any false information as part of an application for preauthorization or of a claim (including any person who meets the conditions of paragraph (a) of this section) may, upon conviction, be fined or imprisoned in accordance with CERCLA section 112(b)(1) and other laws.

Subpart B—Eligible Claimants; Allowable Claims; Preauthorization

§307.20 Who may present claims.

(a) Subject to the provisions of this subpart, claims for the costs of response actions may be asserted against the Fund by any person other than the United States Government, States, and political subdivisions thereof, except to the extent the claimant is otherwise compensated for the loss. States and political subdivisions may assert such claims if they are potentially responsible parties subject to an agreement reached pursuant to section 122(b)(1) of CERCLA.

(b) Claims presented by an individual must be signed by that individual. If, because of death, disability, or other reasons satisfactory to EPA, the foregoing requirement cannot be fulfilled, the claim may be filed by a duly authorized agent, executor, administrator, or other legal representative. A claim presented by an entity or an authorized agent, executor, administrator, or other legal representative must be presented in the name of the claimant. The claim must be signed by the authorized agent, executor, administrator, or other legal representative (including the title or legal capacity of the person signing) and be accompanied by evidence of the authority to present a claim on behalf of the claimant as authorized agent, executor, administrator, or other legal representative.

(c) A claim for response costs as to which any release from liability was executed between the claimant and a potentially responsible party may be presented against the Fund to the extent that the claimant obtained EPA's approval prior to executing such release and provided that the other requirements of this part are met.

(d) A foreign claimant may present a response claim to the Fund, to the same extent that a United States claimant may assert a claim, if:

(1) The requirements of §307.21 and §307.22 are met; and

(2) The release of a hazardous substance occurred in the navigable waters of the United States, including the territorial sea, or in or on the territorial sea or adjacent shoreline of a foreign country of which the claimant is a resident; and

(3) The claimant is not otherwise compensated for the loss; and

(4)The hazardous substance was released from a facility or from a vessel located adjacent to or within the navigable waters or was discharged in connection with activities conducted under the Outer Continental Shelf Lands Act, as amended (43 U.S.C. 1331 *et seq.*), or the Deepwater Port Act of 1974, as amended (33 U.S.C. 1501 *et seq.*); and

(5) Recovery is authorized by a treaty or an executive agreement between the United States and the foreign country involved, or if the Secretary of State, in consultation with the Attorney General and other appropriate officials, certifies that such country provides a comparable remedy for United States claimants.

§307.21 Nature of eligible claims.

(a) Claims may be asserted against the Fund for necessary costs incurred for response actions due to a release or substantial threat of release of a hazardous substance into the environment; a release or substantial threat of release of pollutants or contaminants into the environment that may present an imminent or substantial danger to public health or welfare; or actions taken by a potentially responsible party subject to an agreement reached pursuant to section 122(b)(1) of CERCLA. Claims must be filed in accordance with §307.22. Claims may be asserted for the costs of removal actions, remedial planning activities, and remedial actions.

(b) Costs will be considered to be eligible under this section if:

(1) The response action is preauthorized by EPA pursuant to § 307.22;

(2) The costs are incurred for activities within the scope of EPA's preauthorization;

(3) The response action is conducted in a manner consistent with the NCP; and

(4) The costs incurred are necessary costs pursuant to § 307.11 of this part.

(c)Money in the Fund may be used for paying any claim under this section for expenses incurred for the payment of contractor claims either through settlement of such claims or an award by a third party to the extent EPA determines that:

(1) The contractor claim arose from work within the scope of the contract at issue and the contract was for preauthorized response activities;

(2) The contractor claim is meritorious;

(3) The contractor claim was not caused by the mismanagement of the claimant;

(4) The contractor claim was not caused by the claimant's vicarious liability for the improper actions of others;

(5) The claimed amount is reasonable and necessary;

(6) The claim for such costs is filed by the claimant within 5 years of completion of the preauthorized response action; and

(7) Payment of such a claim will not result in total payments from the Fund in excess of the maximum amount for which claims were preauthorized.

(d) An award by a third party on a contractor claim under paragraph (c) of this section should include:

(1) Findings of fact;

(2) Conclusions of law;

(3) Allocation of responsibility for each issue;

(4) Basis for the amount of award; and

(5) The rationale for the decision.

(e) Money in the Fund may not be used for paying any claim under this section for expenses incurred for procurement transactions that were not conducted in a manner that provided to the maximum extent practicable, open and free competition; unduly restricted or eliminated competition; and did not provide where applicable for the award of contracts to the lowest responsive, responsible bidder where the selection was made principally on the basis of price.

(f) Money in the Fund may not be used for paying any claim under this section for expenses incurred by a person operating pursuant to a procurement contract or assistance agreement with the United States.

(g) Money in the Fund may not be used for paying any claim under this section for expenses incurred for the payment of persons who are on the "List of Parties Excluded From Federal Procurement or Non-Procurement" at the time the contract is awarded, unless EPA approval is obtained in advance.

(h) Unless EPA waives this requirement prior to the award of a construction contract, money in the Fund may not be used for paying any claim under this section for expenses incurred under such a construction contract that does not contain a "differing site conditions" clause equivalent to the following:

(1) The contractor shall promptly, and before such conditions are disturbed, notify the claimant in writing of:

(i) Subsurface or latent physical conditions at the site differing materially from those listed in this contract, or

(ii) Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this contract.

(2) Upon notification by the construction contractor, the claimant shall promptly investigate the conditions. If the claimant finds that conditions materially differ and will cause an increase or decrease in the contractor's cost or the time required to perform any part of the work under its contract, whether or not changed as a result of such conditions, the claimant shall make an equitable adjustment and modify the contract in writing.

(3) No claim of the contractor under the differing site conditions clause shall be allowed unless the contractor has given the notice required in paragraph (h)(1) of this section. However,

the claimant may extend the time prescribed in paragraph (h)(1) of this section.

(4) No claim by the contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(i) Where money in the Fund has been used to pay for any response costs under this section, no other claim may be paid out of the Fund for the same costs.

§307.22 Preauthorization of response actions.

(a) No person may submit a claim to the Fund for a response action unless that person notifies the Administrator of EPA or his designee prior to taking such response action and receives preauthorization by EPA. In order to obtain preauthorization, any person intending to submit a claim to the Fund must fulfill the following requirements before commencing a response action:

(1) Notify the lead agency through the National Response Center (as described in 40 CFR 300.125), if there is acute threat of fire, explosion, or direct human contact with hazardous substances, pollutants, or contaminants or other emergency situation, to determine if there is sufficient time to submit an application for preauthorization;

(2) Submit an application for preauthorization (EPA Form 2075-3, found at appendix A of this part) to the Administrator or his designee; and

(3) Obtain the approval of the Administrator or his designee before initiating the response action.

(b) All applications for preauthorization must include, where available;

(1) A description of the location and nature of the release or threatened release of a hazardous substance or pollutant or contaminant (e.g., type and location of vessel or facility, population at risk, routes of exposure);

(2) A description of the nature and quantity of the hazardous substance or pollutant or contaminant which has been or may be released, including whether the substance is on the list of hazardous substances set forth pursuant to section 102 of CERCLA;

(3) The identity of any potentially responsible parties known to the applicant (including the applicant), and any contact with such parties, including, but not limited to, any correspondence, agreements, or litigation with such parties;

(4) Evidence of the applicant's eligibility to file a claim pursuant to §307.20;

(5) An explanation of why the proposed response action is necessary, and how the proposed action is consistent with 40 CFR 300.700(d)(4)(ii);

(6) A description of the applicant's capability (including financial and technical capability) to implement the proposed response action;

(7) Proposed schedule of activities;

(8) Projected costs of response activities, with the basis for those projections (projections shall be based on actual anticipated costs without a contingency for unanticipated conditions);

(9) Proposed schedule for the submission of claims;

(10) The proposed contracting procedures;

(11) Proposed procedures for project management, EPA oversight, and reporting of progress of the project; and

(12) The assurances of timely initiation and completion.

(c) Applications for preauthorization to undertake a removal action shall, in addition to the requirements in paragraph (b) of this section, include:

(1) A summary or copy of the preliminary assessment; and

(2) A description of the proposed removal action for which the claim will be made, which environmental requirements are applicable or relevant and appropriate, and how the removal will comply with such requirements.

(d) Applications for preauthorization to undertake a remedial investigation and feasibility study shall, in addition to the requirements in paragraph (b) of this section, include:

(1) The scope of the proposed study;

(2) A proposed site sampling plan and quality assurance procedures;

(3) The plan for the development of alternatives;

(4) Approaches to consideration of alternatives to land disposal;

(5) Plans for initial screening of alternatives;

(6) Proposed procedures for the detailed analysis of alternatives; and

(7) Proposed considerations in selection of the remedy.

(e) Applications for preauthorization to undertake a remedial alternative other than that selected by EPA, or where EPA has not selected a remedy, shall, in addition to the requirements in paragraph (b) of this section, include a discussion of how the proposed remedy:

(1) Differs from the one selected by EPA, if applicable;

(2) Achieves protection of public health and welfare and the environment and complies with legally applicable or otherwise relevant and appropriate Federal, State, and local requirements pursuant to 40 CFR 300.400(g) or waivers to those requirements in 40 CFR 300.430(f)(1)(ii)(C). The application shall also include a discussion of pertinent Federal and State guidance, advisories, and criteria;

(3) Will be cost-effective as set out in section 121(a) of CERCLA and 40 CFR 300.430(f)(1)(ii)(D);

(4) Mitigates and minimizes future risks;

(5) Improves the reliability of the remedy;

(6) Utilizes new or innovative technology, if appropriate;

(7) Employs treatment that reduces the volume, toxicity or mobility of the hazardous substances;

(8) Impacts projected costs; and

(9) Takes into account appendix D of 40 CFR part 300.

(f) Applications for preauthorization to undertake a remedial action, including those described in paragraph (e) of this section, shall in addition to the requirements in paragraph (b) of this section, include:

(1) A description of the proposed remedial action for which the claim will be made;

(2) A proposed site sampling plan and quality assurance procedures;

(3) Documentation of reasonable effort to obtain the cooperation of the State or Indian Tribe;

(4) A bond or other financial assurance to cover the costs of necessary long-term operation and maintenance of the response action or written assurance from the State to provide such long-term operation and maintenance;

(5) Proposed procedures using sealed bidding to select the construction contractor, or an explanation of why the applicant intends to use any other method; and

(6) Documentation showing that the response will be carried out in accordance with applicable or relevant and appropriate environmental requirements. Documentation should include the potential impacts on any environmentally sensitive areas.

(g) Claims of business confidentiality may be asserted for information submitted to EPA under this subpart. Information claimed confidential will be disclosed by EPA only to the extent permitted by CERCLA, this subpart, and part 2, subpart B, of this chapter.

(1) Any claim of business confidentiality must accompany the information when it is submitted to EPA. Claims must be asserted as prescribed on the forms. Items claimed confidential on the forms and attachments to the forms must be clearly marked by circling or bracketing them.

(2) The applicant or response claimant must provide EPA with two copies of its submittal if any information is claimed confidential.

(i) One copy of the submittal must be complete, with items claimed confidential clearly marked in accordance with paragraph (g)(1) of this section.

(ii) The second copy must be complete except that all information claimed as confidential in the first copy must be deleted. EPA may make this second copy available to the public.

(iii) If the applicant does not provide a redacted copy, the application for preauthorization is incomplete. If the claimant does not provide a redacted copy, the claim against the Fund will not be perfected by EPA. EPA will not process such submittals until it receives the redacted copy.

(3) If a submitter of a response claim or an application for preauthorization does not assert a claim of business confidentiality for information at the time the information is submitted to EPA, the Agency may make the information public without further notice to the submitter.

(h) In addition to the foregoing, an application for preauthorization filed by a potentially responsible party for partial reimbursement of response costs shall include:

(1) A copy of the settlement agreement, or the most recent draft of any pending agreement, reached between such parties and the Federal Government; and

(2) If the application is to undertake a remedial investigation and feasibility study, an affirmation that the applicant will not directly or indirectly benefit from the preauthorization as a response action contractor, or as a person hired or retained by such a contractor with respect to the site at issue and an agreement to reimburse the Fund for any costs incurred under, or in connection with, the oversight contract or arrangement for the remedial investigation and feasibility study.

(i) If it is subsequently determined that the preauthorized response actions require modification or if it appears that project costs will exceed approved costs, a revised application for preauthorization must be approved by EPA before different, or additional, actions can be undertaken, if such actions are to be eligible for compensation from the Fund.

(j) Unless otherwise specified and agreed to by EPA, the terms, provisions, or requirements of a court judgment, Consent Decree, administrative order (whether unilateral or on consent), or any other consensual agreement with EPA requiring a response action do not constitute preauthorization to present a claim to the Fund.

§307.23 EPA's review of preauthorization applications.

(a) EPA shall review each preauthorization application and will notify the applicant of the decision to grant or deny preauthorization. Decisions to grant preauthorization will be memorialized in a PDD.

(b) Each application for preauthorization must include information sufficient for EPA to determine whether the response will be consistent with 40 CFR 300.700(d). EPA will evaluate applications based on the following non-exclusive list of criteria, as appropriate:

(1) Whether the release is within the scope of CERCLA;

(2) The seriousness of the problem or importance of the response activity when compared with competing demands on the Fund;

(3) Whether there is sufficient time to process the request for preauthorization (e.g., if a removal action is proposed);

(4) Whether the party liable for the release or threat of release of the hazardous substance is unknown, or if known, has been notified of the application for preauthorization and is unwilling or incapable of performing the response in a reasonable period of time;

(5) Whether the State, a political subdivision, or an Indian Tribe is willing to undertake the response action through a contract or a cooperative agreement;

(6) The cost and effectiveness of the proposed response actions when compared with other alternatives;

(7) Whether proposed response can be carried out in accordance with the NCP and other environmental requirements;

(8) The applicant's eligibility to file a claim; his capabilities, experience, and technical expertise; and his knowledge and familiarity with the NCP and relevant guidance;

(9) Whether the party is proposing to conduct a cleanup through an administrative order or a Consent Decree with the Government regarding the site for which the request is made (if the applicant is a potentially responsible party);

(10) Whether the applicant, if he is a potentially responsible party seeking to undertake a remedial investigation and feasibility study, has affirmed that he will not directly or indirectly benefit from the preauthorization as a response action contractor, or as a person hired or retained by such a contract with respect to the site at issue, and agrees to reimburse the Fund for any cost incurred under, or in connection with, the oversight contract or arrangement for the remedial investigation and feasibility study;

(11) Whether the proposed costs are eligible and the applicant has proposed appropriate procurement, contract

management, project management, financial management and documentation procedures;

(12) Whether the applicant has met the necessary assurances, financial responsibilities, and other requirements;

(13) Provisions for long-term operation and maintenance of the site, if appropriate;

(14) Whether the applicant has consulted with the State or Indian Tribe on the proposed response action;

(15) The applicant's proposed procedures for oversight and the reporting of project issues and progress;

(16) Cooperation of the applicant at any earlier stage of response activity; and

(17) Whether the proposed schedule for filing a claim(s) is based upon the completion of the project, an operable unit, or a discrete phase of the response work.

(c) The Administrator may grant preauthorization for all or part of a proposed response action, but not less than a stage of an operable unit or of a response action.

(1) The Administrator may set a limit on the amount that may be claimed as reimbursement from the Fund for any response action.

(2) The Administrator may condition the preauthorization on such inspection, monitoring, reporting, safety, and long-term operation and maintenance requirements as he deems necessary. The costs of such requirements may not necessarily be reimbursed from the Fund.

(3) The Administrator may condition the preauthorization on such time period for starting and completing the response action as he may deem necessary.

(4) The Administrator may condition the preauthorization on such financial or other assurance from the claimant or other entity as he may deem necessary to ensure completion of work at the site.

(5) The Administrator will not subject potentially responsible parties who may wish to undertake a remedial investigation and feasibility study to a lesser standard of liability nor will he give such parties preferential treatment in EPA's review of applications for preauthorization.

(d) If EPA denies a preauthorization because of an insufficient balance in the Fund or the low priority assigned to the response action when weighed against other applications or uses of the Fund, the applicant may resubmit the application in another fiscal year. If preauthorization is denied because of the inability of the applicant to demonstrate his experience and capabilities, the applicant may resubmit the application form only after correcting the deficiencies, or by proposing an alternative approach.

(e) If EPA grants preauthorization, the applicant may begin the approved response action subject to the terms and conditions contained in the PDD. The applicant, as a condition of preauthorization, shall assure that the lead agency shall have such site access as may be necessary for oversight and monitoring.

(f) If the applicant is unable to initiate or complete the preauthorized response action, the applicant shall immediately notify EPA in writing.

(g) EPA will not grant preauthorization for any response actions where:

(1) The proposed action is not a response action authorized under CERCLA;

(2) There is a significant threat to the public health or the environment caused by acute threat of fire, explosion, direct human contact with a hazardous substance, or other similar hazardous situations requiring immediate action, and there is insufficient time to process an application for preauthorization;

(3) The proposed response is a remedial action and the site is not on the NPL; or

(4) The action is to be performed by a State, political subdivision, Indian Tribe through an assistance agreement with the United States, or a person operating pursuant to a contract with the United States.

(h) EPA will deny preauthorization to a person whom the Agency believes is a liable party under section 107 of CERCLA unless negotiations are underway aimed at reaching a judicial or administrative settlement. Such parties may be preauthorized under this paragraph to submit claims to the

Fund for response costs up to the maximum amount specified in the PDD.

Subpart C—Procedures for Filing and Processing Response Claims

§307.30 Requesting payment from the potentially responsible party.

(a) A claimant must present all claims to any person who is known to the claimant and who may be liable under section 107 of CERCLA at least 60 days before filing a claim against the Fund. The presentation to the potentially responsible party must be a written request for payment, delivered either by certified mail (return receipt requested) or in such a manner as will establish the date of receipt. At a minimum this request must contain:

(1) The name of the claimant (commercial entity or individual);

(2) The name, title, and address of any authorized representative;

(3) The location of the release and cleanup;

(4) The date of the release, if known;

(5) The owner of the property, if other than the claimant;

(6) A description of the response action taken; and

(7) The amount of the request (in dollars);

(8) If applicable, notice of intent to file a subsequent application for preauthorization or claim against the Fund for additional operable units or for a stage of a response action.

(b) Where the potentially responsible party is unknown, the claimant must make a good-faith effort to identify the potentially responsible party prior to submitting a claim. If the potentially responsible party is identified, the claimant must then comply with the procedures of §307.30(a). Where a potentially responsible party cannot be identified, the claimant may submit a claim to the Fund pursuant to §307.31. Claims submitted under this paragraph must be accompanied by documentation of efforts to identify potentially responsible parties.

(c) If the claimant and the potentially responsible party agree to a settlement involving a release from liability, the claimant may submit a claim against the Fund for any costs that are not recovered provided the claimant complies with the provisions of §307.20(c), which require EPA's prior approval of such releases from liability.

(d) If the claim is denied by the potentially responsible party, or has not been satisfied after 60 days of presentation to such party, the claimant may submit a claim to the Fund in accordance with §307.31.

(e) If the first claim was denied by the potentially responsible party or not responded to, and EPA agrees that there is no reason to believe that subsequent claims would be honored by such potentially responsible party, the denial of the first claim, or lack of response, shall be considered denial of every subsequent claim.

§307.31 Filing procedures.

(a) A response claim must be submitted on EPA Form 2075-4 and must include:

(1) Documentation showing that the claimed response activities were preauthorized by EPA;

(2) Documentation showing that the response activity was accomplished in a manner consistent with the PDD, noting any deviation from preauthorized activities;

(3) Documentation that a search to identify potentially responsible parties was conducted in accordance with §307.30 and of any contacts with such parties; and

(4) Substantiation that all claimed costs are necessary costs.

(b) Claimants (or their authorized representatives) may amend their claims at any time before final action by EPA. Amendment of claims after final action by EPA will be allowed only at EPA's discretion. Each amendment must be submitted in writing and must be signed by the claimant or authorized representative. The time limitations of §307.32(i) refer to the date by which an amendment is filed.

(c) Claimants may not pursue both an action in court against potentially responsible parties and a claim against the Fund at the same time for the same response costs. EPA will return claims presented under this subpart when the Agency determines that a claimant has initiated an action for recovery of the same response costs, in

court, against a party potentially liable under section 107 of CERCLA.

§ 307.32 Verification, award, and administrative hearings.

(a) Upon receipt of a response claim, EPA will verify that it complies with all filing requirements. Where the claim is incomplete or has significant defects, EPA will return the claim to the claimant with written notification of its deficiencies.

(b) A claim returned to the claimant for failure to comply with the filing requirements may be resubmitted to EPA.

(c) For purposes of this part, a response claim is deemed perfected when EPA determines that the claim complies fully with the specified filing requirements; i.e., the claim is technically complete. When the claim is perfected, a notice will be provided to the claimant of EPA's receipt and acceptance of the claim for evaluation.

(d) EPA may adjust claims and in making a determination whether costs are allowable, EPA will be guided by the Federal cost principles (non-profit organizations—OMB Circular A-122; States and political subdivisions—OMB Circular A-87; profit-making organizations—48 CFR part 31, subparts 31.1 and 31.2).

(e) In evaluating claims, EPA will determine whether the claimant has settled and satisfactorily completed in accordance with sound business judgment and good administrative practice all contractual and administrative matters arising out of agreements to perform preauthorized response actions. This includes the issuance of invitations for bids or requests for proposals, selection of contractors, approval of subcontracts, settlement of protests, claims disputes, and other related procurement matters. EPA will examine how the claimant assured (e.g., by the use of a subcontract administration system) that work was performed in accordance with the terms, conditions, and specifications of such agreements.

(f) Awards will be made:

(1) Only for necessary costs of completing the response action or stage of an operable unit or of a response action;

(2) Only to the extent that the response actions were preauthorized by EPA pursuant to § 307.23;

(3) Only to the extent that the cleanup was performed effectively, as provided in 40 CFR 300.120(e)(3) and 300.400(h); and

(4) Only to the extent that the cleanup was performed in compliance with the terms and conditions of the PDD.

(g) No award will be made on a claim where the claimant has purported to release a potentially responsible party from liability to the United States for the same costs unless EPA has approved the release in advance.

(h) Where a response action is determined to have been ineffective due to acts or omissions of the claimant, his employees or agents, or any third party having a contractual relationship with the claimant, payment of the claim will be adjusted accordingly. EPA may require the claimant to submit any additional information needed to determine whether the actions taken were reasonable and necessary.

(i) For claims submitted in connection with a settlement reached under section 122(b)(1) of CERCLA only, interest will be paid on amounts due if EPA fails to pay the amount within 60 days of a perfected claim.

(1) Interest shall accrue on the amounts due the claimant where EPA fails to pay the claim for the preauthorized response action within 60 days of EPA's receipt of a perfected claim.

(2) Where the claim is technically complete but EPA requires additional information in order to evaluate the amount claimed, the period as stated in paragraph (i)(1) of this section or the accrual of interest is suspended from the date the Agency requests the information from the claimant until the date the requested information is received.

(3) Where a claim is denied in whole or in part by EPA, and the claimant requests an administrative hearing in accordance with paragraph (o) of this section, interest on the disputed amount begins to accrue 50 days after an award by the Administrative Law Judge, unless an appeal is filed. If either party files an appeal with a Federal district

court, interest will not accrue until 20 days after the final judicial decision.

(4) The rate of interest paid on a claim is the rate of interest on investments of the Fund established by Subchapter A of Chapter 98 of the Internal Revenue Code of 1954.

(j) For claims submitted in connection with a settlement reached under section 122(b) of CERCLA, a preauthorized potentially responsible party will be entitled to full reimbursement only where the response action is conducted in complete satisfaction of the requirements set forth in the consent order or decree.

(k) Future site-specific actions required by preauthorized potentially responsible parties, and any future obligations on the Fund, shall be governed by § 307.42.

(l) Any withdrawal of preauthorization will be preceded by written notice from EPA. The application for preauthorization will be deemed invalid and no award will be made from the Fund where the claimant is determined by EPA to be liable under section 107 of CERCLA for the costs for which the claim is made, and the application for preauthorization did not disclose that the claimant may be a person described as follows:

(1) The owner and operator of a vessel or a facility;

(2) Any person, who at the time of disposal of any hazardous substance, owned or operated any facility at which such hazardous substances were disposed of;

(3) Any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substance; or

(4) Any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels or sites selected by such person, from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance.

(m) If EPA determines that it cannot complete its evaluation of a claim because of insufficient information, it will request the necessary information from the claimant. If EPA determines that it cannot complete its evaluation of a claim because the records, documents, and other evidence were not maintained in accordance with generally accepted accounting principles and practices consistently applied, or were for any reason inadequate to demonstrate that claimed costs are necessary costs, EPA will adjust the claim accordingly. Further consideration of such amounts will depend on the adequacy of subsequent documentation. Any additional information requested by EPA must be submitted within 30 days, unless a different period of time is specified by EPA. The failure of the claimant to provide in a timely manner the requested information without reasonable cause may be cause for denial of the claim.

(n) Once the claim is perfected, EPA will proceed to:

(1) Make an award on the claim; or

(2) Decline to make an award.

(o) If the claimant is dissatisfied either with EPA's denial of a claim or with the amount of an award, the claimant may request that EPA arrange an administrative hearing in accordance with section 112(b) of CERCLA. The request for an administrative hearing must occur within 30 days of being notified of EPA's decision.

(p) Notice of an award under paragraph (f) of this section will be given by First Class Mail within five (5) days of the date of the decision. Payment of approved claims will be made according to § 307.40.

§ 307.33 Records retention.

A claimant receiving an award from the Fund is required to maintain all cost documentation and any other records relating to the claim, and to provide EPA with access to such records. These records must be maintained until cost recovery is initiated by EPA. If, after ten (10) years from the date of award of the final claim, EPA has not initiated a cost recovery action, the claimant need no longer retain the records. The claimant shall,

however, notify EPA of the location of the records, and allow EPA the opportunity to take possession of the records before they are destroyed. The claimant shall cause to be inserted in all agreements between itself and contractors performing work at the site a clause providing for the same requirement to maintain records and to provide access to records as that required of the claimant.

Subpart D—Payments and Subrogation

§ 307.40 Payment of approved claims.

(a) Payment of claims will be made, as applicable, within:

(1) 50 days of EPA's decision to make an award, if the claimant does not request an administrative hearing;

(2) 50 days of an award by an administrative tribunal if no appeal of such award is taken; or

(3) 20 days of the final judicial decision of any appeal taken.

(b) Payment of a claim shall not be seen as EPA's final acceptance of the claimant's response action. Final acceptance shall await EPA's determination that the response action was conducted in accordance with the terms and conditions of the PDD or the consent order or decree, as applicable.

§ 307.41 Subrogation of claimants' rights to the Fund.

(a) The United States acquires by subrogation all rights of the claimant to recover the amount of the claim paid by the Fund from the person or persons liable under section 107 of CERCLA for the release giving rise to the response action.

(b) Claimants shall assist in any cost recovery action that may be initiated by the United States. The claimant and the claimant's contractors shall furnish the personnel, services, documents, and materials needed to assist EPA in the collection of evidence to document work performed and costs expended by the claimant or the claimant's contractors at the particular site in order to aid in cost recovery efforts. The claimant and the claimant's contractors shall also provide all requested assistance in the interpretation of documents detailing work and costs that may be needed as evidence, and shall testify on behalf of the United States in any judicial or administrative cost recovery proceeding regarding the response costs claimed. All of the claimant's contracts for implementing the PDD shall expressly require their contractors to provide this cost recovery assistance.

§ 307.42 Fund's obligation in the event of failure of remedial actions taken pursuant to CERCLA section 122.

(a) In the case of the failure of a completed remedial action taken by a potentially responsible party pursuant to a remedial action preauthorized in connection with a settlement under section 122(b)(1) of CERCLA, the Fund shall be available for the costs of any new cleanup required, but shall not be obligated to a proportion exceeding that proportion contributed by the Fund for the original remedial action.

(b) The Fund is not obligated by preauthorization of a response action to reimburse the claimant for subsequent remedial actions if those subsequent remedial actions are necessary as a result of the failure of the claimant, his employees or agents, or any third party having a contractual relationship with the claimant to properly perform authorized activities or otherwise comply with the terms and conditions of the PDD, and the Consent Decree or order regarding the site cleanup entered into by EPA and the claimant.

Appendix A to Part 307—Application for Preauthorization of a CERCLA Response Action

United States Environmental Protection Agency
Washington, DC 20460

Form Approved. OMB No. 2050-0106
Expiration Date 12-31-94

Application for Preauthorization of a CERCLA Response Action

General Instructions: Complete all items in ink or by typewriter. If an item is not applicable to your preauthorization request, write "N/A" in the appropriate space. Attach typewritten sheets for additional information. Specific instructions are presented on page 3 of this form.

I. Introductory Material

A. Name, Title and Address of Applicant(s):

B. Name of Site:

C. Eligibility:
- ☐ Individual
- ☐ PRP
- ☐ Firm
- ☐ Other
- ☐ Foreign Applicant

D. Name, Title and Address of Agent (if any) Authorized to Represent the Applicant:

II. Relates to Actual or Threatened Release of a Hazardous Substance, Pollutant or Contaminant

A. Date/time (am/pm) of release (if known):

B. Location of the release:

C. Is the release or threat of release at an NPL site? ☐ Yes ☐ No If yes, what is the site name on the NPL?

D. Provide a short description of the release or threat of release.

E. Did you contact the National Response Center? ☐ Yes If yes, provide the date and the manner of the notice:

☐ No If no, explain why not:

III. Relates to Potentially Responsible Parties (PRPs)

A. Are you a person whom EPA previously identified as a PRP for the site in question? ☐ Yes ☐ No
If yes, provide date of notice letter

B. If you have not been identified as a PRP, do you fall within one of the four categories of potentially liable parties set forth in section 107(a) of CERCLA? ☐ Yes ☐ No
If yes, describe why.

C. Is this application to be approved in the context of a consent order or decree? ☐ Yes ☐ No
If yes, provide information as to the status of the settlement negotiations, provide the name of the relevant EPA contact person, and attach the most recent draft of any settlement agreement.

D. Have you identified any PRPs for the release or threat of release in question? ☐ Yes ☐ No
If yes, attach a list of known PRPs and describe the results of any contacts with them.
If no, describe efforts to identify PRPs.

IV. Relates to Proposed Response Action

A. Briefly summarize the proposed response action and attach a schedule of major response activities.

B. Identify which provisions of the National Contingency Plan (NCP) are applicable for the proposed types of response activity (e.g., removal, RI/FS) and describe how the proposed action will be conducted in accordance with those provisions.

EPA Form 2075-3 (Rev 1-92)

C Address how the proposed response action will be consistent with the NCP with regard to the following performance standards:

1. Worker training, health and safety, and the safety of the public.
2. Community relations plan.
3. Compliance with legally applicable, or relevant and appropriate, Federal and State environmental requirements (ARARs).

V. Relates to Applicant's Capabilities

Describe your capabilities to carry out the proposed response actions.

VI. Relates to State or Indian Tribe Consultation

Has a letter signed by the designated State or Indian Tribe official been attached? ☐ Yes ☐ No If no, explain.

VII. Relates to Long-Term Operations and Maintenance (O&M) (If applicable)

☐ I will provide a bond or other financial assurance for O&M. ☐ The State has agreed to provide for O&M.

Attach documentation to support your assertion.

VIII. Relates to Projected Costs

A. Provide the projected costs for each proposed response activity and attach an explanation of why each of these costs is "necessary."

1 _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
TOTAL $_____

B. Provide a proposed schedule for the submission of claims.

IX. Relates to Project Management

A. Describe the management structure to be put in place to implement the proposed project and to control financial matters.

B Describe your procedures for comprehensively documenting the work performed and the costs incurred for all phases of the proposed response action.

C. Describe your procedures for reporting to EPA on the progress of the proposed project and for EPA oversight.

D Describe your proposed procurement procedures

Certification

I certify that all information herein is true to the best of my knowledge. I agree to supply additional information, as requested, in support of this application and access to the site for purpose of inspection.

Signature of Applicant Date

CERCLA Penalty for Presenting Fraudulent Claim

Any person who knowingly gives or causes to be given false information as a part of a claim against the Hazardous Substance Superfund may, upon conviction, be fined in accordance with the applicable provisions of Title 18 of the United States Code or imprisoned for not more than 3 years (or not more than 5 years in the case of a second or subsequent conviction), or both. (42 USC 9612 (b)(1))

Civil Penalty for Presenting Fraudulent Claim

The claimant is liable to the United States for a civil penalty of $2,000 and an amount equal to two times the amount of damages sustained by the Government because of the acts of that person, including costs of the civil action

Criminal Penalty for Presenting Fraudulent Claim or Making False Statements

The claimant will be charged a maximum fine of not more than $10,000 or be imprisoned for a maximum of 5 years, or both (See 62 Stat 698, 749; 18 USC 287, 1001)

INSTRUCTIONS TO APPLY FOR PREAUTHORIZATION OF A CERCLA RESPONSE CLAIM

This form is to allow parties to apply for EPA preauthorization of a claim against the Hazardous Substances Superfund (Fund) as authorized by sections 111(a)(2) and 112 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). EPA preauthorization is required before a party can begin response work if that party desires Fund reimbursement of his/her response costs. The regulatory procedures for obtaining preauthorization from EPA are found at 40 CFR Part 307. The public reporting burden for the completion of this form is estimated to vary between 186 and 330 hours – averaging 258 hours per application. These estimates include the time needed to review instructions, search existing data services, gather and maintain the data needed for completing and reviewing the collection of information. Any comments concerning the burden estimate (including suggestions for reducing the burden) or any other aspect of this form should be sent to the following addresses:

Chief, Information Policy Branch, PM-223
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

and

Office of Information and Regulatory Affairs
Office of Management and Budget
726 Jackson Place, N.W.
Washington, D.C. 20503
Attention: Desk Officer for EPA

The applicant bears the burden for demonstrating that scarce Fund resources should be utilized for this project. Consequently, all preauthorization applications should be factually thorough, well-documented and based on sound analysis. Due to the complexity of the issues involved, it is in the applicants' best interest to organize the submission so that it can be easily read by EPA officials.

In many cases, the spaces provided on this form will be insufficient for a full presentation of the information solicited. In such circumstances, the applicant shall attach typewritten sheets and provide clear cross-references between the items on this form and the attachments.

A number of items will also require that the applicants provide appendices. In these appendices, the applicants shall supply sufficient documentation to support the statements presented in the form. Since it would be impractical and undesirable to include all supporting data, the appendices should usually consist of detailed summaries of the primary data. However, the original documents should be identified, catalogued and available for presentation, if requested. As with the attachments, the applicant shall provide clear cross-references between this form and the appendices.

Applicants should consult 40 CFR section 307.22(g) to assert any claims of business confidentiality.

When completed this form should be sent to:

U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460
Attention: Director, Office of Emergency and Remedial Response (OS-220)

The sections below provide instructions for particular items on the claim form.

I. A. Provide the name, site and address of the person(s) submitting this application. If the claim is submitted by a group of persons who have created a legal entity to act as claimant, information should be provided concerning the identity and location of both the entity and the constituent parties.

B. Self-explanatory

C. Check all that apply.

D. "Agent" refers to any duly authorized agent, executor, administrator, or other legal representative of the applicant. If this preauthorization application is submitted by such an agent, he/she must present evidence of authority to so represent the applicant. (See 40 CFR Section 307.20).

II. A-C. Self-explanatory.

D. This description must include the following information: the type of vessel and facility; the type and quantity of hazardous substance (including whether the substance is listed under CERCLA section 102); and a description of the surrounding population and/or environmental risk.

E. Self-explanatory

III. A. Check whether you are a person who EPA previously identified as a potentially responsible party (PRP).

B. Check whether you have reason to believe, without regard to whether a defense under Section 107(b) may be available, that you may be a person described as follows:

1) the owner or operator of a vessel or facility,

2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,

3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substance, or

4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels, or sites selected by such person, from which there is a release, or a threatened release of a hazardous substance, which causes the incurrence of response costs.

C. If you checked YES for item A or B and NO for this item, explain why this application is not to be approved in the context of a consent order or decree. Describe the status of any settlement negotiations

D. List all PRPs known to you. Describe any contacts with PRPs and any reply from such parties. If PRPs are unknown, describe efforts to locate PRPs.

IV. A. Self-explanatory.

B. Describe the response action(s) that is the subject of this request (e.g., removal, RI/FS, selection of remedy, design, construction), and methods proposed for carrying out such actions, including site sampling plan and quality assurance procedures. Address the requirements contained in 40 CFR 307.22.

C. Worker/community health and safety plan. The worker plan must comply with OSHA Safety and Health standards at 29 CFR Part 1910.120. The community plan must address the protection of area residents from the physical, chemical and/or biological hazards particular to the site and the selected response.

Community Relations Plan. The applicant need not develop a plan if the response action is of short duration or a community relations plan already exists for the site at issue.

ARARs. See 40 CFR Sections 300.400(g), 300.430(f)(3)(ii).

V. Include a discussion of financial and technical/scientific capabilities.

VI. If a letter of cooperation signed by the designated State or Indian Tribe is not attached to an application to undertake a remedial action, explain efforts made by the applicant to obtain such cooperation.

VII. Self-explanatory

VIII. A. The figures provided on the form should be the overall cost for a particular type of response activity (e.g., removal, RI/FS, design). Documentation should be attached to support each cost figure. In addition, the applicant must explain why each of the proposed costs is "necessary." "Necessary" costs are those which are 1) required, 2) reasonable, 3) allowable and 4) allocable according to Federal cost principles. Federal cost principles are presented in the following documents: OMB Circular A-87 (State and local government and Federally recognized Indian Tribes); OMB Circular A-122 (non-profit organizations); 48 CFR sections 31.1, 31.2 (profit-making organizations).

B. A proposed schedule for the submission of claims should be provided. Applicants are encouraged to propose reimbursement based upon cash-flow considerations. The goal of an applicant should be to balance major capital expenditures and the completion of discussed tasks against the number and frequency of claims.

IX. Self-explanatory.

APPENDIX B TO PART 307—CLAIM FOR CERCLA RESPONSE ACTION

United States Environmental Protection Agency
Washington, DC 20460

Claim for CERCLA Response Action

Form Approved. OMB No. 2050-0106
Expiration Date 12-31-94

General Instructions: Complete all items in ink or by typewriter. If an item is not applicable to your claim, write "N/A" in the appropriate space. Attach typewritten sheets for additional information. Specific instructions are presented on page 3 of this form.

I. Introductory Material

A. Name, Title and Address of Claimant(s):

B. Name of Site:

C. Preauthorization Decision Document (PDD):
Number _____
Date _____
(attach copy)

D. Name, Title and Address of Agent (if any) Authorized to Represent the Claimant:

II. Relates to Potentially Responsible Parties (PRPs)

A. Has the claimant made a reasonable effort to identify any PRPs (other than any who may be parties to this claim)? Describe those efforts

B. Has the claimant presented a request for reimbursement to known PRPs (other than any who may be parties to the claim)?
☐ Yes ☐ No
Attach names, addresses and dates of presentation. Describe any responses.

C. If a partial settlement was reached with PRPs after presentation of the claim as described in II B., did EPA approve any release?
☐ Yes ☐ No If no, explain

D. Is there any action pending in court regarding this site or response actions?
☐ Yes ☐ No If yes, explain.

III. Relates to Claims for a Preauthorized Phase

A. Is this a claim for a preauthorized phase? ☐ Yes ☐ No
If no, provide the completion date of the subject response action and skip B, C, D and E.

B. How many claims are authorized in the PDD?

C. For which preauthorized phase are you filing a claim at this time?

D. Is completion of the next preauthorized phase on schedule?
☐ Yes ☐ No If no, explain.

E. Estimated date for submitting claim for the next preauthorized phase.

IV. Relates to Response Action

A. Was the response/preauthorized phase completed in accordance with the PDD? ☐ Yes ☐ No If yes, skip B

B. Was a modification to the preauthorization request submitted to and approved by EPA?
☐ Yes -- Supply number and date _____
☐ No -- Explain how and why response differs from PDD.

C. Was the response completed in accordance with the Statement of Work and the Work Plan? ☐ Yes ☐ No If yes, skip D

D. Explain how and why the response differs from the Statement of Work and/or the Work Plan.

E. Address how each of the PDD terms and conditions were met (in the order that they appear in the PDD). Provide documentation of such adherence in an appendix.

F. Provide the name and address of the location where all cost documentation and any other records relating to the claim will be maintained.

EPA Form 2075-4 (Rev 1-92)

V. Relates to Amount of Response Claim

A Provide the following summary information

Re Current Claim Submission

Type of Response Activity(ies) Represented by Claim _____

Total Eligible Response Costs Represented by Claim $ _____

Percentage of Claimed Costs to Total Response Costs _____ %

Dollar Amount of Reimbursement Claimed $ _____

Re Any Past Claim Awards Under the Subject PDD

Number of Previous Claims _____

Total Sum of Previous Awards $ _____

Re PDD

Reimbursement Cap Set For All Claim Submissions $ _____

B Provide the following breakdown of the eligible response costs asserted in this claim submission

Labor	$ _____
Travel	$ _____
Equipment	$ _____
Materials and Supplies	$ _____
Contractual Services	$ _____
Other Direct Costs	$ _____
Indirect Costs	$ _____
TOTAL RESPONSE COSTS	$ _____

With the exception of contractual services, provide detailed summaries of the components of each of the above cost categories. Address how the costs incurred were required under the PDD and reasonable, allowable and allocable according to Federal cost principles. Specify which of the Federal cost principles were used and explain the basis for that selection

C Provide a cost breakdown of all contractual services performed for this claim submission. Explain how the incurred costs were required under the PDD and reasonable, allowable and allocable according to Federal cost principles. Specify which of the Federal cost principles were used and explain the basis for that selection

Certification

I certify that all information herein is true to the best of my knowledge. I agree to supply additional information as requested in support of this application and access to the site for purpose of inspection

Signature of Claimant Date

CERCLA Penalty for Presenting Fraudulent Claim

Any person who knowingly gives or causes to be given false information as a part of a claim against the Hazardous Substance Superfund may, upon conviction, be fined in accordance with the applicable provisions of Title 18 of the United States Code or imprisoned for not more than 3 years (or not more than 5 years in the case of a second or subsequent conviction), or both. (42 USC 9612 (b)(1))

Civil Penalty for Presenting Fraudulent Claim

The claimant is liable to the United States for a civil penalty of $2,000 and an amount equal to two times the amount of damages sustained by the Government because of the acts of that person, including costs of the civil action

Criminal Penalty for Presenting Fraudulent Claim or Making False Statements

The claimant will be charged a maximum fine of not more than $10,000 or be imprisoned for a maximum of 5 years, or both. (See 62 Stat. 696, Title 18 USC 287, 1001)

INSTRUCTIONS FOR SUBMITTING A CLAIM FOR A CERCLA RESPONSE ACTION

This form is for claims against the Hazardous Substances Superfund as authorized by sections 111 (a)(2) and 112 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). Claims can only be awarded for reasonable response costs incurred pursuant to a preauthorization decision document (PDD) issued by EPA. The regulatory procedures for obtaining preauthorization from EPA and for the submission and award of claims are found at 40 CFR Part 307

The public reporting burden for the completion of this form is estimated to vary between 25 and 59 hours - - averaging 42 hours per claim. These estimates include the time needed to: review instructions, search existing data sources, gather and maintain the data needed, and complete and review the collection of information Any comments concerning the burden estimate (including suggestions for reducing the burden) and any other aspect of this form should be sent to the following addresses:

Chief, Information Policy Branch, PM-223
U S Environmental Protection Agency
401 M Street, S W
Washington, D C. 20460

and

Office of Information and Regulatory Affairs
Office of Management and Budget
726 Jackson Place, N.W
Washington, D C 20503
Attention: Desk Officer for EPA

The claimant bears the burden for demonstrating that his response costs should be reimbursed. Consequently all claim submissions should be factually thorough, well-documented and based on sound analysis. Due to the complexity of the issues involved, it is in the claimant's best interest to organize the submission so that it can be easily read by EPA officials

In many cases, the spaces provided on this form will be insufficient for a full presentation of the information solicited. In such circumstances, the claimant shall attach typewritten sheets and provide clear cross-references between the items on this form and the attachments.

A number of items will also require that the claimants provide appendices. In these appendices, the claimant shall supply sufficient documentation to support the statements presented in the form Since it would be impractical and undesirable to include all supporting data, the appendices should usually consist of detailed summaries of the primary data However, the original documents should be identified, catalogued and available for presentation, if requested As with the attachments, the claimant shall provide clear cross-references between this form and the appendices

Claimants should consult 40 CFR Section 307 22 (g) to assert any claims of business confidentiality

When completed, this form should be sent to U S Environmental Protection Agency
401 M Street, S W
Washington, D C 20460
Attention Director, Office of Emergency and Remedial Response (OS-220)

The sections below provide instructions for particular items on the claim form

I A Provide the name, title and address of the person(s) submitting this claim If the claim is submitted by a group of persons who have created a legal entity to act as claimant, information should be provided concerning the identity and location of both the entity and the constituent parties

B Provide the site name as it appears on the PDD

C Supply the number and date of the PDD for this claim A copy of the PDD shall also be provided in an appendix If the claimant has been granted preauthorization to modify the PDD, these amendments must be described and copies provided

D "Agent" refers to any duly authorized agent, executor administrator or other legal representative of the claimant If this claim is submitted by such an agent he/she must present evidence of authority to so represent the claimant

II A Self-explanatory

B Pursuant to 40 CFR Section 307 33(e), if 1) the first claim was denied by the responsible party or not responded to within 60 days, and 2) EPA agrees that there is no reason to believe that subsequent claims would be honored by such responsible party, the denial of the first claim, or lack of response, shall be considered a denial of every subsequent claim The claimant may seek EPA's agreement at any time a claim is presented The claimant will be advised of EPA's agreement when the claimant is notified in writing regarding the award or denial of the claim

C -D Self-explanatory

III -IV Self-explanatory

V A Self-explanatory

B This item is concerned with the actual response costs incurred during the time period represented by this claim submission -- not the percentage of those response costs for which the claimant is seeking reimbursement Federal cost principles are presented in the following documents: OMB Circular A-87 (State and local governments and Federally recognized Indian Tribes), OMB Circular A-122 (non-profit organizations); 48 CFR 31 1, 31 2 (profit-making organizations) If the claim represents more than one stage of response activity, indicate this on the form and provide similar cost breakdown in an appendix These instructions are applicable to Item V C below

C Contractual services will vary depending on the response action performed and the operative unit represented by the claim submission Typical categories of response activity include

Security
Groundwater sampling
Construction
- Administrative Expenses
- Materials

Operation & Maintenance

APPENDIX C TO PART 307—NOTICE OF LIMITATIONS ON THE PAYMENT OF CLAIMS FOR RESPONSE ACTIONS, WHICH IS TO BE PLACED IN THE FEDERAL REGISTER PREAMBLE WHENEVER SITES ARE ADDED TO THE FINAL NPL

Limitations on the Payment of Claims for Response Actions

Sections 111(a)(2) and 122(b)(1) of CERCLA authorize the Fund to reimburse certain parties for necessary costs of performing a response action. As is described in more detail at 58 FR 5460, Jan. 21, 1993, 40 CFR part 307, there are two major limitations placed on the payment of claims for response actions. First, only private parties, certain potentially responsible parties (including States and political subdivisions), and certain foreign entities are eligible to file such claims. Second, all response actions under sections 111(a)(2) and 122(b)(1) must receive prior approval, or "preauthorization," from EPA.

APPENDIX D TO PART 307—NOTICE OF LIMITATIONS ON THE PAYMENT OF CLAIMS FOR RESPONSE ACTIONS WHICH IS TO BE PLACED IN PUBLIC DOCKETS

Statutory Limitations on the Payment of Claims for Response Actions Filed Pursuant to Sections 111(a)(2) and 122(b)(1) of CERCLA

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (42 U.S.C. 9601 *et seq.*) authorizes a number of mechanisms for responding to a release, or threat of release, of hazardous substances or pollutants or contaminants. One of these mechanisms is response claims. Section 111(a)(2) of CERCLA authorizes the Environmental Protection Agency (EPA or the Agency) to compensate claimants for necessary response costs if certain conditions are met. Section 122(b)(1) of CERCLA authorizes EPA to reimburse certain potentially responsible parties for a portion of the costs of response actions conducted pursuant to a settlement agreement. These conditions are outlined below.

First, only private parties, parties to section 122(b)(1) agreements (including States and political subdivisions thereof) and foreign entities are eligible for payment through the response claims mechanism. Federal, State, and local government units, and Indian Tribes can receive funding for response activities through other authorities of section 111(a) or section 123 of CERCLA.

Second, eligible claimants can only be reimbursed for costs that are incurred in carrying out the National Contingency Plan (NCP), 40 CFR part 300. In order to be in conformity with the NCP, all claims must receive prior approval, or "preauthorization," from EPA. This means that before response work is initiated, the party must:

(1) Notify EPA of its intent to file a claim;

(2) Demonstrate that the release merits priority consideration;

(3) Propose activities to remedy the release that can be carried out consistent with the NCP; and

(4) Demonstrate the capabilities necessary to carry out such activities in a safe and effective manner.

In order for potentially responsible parties to be eligible for reimbursement they must conduct the response actions as specified in a Consent Decree or administrative order. Only if EPA preauthorizes a response action can the party begin work, and later file a claim for reimbursement of costs.

The limitations placed on the payment of claims for response actions and the procedures for filing such claims are described in more detail at 58 FR 5460, Jan. 21, 1993, 40 CFR part 307. Additional information can be obtained by contacting William O. Ross, Office of Emergency and Remedial Response (5203 G), Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, (703) 603-8798, or the RCRA/CERCLA Hotline, (800) 424-9346 (or (703) 920-9810 in the Washington, DC metropolitan area).

PART 310—REIMBURSEMENT TO LOCAL GOVERNMENTS FOR EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE RELEASES

Subpart A—General

Sec.
310.05 Purpose, scope, and applicability.
310.10 Abbreviations.
310.11 Definitions.
310.12 Penalties.

Subpart B—Reimbursement

310.20 Eligibility for reimbursement.
310.30 Requirements for requesting reimbursement.
310.40 Allowable and unallowable costs.

Subpart C—Procedures for Filing and Processing Reimbursement Requests

310.50 Filing procedures.
310.60 Verification and reimbursement.
310.70 Records retention.
310.80 Payment of approved reimbursement requests.
310.90 Disputes resolution.

APPENDIX F

RECEIVED

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HEARINGS CLERK
EPA--REGION 10

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 10

IN THE MATTER OF: TULALIP LANDFILL SUPERFUND SITE, MARYSVILLE, WASHINGTON WASHINGTON WASTE HAULING & RECYCLING, INC. Respondent.	ADMINISTRATIVE ORDER ON CONSENT FOR REMOVAL RESPONSE ACTIVITIES U.S. EPA, Region 10 CERCLA Docket No. 10-97-0149-CERCLA Proceeding Under Sections 104 and 122 of the Comprehensive Environmental Response Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604 and 9622

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ADMINISTRATIVE ORDER ON CONSENT

WHEREAS, on July 29, 1997, the United States, on behalf of the U.S. Environmental Protection Agency, signed and forwarded a Consent Decree captioned United States v. Seattle Disposal Company, et al., to the Department of Justice for concurrence, and lodging in the United States District Court for the Western District of Washington. The Consent Decree requires the Respondent and other parties to the Decree to undertake certain actions set forth in the Consent Decree and the Statement of Work related to the remediation of the On-Source Areas of the Tulalip Landfill Superfund Site, located on Ebey Island between Steamboat Slough and Ebey Slough in the Snohomish River delta system between Everett and Marysville, Washington (the "Tulalip Landfill Site" or the "Site"); and

WHEREAS the Respondent has agreed to commence the Work at the Tulalip Landfill Site prior to lodging of the Consent Decree by the Court pursuant to the terms of this Order; and

WHEREAS the Respondent has agreed, under the Consent Decree, to continue the Work at the Tulalip Landfill Site prior to the entry of the Consent Decree by the Court; and

WHEREAS the period of performance prior to entry could extend up to, but not longer than, the date Respondent completes the Work required under this Order; and

WHEREAS, the Respondent and EPA wish to have an administrative agreement in place before lodging and entry of the Consent Decree;

NOW, THEREFORE, IT IS ORDERED as follows:

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Order on Consent ("Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA"), the Complainant, and Washington Waste Hauling & Recycling, Inc. ("Waste Management"), the Respondent. The Tulalip Tribes of Washington, a federally recognized Indian Tribe organized under Section 16 of the Indian Reorganization Act of 1934, as amended, 25 U.S.C. § 476, and the Tulalip Section 17 Corporation, a federal corporation chartered pursuant to Section 17 of the Indian Reorganization Act, as amended, 25 U.S.C. § 477, are the trust beneficiaries of lands held in trust by the United States at the Site and are signing this Order for the limited purpose of granting access to the Site and providing certain indemnifications to the Respondent and receiving certain indemnifications from the Respondent. Without admitting liability under CERCLA, the Tulalip Tribes of Washington and the Tulalip Section 17 Corporation hereby (1) waive their sovereign immunity solely for the limited purpose of enforcement of Sections XI (Access To Property) and XV (Indemnification, Assignment Of Rights, and Insurance) of this Order and not otherwise, (2) consent to such enforcement of this Order, and (3) agree not to challenge the terms of this Order, and agree not to raise any personal or subject matter jurisdiction or venue arguments regarding enforcement of this Order. This consent to the terms of and enforcement of this

Order shall not be deemed an admission of liability under CERCLA by the Tulalip Tribes of Washington or the Tulalip Section 17 Corporation. Neither the consent to the terms of and enforcement of this Order nor the aforesaid waiver of sovereign immunity shall be construed as impairing, modifying, diminishing, enlarging, or otherwise affecting the treaty rights of the Tulalip Tribes of Washington or the Tulalip Section 17 Corporation, or, except as expressly limited herein, their sovereign immunity. The United States Department of the Interior, Bureau of Indian Affairs ("BIA"), is signing this Order for the purpose of authorizing access to the Site as specified in Section XI (Access To Property), to the extent that BIA has authority to grant such access. BIA does not concede that it has authority to provide access to the Site or that its approval is necessary to provide such access, and BIA's signing of this Order shall not be construed as an admission or concession that it has such authority or that its approval is required. BIA agrees to sign this Order only for the purpose of granting any rights of access it may be deemed to have to the Site in order to effectuate the settlements embodied in this Order and the Waste Management and Tribes Consent Decree and the Generator Defendants Consent Decree. In addition, nothing in this Order shall be construed as an admission of any BIA liability at the Site. Any potential CERCLA liability that BIA has at the Site will be resolved in the Generator Defendants Consent Decree. The Tulalip Tribes of Washington, the Tulalip Section 17 Corporation, and the

BIA shall be bound not to withdraw permission for access while this Order remains in effect. This Order provides for the performance of certain response actions by the Respondent in connection with the On-Source Areas of the Site. This Order requires the Respondent to conduct the response actions described herein to abate an imminent and substantial endangerment to the public health, welfare, or the environment that may be presented by the actual or threatened release of hazardous substances, pollutants, or contaminants at or from the Site.

2. This Administrative Order on Consent ("Order") is issued pursuant to the authority vested in the President of the United States by Sections 104 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§ 9604 and 9622, and delegated to the Administrator of the United States Environmental Protection Agency ("EPA") by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the EPA Regional Administrators by EPA Delegation Nos. 14-14-A and 14-14-C. The Region 10 Regional Administrator further redelegated this authority by Region 10 Delegation No. R10 14-14-C to the Director of the Office of Environmental Cleanup.

3. EPA has notified the State of Washington of this action pursuant to Section 104 of CERCLA, 42 U.S.C § 9604.

4. Respondent's participation in this Order shall not constitute or be construed as an admission of liability or of

EPA's findings or determinations contained in this Order except in a proceeding to enforce the terms of this Order.

5. Respondent agrees to comply with and be bound by the terms of this Order. Respondent further agrees that it will not contest the basis or validity of this Order or its terms.

II. PARTIES BOUND

6. This Order applies to and is binding upon the United States and upon Respondent and its heirs, successors, and assigns. Any change in ownership or corporate status of the Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter the Respondent's responsibilities under this Order.

7. The Respondent shall ensure that its contractors, subcontractors, and representatives receive a copy of this Order and comply with this Order. Respondent shall be responsible for its noncompliance with this Order.

III. DEFINITIONS

8. Unless otherwise expressly provided herein or in the Waste Management and Tribes Consent Decree and SOW, terms used in this Order which are defined in CERCLA or the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq. (also known as the "Resource Conservation and Recovery Act" or "RCRA"), or in regulations promulgated under CERCLA or RCRA shall have the meaning assigned to them in CERCLA, RCRA, or in such regulations. Whenever terms listed below are used in this Order or in the

documents attached to this Order or incorporated by reference into this Order, the following definitions shall apply:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, et seq.

"Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the end of the next Working Day.

"Deliverable" shall mean all submissions and/or milestone events required of the Respondent under the Statement of Work at Appendix C hereto, including any additions and modifications to this Section of the Statement of Work made in accordance with the terms of the SOW, the Waste Management and Tribes Consent Decree, and this Order.

"EPA" shall mean the United States Environmental Protection Agency or its authorized representative(s) and any successor departments or successor agencies of the United States.

"Generator Defendants Consent Decree" shall mean the Consent Decree between the United States and Monsanto Company, Board of Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., R.W. Rhine, Inc., City of Mercer Island (a municipal corporation of the state of Washington), the Seattle School

District, Quemetco, Inc., and the Settling Federal Agencies identified in Appendix D of that Decree.

"Interest Accrued" shall mean the amount of Interest which accrues on payments owed to the United States in the manner specified in Paragraph 45 of this Order.

"Interest" shall mean interest at the rate specified for interest on investments of the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the U.S. Code, in accordance with 42 U.S.C. § 9607(a).

"Interim Record of Decision" or "Interim ROD" or "ROD" shall mean the EPA Interim Record of Decision relating to the Site signed on March 1, 1996, by the Regional Administrator, EPA Region 10, and all attachments thereto. The Interim ROD is attached as Appendix A to this Order.

"Interim Remedial Action" shall mean those activities to be undertaken by Waste Management and its subcontractors and delegatees to construct the cover system which is part of the remedy selected in the Interim ROD and those activities undertaken by Waste Management and/or the Tulalip Tribes and their subcontractors and delegatees to perform O&M for the On-Source Area of the Site, in accordance with the SOW attached to the Waste Management and Tribes Consent Decree and the final Remedial Design/Remedial Action Work Plan and other plans approved by EPA. The term "cover system" is a subset of the Interim Remedial Action and describes the landfill cover

system that Waste Management shall construct over the On-Source Areas of the Site under the Waste Management and Tribes Consent Decree.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substance Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

"Off-Source Areas" of the Site shall mean the environmentally sensitive wetlands located outside and adjacent to the On-Source Areas of the Site which are denoted as "Off-Source Areas" in Appendix B of this Order. These Off-Source Areas extend in a northerly direction from the landfill berm to Ebey Slough; in a southerly direction from the landfill berm to Steamboat Slough; in a westerly direction from the landfill berm to Puget Sound; and in an easterly direction from the landfill berm to Interstate 5.

"On-Source Areas" of the Site shall mean the 147 acres located within and including the landfill berm.

"Paragraph" shall mean a portion of this Order identified by an Arabic numeral.

"Parties" shall mean the signatories to this Order.

"Performance Standards" shall mean the cleanup standards and other measures of achievement of the goals of the Interim ROD, including, but not limited to, those set forth in

Section 10.1 of the Interim ROD and as further delineated in the SOW attached as Appendix C to this Order. The Parties recognize and agree that the requirement that response actions specified in this Order must be taken such that the Interim Remedial Action to be performed pursuant to the Waste Management and Tribes Consent Decree will minimize the migration of liquids through the landfill as specified in the Interim ROD and as further delineated in the SOW attached as Appendix C to this Order pertains to infiltration of precipitation through the landfill cover system and shall not be construed as requiring the elimination of leachate seeps for purposes of Waste Management's compliance with the Performance Standards under this Order.

"Related Entities" as the term refers to SDC Defendants shall mean SDC Defendants and their heirs, any heirs' spouses, and their marital communities, successors, and assigns, the SDC Defendants' past, present, and future officers and directors who have acted and are acting in that capacity, and where the SDC Defendant is a corporate entity, its corporate successors to potential liability for the Tulalip Landfill Site. "Related Entities" shall also mean the following named entities associated with one or more of the SDC Defendants: the Morelli Family and those entities identified in Appendix C of the SDC Defendants Consent Decree;

"Related Entities" as the term relates to the Generator Defendants shall mean (a) the heirs, successors, and assigns of the Generator Defendants; and (b) their past, present,

and future officers and directors who have acted and are acting in that capacity, and where Related Entity is a corporate entity, its successors to potential liability for the Tulalip Landfill Site; and

"Related Entities" as the term relates to Waste Management and the Tulalip Tribes shall mean Waste Management and the Tulalip Tribes and their heirs, successors, and assigns, Waste Management's and the Tulalip Tribes' past, present, and future officers and directors who have acted and are acting in that capacity, and Waste Management's corporate successors to potential liability for the Tulalip Landfill Site. "Related Entities" shall also mean the following named entities associated with Waste Management:

<u>Related Entities of Washington Waste Hauling & Recycling, Inc.</u> (currently known as Waste Management, Inc.):

Apex Garbage Co., Inc.
Bayside Waste Hauling and Transfer Co., Inc.
Container Hauling Corporation
Eastside Disposal Co., Inc.
Bruce J. Leven
Nancy Meyer Leven
National Disposal Contractors, Inc. (does not include any liability that Browning-Ferris Industries of Illinois might have at the Site related to its prior ownership of National Disposal)
Universal Refuse Removal Co., Inc.
Waste Management, Inc.
WMX Technologies, Inc.
Industrial Transport
Northwest Garbage Company, Inc.
SnoKing Garbage Company, Inc.

"Remedial Design" shall mean those activities to be undertaken by Waste Management to develop the final plans and

specifications for the Interim Remedial Action pursuant to the Response Action Work Plan.

"Respondent" shall mean Washington Waste Hauling & Recycling, Inc. ("Waste Management").

"Response Action" shall mean those activities to be undertaken by Waste Management under this Order to design the remedy selected in the Interim ROD and to prepare and stabilize the Site for eventual construction of the remedy selected in the Interim ROD pursuant to the provisions of the Waste Management and Tribes Consent Decree for the On-Source Areas of the Site, in accordance with the SOW attached as Appendix C to this Order and the final Response Action Work Plan and other plans approved by EPA.

"Response Action Work Plan" shall mean the document developed pursuant to Paragraph 28 of this Order and approved by EPA, and any amendments thereto.

"Response Costs" shall mean all costs, including direct costs, indirect costs, and accrued interest incurred by the United States to perform or support response actions at the Site. Response costs include, but are not limited to, the costs of overseeing the Work, such as the costs of reviewing or developing plans, reports, and other items pursuant to this Order and costs associated with verifying the Work. The term "Response Costs" shall not include the $8,889,977 which EPA is providing to Respondent pursuant to Section VIII (Transfer Of Settlement Funds To Waste Management) of this Order.

"SDC Defendants" shall mean Seattle Disposal Company (a former Washington general partnership), John Banchero, Sr., Josie Razore, and their respective marital communities.

"SDC Defendants Consent Decree" shall mean the Consent Decree between the United States and Seattle Disposal Company (a former Washington general partnership), John Banchero, Sr., Josie Razore, and their respective marital communities.

"Section" shall mean a portion of this Order identified by a Roman numeral and includes one or more paragraphs.

"Site" shall mean the Tulalip Landfill Superfund Site, located on Ebey Island between Steamboat Slough and Ebey Slough in the Snohomish River delta system between Everett and Marysville, Washington. The Site, depicted generally on the map attached as Appendix B, is located largely within the Tulalip Indian Reservation, which includes the "On-Source Areas", the "Off-Source Areas", the areas immediately adjacent to the landfill necessary to develop access to and from the landfill for the purposes of implementing the response actions specified in this Order, the areal extent of contamination that originated from the Tulalip Landfill and is presently located in the vicinity of the Tulalip Landfill, and all suitable areas in close proximity to the contamination necessary for the implementation of the response action.

"State" shall mean the State of Washington.

"Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Design and other Site stabilization and Site prepatory work, and any modifications and amendments to the SOW made in accordance with this Order, detailing the requirements for performance of the Work, as set forth in Appendix C to this Order. The Statement of Work is incorporated into this Order and is an enforceable part of this Order.

"Tulalip Tribes" shall refer collectively to the Tulalip Tribes of Washington (a federally recognized Indian tribe organized under Section 16 of the Indian Reorganization Act (IRA) of 1934, as amended, 25 U.S.C. § 476) and the Tulalip Section 17 Corporation (a federal corporation chartered as "The Tulalip Tribes" on September 8, 1936, and ratified on October 3, 1936, pursuant to Section 17 of the IRA, as amended, 25 U.S.C. § 477), and the Tulalip Section 17 Corporation's assigns or corporate successors.

"United States" shall mean the United States of America.

"Waste Management and Tribes Consent Decree" shall mean the Consent Decree, and all appendices attached thereto, entered into by the United States and Washington Waste Hauling & Recycling, Inc. ("Waste Management") and the Tulalip Tribes of Washington and the Tulalip Section 17 Corporation (together, the "Tulalip Tribes") and signed by the United States, Waste Management, and the Tulalip Tribes, which will be lodged with the

Court for its approval in the action styled United States v. Seattle Disposal Company, et al.

"Work" shall mean all activities Respondent is required to perform under this Order that is described in the Statement of Work, as amended, as set forth in Appendix C to this Order including, but not limited to, Remedial Design and other Site stabilization and Site prepatory work, and any activities required to be undertaken pursuant to Sections VI (Order) through XXVII (Financial Assurance) of this Order, except those obligations required by Section XXI (Retention Of Records) of this Order.

IV. FINDINGS OF FACT

9. EPA has made the following findings of fact. The Respondent, by signing this Order, neither admits nor denies these findings are true and accurate. However, Respondent agrees not to contest these findings of fact in any proceeding brought by EPA to enforce the terms of this Order.

10. The Tulalip Landfill is located on Ebey Island between Steamboat Slough and Ebey Slough in the Snohomish River delta system between Everett and Marysville, Washington. Ebey Island is located in Snohomish County, Township 30 North, Range 5 East, Section 32. The Tulalip Landfill Site, located within the Tulalip Indian Reservation, occupies approximately 147 acres of the western portion of Ebey Island, just to the west of Interstate 5 and the Burlington Northern Railroad. The landfill area is bordered by a berm, and is surrounded primarily by

wetlands in the form of brackish water marshes. To the west of the landfill area is approximately 160 acres of salt marsh.

11. In 1964, the Tulalip Section 17 Corporation (a federal corporation chartered pursuant to Section 17 of the Indian Reorganization Act, 25 U.S.C. § 477, which is the trust beneficiary of the lands held in trust by the United States at the Site) leased the Site to Seattle Disposal Company for a period of 10 years. From 1964 to 1979, Seattle Disposal Company, its general partners J. Razore, J. Banchero, and other partners, and Marine Disposal Company operated the Site, then known as the "Big Flats Landfill," as a disposal site for commercial and industrial waste. Waste material collected in King County, Snohomish County, and communities in and around the Puget Sound region, including waste materials generated or transported by the numerous parties, was delivered to the Site by a variety of methods. Seattle Disposal Company and other parties transported waste material using barges and other vessels directly from Seattle to the Site by way of Puget Sound. Other parties, including entities now operated by Washington Waste Hauling and Recycling, Inc. and Waste Management Inc., delivered waste material to the barge located in Seattle and operated by Marine Disposal Company. Other parties, including Rubatino Refuse Removal, Inc., directly delivered waste material to the Site. In 1979, the landfill was closed and capped pursuant to the Rivers and Harbors Act of 1899, 33 U.S.C. §§ 403 and 407, and the Federal Water Pollution Control Act, 33 U.S.C. §§ 1311, 1319,

1342, and 1344, pursuant to a consent decree entered in the U.S. District Court for the Western District of Washington on October 19, 1977, No. C77-721M. Additional capping materials, including construction debris and earthen materials, were placed on the source area by other parties after the 1979 consent decree closure.

12. Respondent Waste Management accepted hazardous substances for transport to, and disposal at the Site, and selected the Site for disposal.

13. On April 25, 1995 (60 Fed. Reg. 20330), pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Tulalip Landfill Superfund Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B.

14. In August 1993, EPA signed an Administrative Order on Consent with a number of Potentially Responsible Parties ("PRPs") to provide all appropriate and necessary information for a Remedial Investigation and Feasibility Study ("RI/FS") for the Site, including a baseline risk assessment (performed by EPA) pursuant to CERCLA and the NCP.

15. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for interim remedial action on August 4, 1995, and provided opportunity for public comment on the proposed remedial action.

16. The decision by EPA on the remedial action to be implemented for the On-Source Areas of the Site is embodied in an

Interim ROD, executed on March 1, 1996, on which the State of Washington has given its concurrence. The Interim ROD is attached to this Order as Appendix A and is incorporated by reference. The Interim ROD is supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action.

17. Hazardous substances within the definition of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), have been released into the environment from the Site. Hazardous substances have been found in soils in and around the Site, in sediments around the Site, in leachate emanating from the Site, and in ground water at the Site. Hazardous substances of concern found in soils and sediments include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, 1,4-dichlorobenzene, flouranthene, fluorine, naphthalene, N-nitroso-di-n-propylamine, polychlorinated biphenyls (PCBs), and pyrene. Metals were also found at the site, including arsenic, lead, and chromium. Samples of leachate flowing from the Site have shown levels of arsenic, barium, cadmium, iron, zinc, manganese, toluene, ethylbenzene, PCBs, and acenaphthene.

18. The Remedial Investigation documents the presence of hazardous substances in the soils, sediments, surface water, and groundwater at the Site. Site investigation efforts show that landfill leachate leaving the Site exceeds water quality criteria and standards for pesticides and heavy metals.

19. The landfill leachate flows directly into sensitive, ecologically valuable wetlands that surround the Site, and into sloughs connected with the Snohomish River and Puget Sound.

20. The nature and extent of contamination at the Site reveals significant potential risks to human health and the environment. The Interim ROD documents that there are exceedences of comparison numbers (such as surface water quality criteria) that are considered to be protective of human health and the environmental resources in leachate, surface water, groundwater, soils and sediments at the Site. These exceedences indicate the potential for adverse effects to people that will use the Site, and to animals and plants that live on or near the landfill and come in contact with these contaminants.

21. The selected interim remedy requires installation of an engineered, low permeability cover over the On-Source Areas of the Site. The On-Source Area to be covered includes the waste that is located within the current perimeter of the approximately 147 acre landfill, and any contaminated soil in the existing cover material.

22. The response actions to be taken by the Respondent under this Order are expected to be consistent with and will allow for completion of a remedial action which implements the selected remedy specified in the Interim ROD for the Site. Completion of the selected interim remedy is expected to effectively provide long-term minimization of migration of

liquids through the landfill, and thereby effectively stem the generation and flow of contaminated leachate from the source area of the landfill into the surface waters and wetlands surrounding the landfill.

23. On July 29, 1997, EPA signed and forwarded a Consent Decree to the Department of Justice for concurrence, and lodging in the United States District Court, Western District of Washington. This Consent Decree is captioned United States v. Seattle Disposal Company, et al and was signed by some of the potentially responsible parties identified at the Site, the Tulalip Tribes of Washington and the Tulalip Section 17 Corporation, and the Respondent. The Waste Management and Tribes Consent Decree requires the Respondent and the Tulalip Tribes to undertake certain actions set forth in the Waste Management and Tribes Consent Decree and the SOW attached thereto relating to remediation of the Site.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

24. Based on the Findings of Fact set forth above, and the Administrative Record supporting this removal action, EPA has determined that the following are EPA's Conclusions of Law. The Respondent does not admit or deny these Conclusions of Law, but Respondent agrees not to contest EPA's Conclusions of Law in any proceeding brought by EPA to enforce the terms of this Order:

a. The Tulalip Landfill Superfund Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The contaminants found at the Site, as identified in the Findings of Fact above, include "hazardous substance(s)" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

c. Respondent Waste Management is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. Respondent Waste Management is a "liable party" under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

e. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

f. The response actions required by this Order are necessary to protect the public health, welfare, or the environment, and are not inconsistent with the NCP or CERCLA.

VI. ORDER

25. Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby ordered and agreed that Respondent shall comply with the following provisions including, but not limited to, all attachments to this Order, all documents incorporated by reference into this Order and all schedules and deadlines in this Order, attached to this Order or incorporated by reference into this Order.

VII. WORK TO BE PERFORMED

26. Upon receipt of at least $7,100,000 from EPA's Tulalip Landfill Special Account, Respondent shall initiate and

perform the Work specified in this Section and in the SOW attached as Appendix C to this Order. Respondent shall not be required to commence any other Work relating to the Site pursuant to this Order.

27. Respondent shall obtain and hold any permits or other authorizations, where required, for performing the Work under this Order.

28. Within thirty (30) days after receipt of the initial $7,100,000 from EPA's Special Account pursuant to Paragraphs 26 and 39 of this Order, Waste Management shall submit a Work Plan for the Remedial Design and Response Actions at the Site ("Response Action Work Plan") to EPA for review and approval. The Response Action Work Plan shall include a step-by-step plan for completing the remedial design and response actions required by this Order and for attaining and maintaining all requirements, including Performance Standards, identified in the Interim ROD and as further delineated in the SOW attached to this Order. The Response Action Work Plan must describe in detail the tasks and deliverables Waste Management will complete under this Order, and a schedule for completing the tasks and deliverables in the Response Action Work Plan and the SOW attached to this Order.

29. The Response Action Work Plan shall contain, at a minimum, the following plans: Design Sampling and Analysis Plan, Field Investigation Quality Assurance Project Plan, Health and Safety Plan, Contingency Plan, and a Site Management Plan. The

Site Health and Safety Plan shall conform to the applicable Occupational Safety and Health Administration and EPA requirements, including, but not limited to, those found at 54 Fed. Reg. 9294.

30. Upon approval by EPA under this Order, the Response Action Work Plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. Upon approval of the Response Action Work Plan by EPA, Waste Management shall implement the Response Action Work Plan according to the schedule in the approved Response Action Work Plan. Any violation of the approved Response Action Work Plan shall be a violation of this Order. Unless otherwise directed by EPA, Waste Management shall not perform further Work at the Site prior to EPA's written approval of the Response Action Work Plan.

A. Remedial Design

31. The Response Action Work Plan shall be consistent with, and shall provide for implementing the Statement of Work, and shall comport with EPA's "Superfund Remedial Design and Remedial Action Guidance, OSWER Directive 9355.0-4A".

32. Pursuant to the schedules and procedures contained in the SOW attached as Appendix C to this Order, Waste Management shall submit a Preliminary Design and a Pre-Final/Final Design to EPA for review and approval. The Preliminary Design submittal shall include, at a minimum, the following: (1) design criteria; (2) detailed grading and erosion control plan; (3) results of

additional field sampling; (4) drainage plan; (5) preliminary plans, drawings, and sketches; (6) required specifications in outline form; and (7) the remaining RA support plans in outline form. This submission format may be modified after EPA approval to accommodate phased implementation of the Work.

33. The Pre-Final/Final Design submittal shall include plans and specifications ready for procurement and implementation by Waste Management, and calculations and/or modeling supporting the design. The Pre-Final/Final Design submittal shall also include, at a minimum, the following: (1) final plans, specifications, and supporting calculations; (2) an Operations and Maintenance Plan; (3) the Construction Quality Assurance Plan ("CQAP"); (4) the Regrading Erosion Control Plan; (5) Well Abandonment Plan; (6) Monitoring Well Installation Plan; (7) Post Construction Monitoring Plan; and (8) Institutional Controls Plan.

B. Response Action

34. Any response actions taken under this Order shall be consistent or updated to be consistent with the Final Design as approved by EPA. The RD Work Plan shall include methodologies, support plans, and schedules for completion of, at a minimum, the following: (1) implementation of the CQAP; (2) identification of and satisfactory compliance with applicable permitting requirements; and (3) a schedule for implementing all response action tasks identified in the Statement of Work.

35. Unless otherwise approved by EPA, pursuant to the schedule contained in the attached Statement of Work, Waste Management shall notify EPA, in writing, of the name, title, and qualifications of the prime construction contractor proposed to be used in carrying out work under this Order. Waste Management shall obtain an authorization to proceed regarding the proposed construction contractor from EPA, before the construction contractor performs any on-site response actions under this Order. If, at any time, Waste Management proposes to change the construction contractor, Waste Management shall notify EPA and shall obtain an authorization to proceed from EPA as provided in this paragraph, before the new construction contractor performs any work under this Order. If EPA disapproves of the selection of any contractor as the construction contractor, Waste Management shall submit a list of contractors that would be acceptable to it to EPA within thirty (30) days after receipt of EPA's disapproval of the contractor previously selected.

36. The Work performed by Waste Management pursuant to this Order shall, at a minimum, allow the Interim Remedial Action, when completed, to achieve the applicable Performance Standards and other criteria specified in the Interim Record of Decision including, but not limited to, Section 10.1.3 of the Interim ROD, and as further delineated in the Statement of Work attached to this Order.

37. Notwithstanding any action by EPA in approving work plans, documents, or other submittals made by Waste

Management under this Order, and notwithstanding any action taken by EPA pursuant to Section XI (Access To Property), Section XIII (Emergency Response And Notification Of Releases), and Paragraph 77 of this Order, Waste Management remains fully responsible for completing the Work required under this Order such that the Interim Remedial Action, when completed, can achieve the Performance Standards in the Interim Record of Decision and as further delineated in the Statement of Work until the time EPA certifies that the Work required under this Order has been completed. Nothing in this Order, or in EPA's approval of the Statement of Work, or in the Response Action Work Plan, or approval of any other submission, shall be deemed to constitute a warranty or representation of any kind by EPA that full performance of the Remedial Design or response actions required under this Order will allow the Interim Remedial Action, when completed, to achieve the Performance Standards set forth in the Interim ROD and in the Statement of Work attached to this Order. Waste Management's compliance with such approved documents does not foreclose EPA from seeking additional work from Waste Management to ensure that the Work required under this Order will allow the Interim Remedial Action, when completed, to achieve the applicable Performance Standards, provided such additional work is within the scope of the Work required under this Order.

VIII. TRANSFER OF SETTLEMENT FUNDS TO WASTE MANAGEMENT

A. DISBURSEMENT FROM EPA's SPECIAL ACCOUNT

38. EPA has deposited and will deposit the United States' proceeds from EPA's de minimis settlements in connection with the Site, including any interest earned thereon, in a Site-Specific Special Account ("EPA Special Account"), pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3).

39. Subject to the terms and conditions set forth in this Order, EPA agrees to make available all of the available funds in the EPA Special Account, up to $8,889,977, to Waste Management for performance of response actions under this Order. EPA shall disburse such funds from the EPA Special Account to Waste Management and Waste Management shall use such funds in the following manner: within thirty (30) days of the effective date of this Order, but not before Waste Management establishes the financial security specified in Paragraph 47.b., EPA shall disburse all of the available funds from the EPA Special Account, up to $8,889,977. Waste Management agrees to spend this $8,889,977 and any Interest which accrues on the $8,889,977 only on the response actions specified in this Order.

40. Waste Management waives all rights to dispute EPA's determination of the amount of funds within the EPA Special Account.

41. If any funds remain in the EPA Special Account after disbursement of the $8,889,977 specified under Paragraph 39 above, EPA may use any portion or all of such remaining funds for

performance of response actions at the Site or cause all or any portion of such funds to revert to the EPA Hazardous Substance Superfund.

B. CERTIFICATION OF EXPENDITURE OF FUNDS FROM THE EPA SPECIAL ACCOUNT

42. After expending $8,889,977 plus Interest Accrued toward completion of the Work required by this Order, Waste Management may request that the financial security required by Paragraph 47.b. of this Order be withdrawn or removed if the costs expended by Waste Management equal or exceed $8,889,977 plus Interest Accrued. Such a request must be in the form of a letter containing a certification and must be accompanied by supporting documentation. The documentation must include a true, accurate and complete calculation of at least $8,889,977 of costs incurred by Waste Management pursuant to this Order, including the Interest Accrued as determined by EPA. Waste Management's certification shall contain the following statement signed by the chief financial officer of Waste Management:

> "To the best of my knowledge, after thorough investigation and review of Waste Management's detailed cost documentation for performance of response actions taken under this Order, I certify that the information contained in or accompanying this submittal is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

43. Waste Management's submittal of the certification of costs pursuant to Paragraph 42 above, shall not include costs

incurred by Waste Management for activities taken at or in relation to the Site by Waste Management for: 1) Remedial Investigations or Feasibility Studies, 2) project management, 3) fees or taxes of any kind paid by Waste Management or its contractors or subcontractors to the Tulalip Tribes, 4) activities or expenses by Waste Management or its contractors or subcontractors relating to any de minimis settlements, 5) legal bills or legal costs associated with Waste Management's pursuit of other person(s) which might relate in any way to the Site, 6) any costs Waste Management incurs pursuant to the AOC for RI/FS to which Waste Management is a signatory, and 7) any costs Waste Management incurs pursuant to Section XIII (where such costs are incurred due to Waste Management's negligent acts or omissions) and Section XI (for costs associated with implementation of Institutional Controls or attorneys fees and legal costs associated with access or institutional controls) of this Order.

C. EPA APPROVAL OF REMOVAL OF FINANCIAL ASSURANCE RELATED TO FUNDS PROVIDED FROM THE EPA SPECIAL ACCOUNT

44. EPA agrees to allow Waste Management to eliminate the financial security required by Paragraph 47.b. of this Order, after EPA's determination that Waste Management has expended funds that equal or exceed $8,889,977 plus Interest Accrued, in performance of the Work required by this Order.

45. In making its determination under Paragraph 44 above, EPA shall provide information, within thirty (30) days

after receiving such a request from Waste Management, as to the Interest Accrued on the funds Waste Management will be certifying it has expended. The Interest Accrued will be determined by EPA in the following manner:

a. EPA will determine the length of time, expressed in terms of months, from the date EPA begins disbursement of funds from the EPA Special Account to Waste Management to the date Waste Management notifies EPA that it has spent the $8,889,977 provided under this Order;

b. EPA will then identify the available interest rate in effect for funds in EPA's Hazardous Substances Superfund during the months identified in subparagraph 45.a.;

c. EPA will then apply the interest rates identified in subparagraph 45.b. above in effect during the months identified in subparagraph 45.a., and through the accrual method for determining interest, compounded monthly, will determine the Interest Accrued.

46. Waste Management waives all rights to dispute EPA's determination of the amount of Interest Accrued, except for instances of accounting error.

D. STIPULATED PENALTIES FOR FAILURE TO TIMELY COMPLETE OR FAILURE TO PROPERLY COMPLETE WORK

47.a. In the event that EPA determines, at any time between the date EPA began disbursement of funds from the EPA Special Account to Waste Management and the date Waste Management has established, pursuant to Paragraphs 42, 43, 44, and 45 of this Order to EPA's satisfaction, that Waste Management has spent the amount of funds EPA has disbursed to Waste Management from EPA's Special Account pursuant to Paragraph 39 of this Order plus Interest Accrued on that amount toward performance of the Work specified in this Order, that Waste Management:

(1) is, regardless of whether Waste Management has complied with the time frames specified in the SOW and the EPA-approved Work Plans as such documents are modified pursuant to the terms of this Order, either materially failing to perform or has materially failed to perform the Work specified in this Order in a manner which will allow the final Interim Remedial Action to meet the Performance Standards contained in the Interim ROD and as further delineated in the SOW attached to this Order; or

(2) is either materially failing to perform or has materially failed to perform the Work specified in this Order in accordance with the time frames specified in the SOW and associated Work Plans, as

such documents are modified pursuant to the terms of this Order, wherein such delay in performance of the Work by Waste Management is not approved by EPA in writing, or such delay is not otherwise excused by EPA in accordance with the terms of Section XVI (Force Majeure) or Section XVII (Dispute Resolution) of this Order;

and, based on these material failures by Waste Management, EPA has issued a stop work order to Waste Management in accordance with Paragraph 77 of this Order and/or Paragraph 134 of the Waste Management and Tulalip Tribes Consent Decree, then Waste Management agrees that it shall pay to EPA as a stipulated penalty the amount of funds EPA has disbursed to Waste Management from EPA's Special Account pursuant to Paragraph 39 of this Order plus Interest Accrued on that amount, provided EPA has disbursed funds from the EPA Special Account to Waste Management. For purposes of this Paragraph, Interest shall accrue on the $8,889,977 from the date EPA began disbursement of funds to Waste Management from the EPA Special Account to the date EPA notified Waste Management that the failures of Waste Management specified in subparagraphs (1) or (2) of this Paragraph have occurred if Waste Management does not challenge EPA's determination under Section XVII (Dispute Resolution) of this Order. If Waste Management does challenge EPA's determination under Section XVII (Dispute Resolution) of this Order, then the date of final determination for Interest accruing will be the date of EPA's or

the District Court's final decision if Waste Management is unsuccessful in challenging EPA's determination. The remaining methodology for calculating Interest Accrued under this Paragraph shall be as specified in Paragraphs 45.b. and 45.c. of this Order.

b. To insure that the $8,889,977 plus Interest referenced in Paragraph 47.a. of this Order is available to EPA as a stipulated penalty, Waste Management shall, within thirty (30) days of the effective date of this Order, establish financial security in an amount up to $9,396,706, naming EPA as beneficiary if payment is triggered under this Paragraph, by using either of the following forms:

(1) One or more irrevocable letters of credit equalling $9,396,706; or

(2) A trust fund in the amount of $9,396,706.

Waste Management may, after sending written notice to EPA, establish a lesser amount of financial security if the initial amount of funds disbursed by EPA to Waste Management from the EPA Special Account is less than $8,889,977. In that event, the amount of financial security required shall be determined by EPA by taking the amount of funds disbursed by EPA to Waste Management from the EPA Special Account and multiplying that amount by 5.7 percent, and then adding that resulting amount to the amount of funds actually disbursed by EPA from the EPA Special Account to Waste Management. In the event that additional funds are disbursed by EPA to Waste Management from

the EPA Special Account after the initial disbursement by EPA, then Waste Management shall increase the amount of financial security specified in this Paragraph, using the formula and methodology specified in this Paragraph, before such additional funds will be disbursed to Waste Management by EPA. Waste Management shall not be allowed to eliminate the financial security required under this Paragraph unless and until it can demonstrate in writing to EPA's satisfaction, as specified in Paragraphs 42, 43, 44, and 45 of this Order, that Waste Management has spent at least the amount of funds EPA disbursed to Waste Management under this Section of this Order plus Interest Accrued, toward satisfactory completion of the Work required under this Order. EPA agrees that it will not require payment of the financial assurance from a financial institution selected by Waste Management under this Paragraph unless and until there has been a final administrative decision by EPA regarding payment of such financial assurance to EPA which decision is not appealed to the District Court, or unless and until the District Court has issued a final judicial decision regarding payment of such financial assurance. If the District Court's decision is appealed by EPA or Waste Management, Waste Management shall place the disputed amount of financial assurance into an interest-bearing escrow account within sixty (60) days of receipt of the District Court's decision or order. Within fifteen (15) days of receipt of the final appellate court

decision, the escrow agent shall pay the balance of the account to EPA or to Waste Management to the extent that they prevail.

48. The payment of the stipulated penalty amount specified in Paragraph 47.a. above shall be paid by Waste Management to EPA within thirty (30) days of receipt of a written notice from EPA that such payment is due, unless Waste Management invokes the procedures of Section XVII (Dispute Resolution) of this Order. This payment shall be sent to EPA in accordance with the payment procedures specified in Paragraph 53 of this Order. Any disputes or disagreements regarding whether Waste Management has failed to properly perform the Work specified in this Order or has failed to perform the Work specified in this Order within the time frames specified in the SOW and associated Work Plans shall be subject to the procedures of Section XVII (Dispute Resolution) of this Order. EPA and Waste Management also hereby agree that only EPA's final administrative decision under Paragraph 47.a. shall be the only EPA final decision subject to judicial review under this Order. EPA and Waste Management also hereby agree that any subsequent appeal of EPA's final administrative decision regarding whether Waste Management is materially failing or has materially failed to properly perform the Work specified in this Order in a manner which will allow the final Interim Remedial Action to meet the Performance Standards contained in the Interim ROD and as further delineated in the SOW attached to this Decree, or whether EPA has properly issued a stop work order to Waste Management, shall be reviewed by the

District Court using EPA's administrative record under an "arbitrary and capricious" standard of review. EPA and Waste Management also hereby agree that any subsequent appeal of EPA's final administrative decision regarding:

(a) whether Waste Management is materially failing or has materially failed to perform the Work required under this Order within the time frames specified in the SOW attached to this Order and associated Work Plans, as such documents are modified pursuant to the terms of this Order, wherein such delay in performance of the Work by Waste Management is not approved by EPA in writing, or such delay is not otherwise excused by EPA or the Court in accordance with the terms of Section XVI (Force Majeure) or Section XVII (Dispute Resolution) of this Order; or

(b) whether the response costs EPA incurs by virtue of EPA's takeover of the Work required of Waste Management under this Order were incurred in accordance with CERCLA and the NCP, plus Interest Accrued on those costs;

shall be reviewed by the District Court de novo, and Waste Management shall have the burden to prove under a "preponderance of the evidence" standard of review that EPA's decision that there has been a "material failure to perform the Work required under this Order" within the time frames specified in the SOW

attached to this Order and associated Work Plans under subparagraph (a) above was improper, or that the costs EPA incurs by virtue of taking over the Work required of Waste Management under this Order were not properly incurred by EPA under CERCLA and the NCP. Waste Management and EPA also hereby agree that Waste Management will not be allowed to dispute the amount of the stipulated penalty specified in Paragraph 47.a. above. Interest shall continue to accrue on the stipulated penalty amount specified in Paragraph 47.a. of this Order during any dispute resolution period under the terms of Section XVII (Dispute Resolution) of this Order or during any appeal to the District Court pursuant to this Paragraph of EPA's final decision. Upon final resolution of such dispute, the stipulated penalty specified in Paragraph 47.a., plus Interest Accrued thereon, shall be paid to EPA within thirty (30) days of resolution of such dispute pursuant to the procedures specified in Paragraph 53 of this Order.

E. AVAILABILITY OF FUNDS

49. Nothing in this Order shall be interpreted or construed as a commitment or requirement that Waste Management obligate or pay any portion of the $8,889,977 contemplated hereunder, subject to the provisions of Paragraph 47.a. of this Order, and except for any response actions required of Waste Management under Section XIII (Emergency Response And Notification Of Releases) of this Order.

50. EPA agrees to use its best efforts to provide the $8,889,977 funding contemplated hereunder. The Parties recognize and acknowledge, however, that EPA's obligation under this Order to provide funds to Waste Management from EPA's Special Account can only be provided from funds available from the EPA Special Account. Nothing in this Order shall be interpreted or construed as a commitment or requirement that the United States obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341, or any other applicable provision of law.

51. Upon receipt of at least $7,100,000 from EPA's Special Account, Waste Management shall commence the Work required by this Order and continue to diligently proceed with the obligations specified in this Order until such time as eighty (80) percent of the total amount of funds Waste Management actually received from the EPA Special Account have been obligated or expended on the Work specified under this Order. At such time, Waste Management shall provide documentation and certify as to expenditure or encumbrance of 80 percent of the funds received and shall meet with EPA to discuss what Work, demobilization, and Site stabilization can be performed with the remaining funds available. After providing EPA with this documentation and the certification, EPA and Waste Management shall meet to discuss what Work can be accomplished with the remaining funds. Waste Management shall use the remaining twenty (20) percent of funds available for Work required under this Order, reasonable and necessary costs for demobilization of

construction personnel, stabilization of the Site to minimize adverse impacts to response actions already performed or in progress, and to maintain security at the Site. After Waste Management certifies to EPA that it has spent 100 percent of the funds received from EPA, plus Interest Accrued on those funds, on Work specified in this Order, then Waste Management's remaining obligations under this Order shall be terminated, except for those under Section XXI (Retention Of Records).

52. Any remaining funds received from EPA's Special Account, plus Interest on those remaining funds, which have not been obligated or expended on 1) performance of the Work specified in this Order, 2) demobilization and/or stabilization of the Site, or 3) security of the Site, shall be paid by Waste Management to EPA's Special Account within sixty (60) days of completion by Waste Management of the tasks specified in this Paragraph in accordance with the payment provisions specified in Paragraph 53 of this Order.

IX. REIMBURSEMENT OF COSTS AND FUNDS FORWARDED TO RESPONDENT

53. In the event that Respondent is required by EPA to either 1) pay EPA's response costs incurred pursuant to this Order for which Respondent has agreed to pay, 2) pay stipulated penalties or Interest to EPA pursuant to Paragraph 47.a. or Section XXV (Stipulated Penalties) of this Order, or 3) return to EPA, pursuant to Paragraph 52 of this Order, part or all of the $8,889,977, plus Interest Accrued, which EPA has transferred to Respondent pursuant to this Order, Respondent shall, within sixty

(60) days of receipt of written notice from EPA indicating that payment is due, send its payment to EPA's Tulalip Landfill Special Account in the form of a Fedwire electronic Funds Transfer ("EFT" or wire transfer) or certified or cashier's check or checks made payable to the "EPA Hazardous Substances Superfund" and referencing EPA Region 10, the Tulalip Landfill Special Account, EPA Site/Spill I.D. #10B3, the title of this Order, and the name and address of the party making payment. Checks should be forwarded to:

Mellon Bank
EPA Region 10
Attention: Superfund Accounting
P.O. Box 360903M
Pittsburgh, PA 15251.

Interest on response costs shall accrue from the date payment is due. Copies of the transmittal letter and check should be sent simultaneously to the EPA Project Manager, and also to EPA Region 10 at the following address:

Joe Penwell
U.S. Environmental Protection Agency, Region 10
Mail Stop OMP-146
1200 Sixth Avenue
Seattle, WA 98101.

54. With respect to response costs EPA incurs under this Order, Respondent agrees to limit any disputes concerning response costs to accounting errors and the inclusion of response costs outside the scope of this Order. Respondent shall identify any contested response costs and the basis of its objection. All undisputed response costs shall be remitted by Respondent in accordance with the terms set forth above. Disputed response

costs shall be paid by Respondent into an escrow account while the dispute is pending. Respondent bears the burden of establishing an EPA accounting error or the inclusion of response costs outside the scope of this Order.

X. PROJECT MANAGERS AND COORDINATION

55. Unless previously submitted and previously approved by EPA, within three (3) days of the effective date of this Order, as provided in Paragraph 110 herein, Respondent shall submit to EPA the name of the Project Manager(s) it proposes to use to implement the Work required under this Order who shall be subject to EPA approval pursuant to the provisions of Section XIII (Project Managers) of the Waste Management and Tribes Consent Decree.

56. All communications, whether oral or written, from Respondent's Project Manager, all Deliverables, and all submissions under Section VII (Work To Be Performed) of this Order shall be directed to EPA's Project Manager for the Work under this Order. A copy of all written communications, all Deliverables, and all final submissions shall be sent to the EPA Assistant Regional Counsel for the Site. EPA's Project Manager for this Order is:

Loren McPhillips
Office of Environmental Cleanup
U.S. EPA Region 10, M/S ECL-113
1200 Sixth Avenue
Seattle, WA 98101.

EPA's Assistant Regional Counsel for the Site is:

Dean Ingemansen
Office of Regional Counsel
M/S ORC-158
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101.

57. If EPA changes the Project Manager, EPA will notify the Respondent's Project Manager within three (3) days of such change.

58. EPA's Project Manager shall have the authority lawfully vested in a Remedial Project Manager ("RPM") by the NCP, 40 C.F.R. Part 300. EPA's Project Manager will have the authority granted to him/her under the NCP to halt any Work required by this Order, and to take any necessary response action. Absence of EPA's Project Manager from the Site shall not be cause for Respondent's stoppage of Work unless specifically directed by EPA's Project Manager.

XI. ACCESS TO PROPERTY

59. Section X (Access and Institutional Controls) of the Waste Management and Tribes Consent Decree is incorporated herein by reference.

60. EPA and the Respondent shall coordinate their efforts to obtain access to the Site as necessary to implement this Order.

XII. OFF-SITE SHIPMENTS

61. All hazardous substances, pollutants, or contaminants removed off-Site pursuant to this Order for

treatment, storage, or disposal shall be treated, stored or disposed of at a facility in compliance, as determined by EPA, with 42 U.S.C. § 9621(d)(3) and 58 Federal Register 49200 (September 22, 1993).

XIII. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

62. If any incident, or change in Site conditions, during the actions conducted pursuant to this Order causes or threatens to cause an unanticipated release of hazardous substances from the Site or an endangerment to the public health, welfare, or the environment, Respondent shall immediately take all appropriate action to prevent or minimize the release or endangerment threatened by the release. Respondent shall take this action in accordance with all applicable provisions of this Order including, but not limited to, the Health and Safety Plan. Respondent shall also immediately notify the EPA Project Manager and the Region 10 24-Hour emergency number at (206) 553-1263.

63. In the event of any release of a hazardous substance, in addition to notifying the persons identified in Paragraph 56 of this Order, Respondent shall also immediately notify the National Response Center at (800) 424-8802. Respondent shall submit a written report to the EPA Project Manager within three (3) days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, not in lieu of,

reporting under CERCLA Section 103(c) and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. §§ 11001 et seq.

64. Nothing in this Section shall be deemed to limit any authority of the United States to take, direct or order all appropriate actions to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XIV. SUBMISSIONS REQUIRING AGENCY APPROVAL

65. After submission of any Deliverable or other submission that requires approval pursuant to this Order, EPA shall: (1) approve, in whole or in part, the submission; (2) approve the submission upon specified conditions; (3) disapprove, in whole or in part, the submission, directing that the Respondent modify the submission; or (4) any combination of the above.

66. Any disputes with respect to EPA's approval of any Deliverable or other item submitted pursuant to this Order shall be governed by the terms of Section XVII (Dispute Resolution) of this Order.

XV. INDEMNIFICATION, ASSIGNMENT OF RIGHTS, AND INSURANCE

67. Section XX (Indemnification and Insurance) of the Waste Management and Tribes Consent Decree is incorporated herein by reference.

XVI. FORCE MAJEURE

68. Section XXI (Force Majeure) of the Waste Management and Tribes Consent Decree is incorporated herein by reference.

XVII. DISPUTE RESOLUTION

69. Section XXII (Dispute Resolution) of the Waste Management and Tribes Consent Decree is incorporated herein by reference. However, the final decision-maker for any disputes arising under the terms of this Order shall be the EPA Region 10 Director of the Office of Environmental Cleanup, and not the Court. Except as specified in Paragraph 48 of this Order, nothing in this Order shall be construed or interpreted as providing for judicial review of any provision of this Order or of any EPA decision pertaining to this Order.

XVIII. COVENANTS NOT TO SUE

70. In consideration of the actions that will be performed by the Respondent pursuant to this Order, and except as otherwise specifically provided in this Order, EPA covenants not to sue Respondent and its Related Entities for judicial imposition of damages or civil penalties or to take administrative action against Respondent for any failure to perform obligations agreed to in this Order except as otherwise reserved herein. These covenants not to sue are conditioned upon the complete and satisfactory performance by the Respondent of its obligations under this Order. These covenants not to sue extend only to the Respondent and its Related Entities and do not

extend to any other person. Except as otherwise specifically provided in this Order, in consideration, and upon payment, of any response costs which Respondent may pay to EPA pursuant to Section IX of this Order, EPA covenants not to sue or to take administrative action against Respondent and its Related Entities under Section 107(a) of CERCLA, 42 U.S.C.§ 9607(a), for recovery of response costs incurred by the United States in connection with the response actions specified in this Order.

XIX. CONTRIBUTION PROTECTION

71. With regard to claims for contribution against Respondent and its Related Entities for matters addressed in this Order, the Parties hereto agree that the Respondent and its Related Entities are entitled to protection from contribution actions or claims to the extent provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4). In the event the Waste Management and Tribes Consent Decree is not lodged and entered prior to termination of this Order, nothing in this Order precludes the United States or the Respondent from asserting any claims, causes of action or demands against any persons not parties to this Order for indemnification, contribution, or cost recovery.

XX. ACCESS TO INFORMATION

72. Section XXVII (Access To Information) of the Waste Management and Tribes Consent Decree is incorporated herein by reference.

XXI. RETENTION OF RECORDS

73. Section XXVIII (Retention Of Records) of the Waste Management and Tribes Consent Decree is incorporated herein by reference.

XXII. STATUTORY PENALTIES

74. Violation of any provision of this Order may subject Respondent to civil penalties of up to twenty-five thousand dollars ($ 25,000.00) per violation per day, as provided in Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1). Respondent may also be subject to punitive damages in an amount up to three (3) times the amount of any cost incurred by the United States as a result of such violation, as provided in Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Should Respondent violate this Order or any portion hereof, EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Order pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606. Except in a situation where Respondent's violation of the terms or provisions of this Order is a willful violation, EPA must choose to either pursue statutory or stipulated penalties for Respondent's violation of any term or provision of this Order.

XXIII. RESERVATION OF RIGHTS

75. Except as specifically provided in this Order and the Waste Management and Tribes Consent Decree, nothing herein shall limit the power and authority of EPA or the United States

to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste on, at, or from the Site. Further, except as specifically provided in this Order and the Waste Management and Tribes Consent Decree, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Order, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring the Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

76. Except as specifically provided by this Order and the Waste Management and Tribes Consent Decree, EPA reserves the right to bring an action against Respondent or any other liable person in connection with the Site under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States related to this Order and not reimbursed by Respondent. This reservation shall include, but is not limited to, past costs, direct costs, indirect costs, the costs of oversight, the costs of compiling the cost documentation to support a cost demand, and accrued interest as provided in Section 107 of CERCLA, 42 U.S.C. § 9607.

77. Notwithstanding any other provision of this Order or the Waste Management and Tribes Consent Decree, in the event EPA determines that the Respondent has ceased implementation of

any portion of the Work required by it under this Order, is seriously or repeatedly deficient or late in its performance of the Work, or is implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portions of the Work as EPA determines necessary, and seek reimbursement from the Respondent for EPA's costs, including but not limited to payment of the stipulated penalty specified in Paragraph 86 of this Order. The Respondent may invoke the procedures set forth in Section XVII (Dispute Resolution) of this Order to dispute EPA's determination that takeover of the Work is warranted under this paragraph.

78. Notwithstanding any other provision of this Order, the United States retains all authority and reserves all rights to take any and all response actions authorized by law provided, however, the United States shall not take any actions that constitute implementation of the remedy selected in the interim ROD except in accordance with Paragraph 77 and Section XIII (Emergency Response And Notification Of Releases) of this Order.

79. Notwithstanding any other provision of this Order, the United States hereby retains all of its information gathering, inspection, and enforcement authorities and rights under CERCLA, RCRA, and any other applicable statutes or regulations.

80. EPA's approval, under Paragraph 44 of this Order, of Waste Management's withdrawal of the financial security provided by Waste Management, will be withdrawn without

reservation upon EPA's determination that Waste Management submitted a false, inaccurate, incomplete, or misleading certification. In the event EPA withdraws its approval for withdrawal of the financial security, the provisions of Paragraphs 47.a. and 47.b. will apply. EPA's determinations under this Paragraph shall be subject to the provisions of Section XVII (Dispute Resolution) of this Order.

81. Except insofar as Work is performed in accordance with this Order, this Order does not resolve any claim by any Party, and the Parties expressly agree that it does not effect any release from liability.

XXIV. COMPLIANCE WITH OTHER LAWS

82. Respondent shall perform all actions required pursuant to this Order in accordance with all applicable laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and 40 C.F.R. Section 300.415(i). In accordance with 40 C.F.R. § 300.415(i), all on-Site actions required pursuant to this Order shall, to the extent practicable, as determined by EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements ("ARARs") identified in the Interim ROD.

XXV. STIPULATED PENALTIES

83. Waste Management shall be liable for stipulated penalties in the amounts set forth in Paragraphs 84 and 85 to EPA for its failure to comply with the requirements of this Order specified below, unless excused under Section XVI (Force Majeure)

or excused under Section XVII (Dispute Resolution). "Compliance" by Waste Management shall include completion by Waste Management of the activities required of it under this Order or any Work Plan or other plan approved under this Order identified below in accordance with all applicable requirements of law, this Order, the SOW attached to this Order, any plans or other documents approved and/or modified by EPA pursuant to this Order, and within the specified time schedules established by and approved under this Order.

84.a. The following stipulated penalties shall accrue to Waste Management per violation per day for any noncompliance by Waste Management identified in Subparagraph b:

Penalty Per Violation Per Day	Period of Noncompliance
$1,000	1st - - 14th day
$5,000	15th - - 30th day
$10,000	31st day and beyond.

b. Activities/Deliverables

(i) Conducting the Work without EPA approval.

(ii) Failure of Waste Management to submit the Response Action Work Plan by the due date specified in the SOW.

(iii) Failure of Waste Management to submit the Construction Quality Assurance Plan (CQAP) by the due date specified in the SOW.

(iv) Failure of Waste Management to submit a corrected or revised Response Action Work Plan in accordance with Section XIV (Submissions Requiring Agency Approval) by its due date.

(v) Failure by Waste Management to initiate Work required under this Order in the specified time and in accordance with the plans required by this Order and the SOW.

(vi) Failure by Waste Management to complete the Work required by this Order in the specified time and in accordance with the plans required by this Order and the SOW.

c. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other written documents pursuant to this Order:

Penalty Per Violation Per Day	Period of Noncompliance
$500	1st - - 14th day
$1,000	15th - - 30th day
$5,000	31st day and beyond.

85. If any amounts, other than Stipulated Penalties, due to EPA under this Order are not paid by Waste Management by the required date, Waste Management shall pay to EPA as a stipulated penalty, in addition to the Interest that may be required under this Order, $1,000.00 per day that such payment is late. Payments made pursuant to this Paragraph shall be in addition to any other remedies or sanctions available to EPA by virtue of Waste Management's failure to make timely payments required by this Order. Payments of stipulated penalties and Interest for late payments due under this Order shall be paid to EPA's Tulalip Landfill Site-Specific Account pursuant to the payment provisions of Paragraph 53 of this Order.

86. In the event that EPA assumes performance of a portion or all of the Work required of Waste Management pursuant to Paragraph 77 of Section XVIII (Covenants Not to Sue), Waste Management shall be liable for a stipulated penalty in the amount of $1,000.00 per day until the work has been completed by EPA.

87. All penalties assessed against Waste Management shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (1) with respect to a deficient submission under Section XIV (Submissions Requiring Agency Approval), during the fifteen (15) day grace period provided after the date that EPA notifies Waste Management of any deficiency; or (2) with respect to a decision by the Director of the Office of Environmental Cleanup, EPA Region 10, under Section XVII (Dispute Resolution), during the period, if any, beginning on the twenty-first (21st) day after the date Waste Management's reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Order.

88. Following EPA's determination that Waste Management has failed to comply with a requirement of this Order EPA may give Waste Management written notification of the same and describe the noncompliance. EPA may send Waste Management a

written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding paragraph regardless of whether EPA has notified Waste Management of a violation.

89. All penalties accruing under this section shall be due and payable to EPA within thirty (30) days of Waste Management's receipt from EPA of a demand for payment of the penalties, unless Waste Management invokes the Dispute Resolution procedures under Section XVII (Dispute Resolution). All payments to EPA under this section shall be paid to EPA's Tulalip Landfill Special Account in the form of a Fedwire electronic Funds Transfer ("EFT" or wire transfer) or certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund" and referencing EPA Region 10, the Tulalip Landfill Special Account, EPA Site/Spill ID #10B3, and the name and address of the party making payment. Waste Management shall send the check(s) to the following address:

Mellon Bank
EPA-Region 10
Attention: Superfund Accounting
P.O. Box 360903M
Pittsburgh, PA 15251

Any payments made pursuant to this Paragraph shall be deposited in the Tulalip Landfill Special Account within the EPA Hazardous Substances Superfund to be retained and used to conduct or finance the response action at or in connection with the Site. Any balance remaining in the Tulalip Landfill Special Account shall be transferred by EPA to the EPA Hazardous Substances

Superfund. Copies of check(s) paid pursuant to this section, and any accompanying transmittal letter(s), shall be sent to EPA at the following address:

Joe Penwell
U.S. Environmental Protection Agency, Region 10
Mail Stop OMP-146
1200 Sixth Avenue
Seattle, WA 98101.

90. The payment of penalties shall not alter in any way Waste Management's obligation to complete the performance of the Work required under this Order.

91. Penalties shall continue to accrue as provided in Paragraph 87 during any dispute resolution period, but need not be paid until the dispute is resolved by agreement or by a decision of EPA. Accrued penalties determined to be owing shall be paid to EPA within fifteen (15) days of the agreement or the receipt of EPA's decision or order. EPA may, as part of the resolution of the dispute, agree to waive all or part of any accrued penalties.

92.a. If Waste Management fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties from Waste Management, as well as Interest. Waste Management shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 88.

b. Nothing in this Order shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions against Waste Management

available by virtue of Waste Management's violation of this Order or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l). Provided, however, that EPA shall not seek civil penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of the Order.

93. Notwithstanding any other provision of this section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Order.

XXVI. OTHER CLAIMS

94. By issuance of this Order, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of the Respondent. The United States or EPA shall not be deemed a party to any contract entered into by the Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Order.

95. Except as expressly provided in Section XVIII (Covenants Not to Sue) of this Order, nothing in this Order constitutes a satisfaction or release from any claim or cause of action against the Respondent or any person not a party to this Order, for any liability such person may have under CERCLA, other

statutes, or the common law, including, but not limited to, any claims of the United States for costs, damages, and interest under Sections 106(a) and 107(a) of CERCLA, 42 U.S.C. §§ 9606(a) and 9607(a).

96. This Order does not constitute a preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2). The Respondent waives any claim to payment under Sections 106(b), 111, and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611, and 9612, against the United States or the Hazardous Substance Superfund arising out of any action performed under this Order.

97. No action or decision by EPA pursuant to this Order shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXVII. FINANCIAL ASSURANCE

98. In addition to the financial security required by Paragraph 47.b. of this Order, within thirty (30) days of the effective date of this Order, Waste Management shall establish and maintain financial security in the amount of $8,889,977 in one or more of the following forms:

a. A surety bond guaranteeing performance of the Work;

b. One or more irrevocable letters of credit equalling the total estimated cost of the Work;

c. A trust fund;

d. A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with Waste Management; or

e. A demonstration that Waste Management satisfies the requirements of 40 C.F.R. § 264.143(f).

99. If Waste Management seeks to demonstrate the ability to complete the Work through a guarantee by a third party pursuant to Paragraph 98.d. of this Order, Waste Management shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. § 264.143(f). If Waste Management seeks to demonstrate its ability to complete the Work by means of the financial test or the corporate guarantee pursuant to Paragraph 98.d. or 98.e., it shall resubmit sworn statements conveying the information required by 40 C.F.R. § 264.143(f) annually, on the anniversary of the effective date of this Order. The financial security required by this Section is assurance that Waste Management can perform the Work required of it under this Order and does not relate to the financial security required of Waste Management for its ability to pay the stipulated penalty specified in Paragraph 47.a. of this Order.

100. In the event that EPA determines at any time that the financial assurances provided pursuant to this section are inadequate, Waste Management shall, within thirty (30) days of

receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 98 of this Order. Waste Management's inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Order.

101. If Waste Management can show that the estimated cost to complete the remaining Work has diminished below the amount set forth in Paragraph 98 above after the effective date of this Order, Waste Management may, on any anniversary of the effective date of this Order, or at any other time agreed to by the Parties, reduce the amount of the financial security provided under this Section to the estimated cost of the remaining Work to be performed. Waste Management shall submit a proposal for such reduction to EPA, in accordance with the requirements of this section, and may reduce the amount of the security upon approval by EPA. In the event of a dispute, Waste Management may reduce the amount of the security provided under this Section in accordance with the final administrative decision resolving the dispute.

102. Waste Management may change the form of financial assurance provided under Paragraph 98 at any time, upon notice to and approval by EPA, provided that the new form of assurance meets the requirements of this Section. In the event of a dispute, Waste Management may change the form of the financial

assurance only in accordance with the final administrative decision resolving the dispute.

XXVIII. MODIFICATIONS

103. Modifications to any plan or schedule or Statement of Work may be made, in writing, by the EPA Project Manager or at the EPA Project Manager's oral direction. If the EPA Project Manager makes an oral modification, it will be memorialized in writing within ten days; provided, however, that the effective date of the modification shall be the date of the EPA Project Manager's oral direction. Any other requirements of the Order may be modified, in writing, by mutual agreement of the Parties.

104. If Respondent seeks permission to deviate from any approved Work Plan or schedule or Statement of Work, Respondent's Project Manager shall submit a written request to EPA for approval outlining the proposed Work Plan modification and its basis.

105. No informal advice, guidance, suggestion, or comment by EPA regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve the Respondent of its obligations to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified.

XXIX. SEVERABILITY

106. If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient

cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated or determined to be subject to a sufficient cause defense by the court's order.

XXX. COUNTERPARTS

107. This Order may be executed and delivered in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, but such counterparts together shall constitute one and the same document.

XXXI. ADMINISTRATIVE RECORD

108. Upon request by EPA, Respondent shall submit to the EPA Project Manager all documents related to the implementation or selection of the Work required pursuant to this Order for possible inclusion in the Administrative Record file.

XXXII. LIST OF APPENDICES

109. The following is a list of Appendices to this Order:

"Appendix A" is the Interim ROD;

"Appendix B" is the Site location map;

"Appendix C" is the SOW; and

"Appendix D" contains the sections of the Waste Management and Tribes Consent Decree that are referenced and are enforceable provisions of the AOC. When the Waste Management and Tribes Consent Decree becomes effective these proposed sections will be superseded by the effective Waste Management and Tribes Consent Decree.

XXXIII. EFFECTIVE DATE AND TERMINATION

110. This Order shall become effective upon the date it has been signed by EPA.

111. Except as otherwise specified herein, all schedules for performance of ordered activities shall be calculated from this Effective Date.

112. This Order shall terminate on the earlier of: 1) entry of the Waste Management and Tribes Consent Decree; 2) completion of the Work specified in this Order; or 3) all the funds have been expended as specified in Paragraph 51 of this Order.

113. Upon entry of the Waste Management and Tribes Consent Decree by the Court, this Order shall terminate and will be superseded by the Waste Management and Tribes Consent Decree. All Work Plans, design specifications, or other plans, reports or schedules, as approved by EPA pursuant to this Order, shall be incorporated by reference into and shall be enforceable under the Waste Management and Tribes Consent Decree.

The undersigned representative of Respondent Washington Waste Hauling & Recycling, Inc. certifies that they are fully authorized to enter into the terms and conditions of this Order and to bind Washington Waste Hauling & Recycling, Inc. to this document.

Agreed this 10th day of July, 1997.

By Lynn Walker

Title Senior Environmental Counsel

The undersigned representative of the Tulalip Tribes of Washington certifies that they are fully authorized to enter into the terms and conditions described in Section XI (Access To Property) and Section XV (Indemnification, Assignment Of Rights, And Insurance) of this Order and to bind the Tulalip Tribes to the terms and conditions contained in Section XI (Access To Property) and Section XV (Indemnification, Assignment Of Rights, And Insurance) of this document.

Agreed this 11 day of July, 1997.

By Stanley G. Jones

Title Chairman

The undersigned representative of the Tulalip Section 17 Corporation certifies that they are fully authorized to enter into the terms and conditions described in Section XI (Access To Property) and Section XV (Indemnification, Assignment Of Rights, And Insurance) of this Order and to bind the Tulalip Section 17 Corporation to the terms and conditions contained in Section XI (Access To Property) and Section XV (Indemnification, Assignment Of Rights, And Insurance) of this document.

Agreed this 19 day of July, 1997.

By Stanley G. James

Title Chairman

The undersigned representative of the United States Department of the Interior, Bureau of Indian Affairs, certifies that they are fully authorized to enter into the terms and conditions described in Section XI (Access To Property) of this Order and to bind the Bureau of Indian Affairs to the terms and conditions contained only in Section XI (Access To Property) of this document, in accordance with Paragraph 1 of this Order.

Agreed this 11 day of August, 1997.

By _____

Title _____

IT IS SO ORDERED AND AGREED this 21 day of August, 1997.

By: _____ Date: 8/21/97
for RANDALL F. SMITH
Director
Office of Environmental Cleanup
U.S. Environmental Protection Agency, Region 10

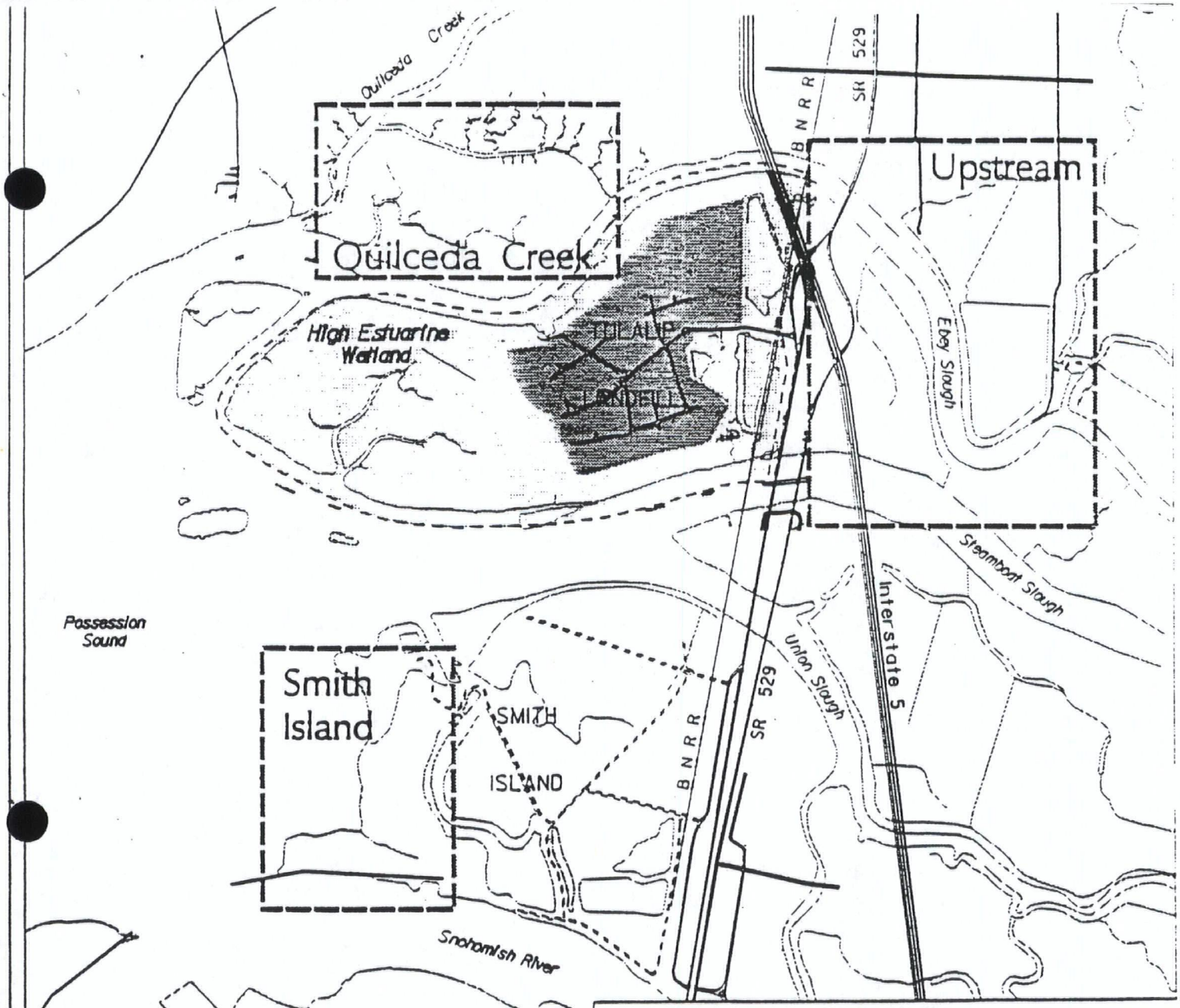
EFFECTIVE DATE: August 21, 1997.

APPENDIX A

INTERIM RECORD OF DECISION

APPENDIX B

SITE LOCATION MAP



Tulalip Landfill
Marysville, WA - April, 1993

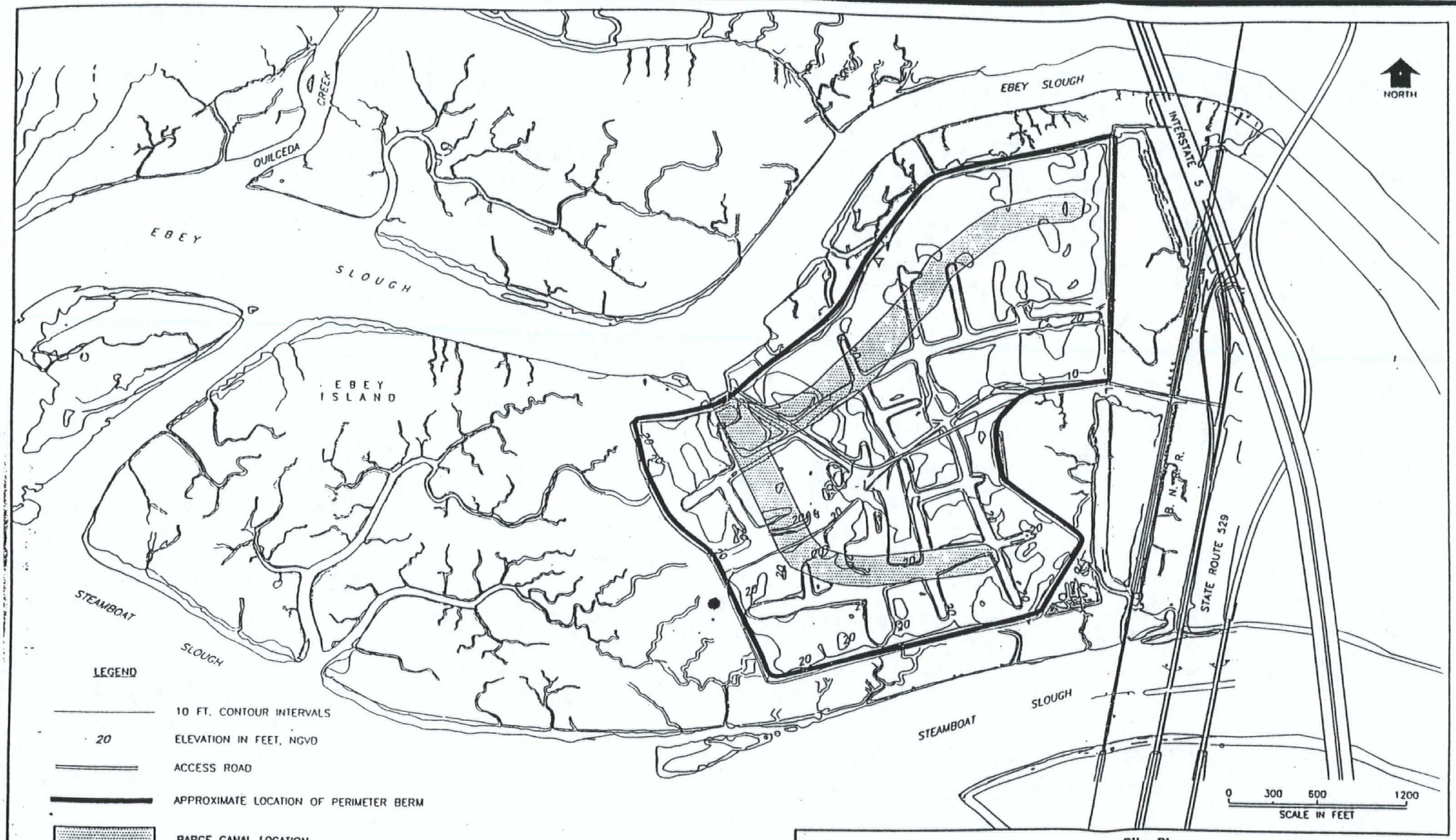
Figure 2–2
Tulalip Landfill Study Area: Delineation of On–Source and Off–Source Areas

EXPLANATION
- Study Area Boundary
- On-Source Area
- Off-Source Area
- Background Study Area

WESTON

N

0 meters 200
0 feet 400



SOURCE: U.S. ARMY CORP OF ENGINEERS, U.S. ENVIRONMENTAL PROTECTION AGENCY.
DATE OF MAP PREPARATION NOVEMBER 1992.

Site Plan

Tulalip Landfill
Marysville, Washington

Figure 1-2

APPENDIX C

STATEMENT OF WORK FOR ON-SOURCE CONTROL RESPONSE ACTION

AOC STATEMENT OF WORK
ON-SOURCE CONTROL RESPONSE ACTION
TULALIP LANDFILL SUPERFUND SITE
MARYSVILLE, WASHINGTON

July 25, 1997

LCM:AOCSOW4

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1. INTRODUCTION

1.1 Purpose

The purpose of this Statement of Work (SOW) is to set forth requirements for conducting the response action at the Tulalip Landfill Superfund Site (Site) in Marysville, Washington. Major elements of work under this response action include the following:

- Site security;
- Design work related to stabilizing and capping the landfill;
- Initial site preparation work and stabilization;
- Certain field sampling activities;
- Pre-purchasing of certain construction materials;
- Dewatering and surface water drainage control; and
- Certain Initial Construction Activities;

Washington Waste Hauling & Recycling, Incorporated (WMI) shall follow the approved Response Action Work Plan, provisions of the Administrative Order on Consent (AOC), this Statement of Work (SOW), and any additional guidance provided by EPA for the response action at the Tulalip Landfill.

2. SUBMISSION OF DELIVERABLES

2.1 List of Deliverables and Schedule

WMI shall submit to EPA for review and approval three (3) paper copies of the following deliverables. EPA may request up to five copies of certain documents for review purposes. Two paper copies of each deliverable shall be submitted to the Tulalip Tribes. The deliverables include the following:

- Monthly Progress Reports
- Response Action Work Plan which includes the Design and Sampling Analysis Plan, Field Investigation Quality Assurance Project Plan, Health and Safety Plan, Contingency Plan, and Site Management Plan
- Preliminary Design Submission
- Pre-final Design Submission
- Final Design Submission
- Construction Quality Assurance/Quality Control Plan
- Support Plans which include the Regrading Erosion Control Plan, Well Abandonment Plan, Monitoring Well Installation Plan

Except as otherwise provided herein, WMI shall submit the deliverables in accordance with the following major milestone schedule:

- Response Action Work Plan Outline (Design Basis discussion) -

within 15 days after EPA's issuance of an authorization to proceed.

- Draft Response Action Work Plan - within 30 days after EPA's issuance of an authorization to proceed.
- Preliminary Design - within 60 days after receipt of EPA approval of the Response Action Work Plan.
- Pre-final Design - within 60 days after receipt of EPA comments on the Preliminary Design submission.
- Final Design - within 30 days after receipt of EPA comments on the Pre-final Design submission.

This schedule does not specify due dates for all deliverables and activities listed above because it is not possible to schedule all future work at this time. WMI shall propose due dates for approval by EPA for specific due dates not included above.

2.2 Review of Deliverables

EPA, coordinating with the Tulalip Tribe will review deliverables submitted by WMI to determine if the deliverables meet the objectives and requirements outlined in this SOW and the ROD. In instances where EPA requests modification to the deliverables, WMI shall incorporate the required modifications and resubmit the deliverable or an addendum for approval within a reasonable time frame specified by EPA.

2.3 Confirmation of Deliverable Due Dates

WMI shall confirm the date for submission of a deliverable in the monthly progress reports to allow EPA to schedule review of the deliverable(s).

3. WMI KEY PERSONNEL

3.1 Key Personnel

All aspects of the work to be performed by WMI shall be under the supervision of a qualified project manager.

As necessary under the Response Action, a Construction Quality Assurance (CQA) Official shall perform oversight during field activities to confirm to EPA and WMI that work performed is meeting project requirements. The CQA Official shall be a registered Professional Engineer who is either a self-employed consultant, or an employee of an independent consulting firm (ie. a person, agency, or firm not related to, or an entity of, WMI or RUST Environment and Infrastructure). Staff working in the field directly under the CQA Official do not need to be registered Professional Engineers.

3.2 Laboratory Qualifications

WMI shall provide documentation of its testing laboratories' qualifications in the Response Action Work Plan or as an addendum to that deliverable when laboratory services are required.

4. WORK TO BE PERFORMED

4.0 Response Action Performance Standards

WMI shall ensure that the Response Action is designed and constructed in such a way that it also meets the following performance standards:

(a) Prevent direct contact of people, animals, and surface water with landfill waste.
The landfill cover system shall be designed and constructed to prevent people, animals, and surface water from coming in contact with the landfill waste.

(b) Prevent landfill waste from being wind blown.
During construction activities, dust will be controlled as provided for in the Construction Quality Assurance Plan, the Response Action Work Plan and other work plans. The landfill cover system shall be designed and constructed to prevent landfill waste from being wind blown during and after construction.

(c) Provide long term minimization of migration of liquids through the landfill.
The landfill cover system design requires, among other things, the placement of a low hydraulic conductivity layer over the landfill waste. The landfill cover system shall be designed and constructed and to minimize infiltration of rainfall through the landfill.

(d) Function with minimum maintenance.
1) The landfill cover system shall be designed and constructed with enough slope to accommodate short and long term settlement and maintain positive drainage such that maintenance for ponding surface water will be minimal.

2) The landfill cover system shall be designed and constructed so that short and long term erosion is minimized.

3) A perimeter road and internal roads shall be designed and constructed to accommodate specified maintenance activities as necessary for future operation and maintenance of the site.

4) Landfill cover system building materials, including fill materials and all exposed and relocated waste, shall be properly compacted, as specified in the Remedial Design, to minimize future settlement.

5) All surface areas of the landfill cover system shall be designed and constructed so that it can be walked on, and driven on with low pressure vehicles, anytime during the year for maintenance.

(e) Promote drainage and minimize erosion or abrasion of the cover.
The landfill cover system shall be designed and constructed with enough slope to accommodate short and long term settlement and maintain positive drainage. The cover and vegetative layer (or other approved surface materials) shall be designed and constructed with shallow slopes to minimize wind and runoff erosion. Swales shall also be designed and constructed to minimize erosion with energy dissipators at the ends as necessary.

(f) Prevent damage to the cover from a 100-year flood event.
The landfill cover system shall be designed and constructed so that its integrity will be maintained during a 100-year flood event and other major storm events (eg. a 24 hour, 25 year storm event).

(g) Accommodate settling and subsidence so that the cover's integrity is maintained.
Geotechnical field and laboratory tests will be conducted to evaluate the characteristics of the landfill and landfill cover system to ensure final grades are designed and constructed to accommodate short term and long term subsidence and settlement.

(h) Ensure that the perimeter berm or edge of the landfill is structurally stable.
Slope calculations will be performed as part of the geotechnical analyses to ensure the final design and configuration of the landfill and its perimeter are stable.

(i) Establish and implement a construction quality assurance (CQA) program for the cover system to ensure that the constructed cover meets or exceeds all design criteria and specifications. A CQA plan shall be developed as required in the SOW and the Response Action Work Plan and will address all phases of construction, including the relocating waste, and construction of the landfill cover system.

4.1 General Requirements for the Remedial Design and Response Action

4.1.1 Meetings

WMI shall conduct status meetings with EPA and the Tulalip Tribe representative(s) to discuss the progress of the work during the Response Action activity. The status meetings shall cover the following topics: progress and activities performed; significant findings; problems and corrective measures taken; quality assurance/quality control activities and findings; coordination issues impacting the work; significant future activities.

As requested by EPA, WMI shall participate in meetings other than those described above to discuss the work and progress.

4.1.2 Monthly Progress Reports

WMI shall submit to EPA with a copy to the Tulalip Tribe, monthly written progress reports during the Response Action. The progress reports shall address the following topics with respect to each reporting period:

- Progress made;
- Problems resolved;
- Problem areas and recommended solutions;
- Deliverables submitted;
- Schedule updates;
- Summary of key personnel changes;
- Summary of changes made in the Response Action activity;
- Summary of contacts made with representatives of the local community, public interest groups, or State government; and
- Projected work for the next reporting period.

4.2 Response Action Work Plan

WMI shall prepare and submit to EPA for approval a Response Action Work Plan which shall document the overall management strategy for performing the design of the Landfill cover system. The Work Plan shall provide for design and initial fieldwork activities related to the remedy set forth in the ROD and shall include plans and schedules for implementation of all tasks described in this SOW. A meeting schedule shall also be developed.

Site access agreements required to implement RD and/or Response Action activities shall be identified by WMI in the Response Action Work Plan and implemented prior to initiation of the Response Action or additional studies. Site access shall extend for the duration of the fieldwork.

The Response Action Work Plan shall also include the following:

4.2.1 Design Sampling and Analysis Plan

The Response Action Work Plan shall include a Design Sampling and Analysis Plan addressing field activities at the Site for data collection for the design. The plan shall describe the type, frequency and schedule for sampling and shall address sample collection and analyses methods, and analytical parameters.

4.2.2 Field Investigation Quality Assurance Project Plan

The Response Action Work Plan shall include a Field Investigation Quality Assurance Project Plan (QAPP). This plan shall address quality assurance sampling and analysis procedures for samples collected under the Design Sampling and Analysis Plan. As necessary, the QAPP shall be consistent with the requirements of the EPA Contract Lab Program (CLP) for laboratories proposed outside the CLP.

4.2.3 Health and Safety Plan

The Response Action Work Plan shall include a Health and Safety Plan to address the activities to be performed at the Site to conduct the RD and implement the Response Action. The Health and Safety Plan shall be developed to protect on-site personnel from physical, chemical and other potential hazards which may be posed by the Site during the response action and RD activities.

4.2.4 Contingency Plan

The Response Action Work Plan shall include a Contingency Plan to address responses to releases of waste material to the environment during field activities. The Contingency Plan will set forth procedures WMI shall follow to protect the potentially affected local, off-site population and environment. For example the contingency plan shall address potential releases of waste materials to surrounding wetlands, release of gases, and the release of fuel from construction equipment.

4.2.5 Site Management Plan

The Response Action Work Plan shall include a Site Management Plan describing requirements to be met by WMI to assure site security and control during the Response Action.

4.3 Remedial Design

Upon EPA approval of the Response Action Work Plan, WMI shall prepare and submit to EPA for approval, construction drawings and specifications to implement the Remedial Action. The design submissions shall be developed in phases as described below.

4.3.1 Design Submissions

WMI shall submit to EPA by the deadlines specified in the approved Response Action Work Plan, the following documents relating to the design of the landfill cover system:

4.3.1.1 Preliminary Design Submission

The Preliminary Design shall represent approximately 30% of the total design effort. The Preliminary Design shall reflect a level of effort such that the technical requirements and specifications of the project have been addressed and outlined so that they may be reviewed to determine whether the Final Design will provide an operable and usable Remedial Action. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the program. WMI shall include with the Preliminary Design submission design criteria, results of additional field sampling, preliminary plans, specifications in outline form, and calculations/modeling reflecting the same percentage of completion as the designs they support. The preliminary design shall include a detailed grading plan and erosion control plan, drainage plan and remaining support plans in outline form.

4.3.1.2 Pre-final Design Submission

The Pre-final Design shall represent approximately 90% of the total design effort. WMI shall include with the Pre-final Design submission, plans and specifications ready for procurement and implementation by WMI, and calculations/modeling supporting the design. WMI shall submit the Support Plans described in Subsection 4.4 of this SOW concurrent with submission of the Pre-final Design submission.

4.3.1.3 Final Design Submission

WMI shall incorporate any necessary modifications resulting from review of the Pre-final Design submission by EPA. For the Final Design submission, WMI shall submit to EPA either revised Technical Memoranda and/or addenda that document and incorporate the modifications.

4.4 Support Plans

If EPA determines necessary, WMI shall submit to EPA for approval the following plans, which support construction activities, concurrent and consistent with the Pre-final and Final Design submission.

4.4.1 Construction Quality Assurance/Quality Control Plan

If EPA determines it necessary, WMI shall submit to EPA a Construction Quality Assurance/Quality Control (QA/QC) Plan which will address the following:

- Responsibility and authority of the organizations and key personnel involved in the construction of the landfill cover system;
- Qualifications of the CQA Official and supporting inspection personnel;
- Observations and tests that will be used to monitor the construction, and inspections to verify compliance with all health and safety procedures, and environmental requirements;
- Sampling requirements; and
- Reporting requirements for the construction QA/QC activities.

4.4.2 Regrading Erosion Control Plan

If EPA determines it necessary, WMI shall submit to EPA a Regrading Erosion Control Plan. This plan shall incorporate appropriate erosion control measures to ensure that regrading activities do not result in erosion of on-source soil to off-source areas.

4.4.3 Well Abandonment Plan

If EPA determines it necessary, WMI shall submit a Well Abandonment Plan to EPA. This plan shall address well abandonment during field activities. The Well Abandonment Plan shall include the following: wells to be abandoned and rationale for abandonment; procedures to be used for well abandonment; and schedule for well abandonment.

4.4.4 Monitoring Well Installation Plan

If EPA determines it necessary, WMI shall submit to EPA a Monitoring Well Installation Plan. This plan shall address well/piezometer installation during the response action. The Monitoring Well Installation Plan shall include the following: wells/piezometers to be constructed; well/piezometer construction specifications; and schedule for well/piezometer installation.

4.5 Response Action

During the development of the Remedial Design, the Response Action field work will commence in accordance with the schedule approved by EPA.

4.5.1 Construction Administration

WMI shall execute the response action fieldwork activities according to the requirements and procedures developed in the

approved Response Action Work Plan and support plans.

Proposed change directives that do not affect the final designs will not require EPA approval, but must be confirmed in writing. Proposed change directives that do affect the final design require EPA prior approval, and WMI is not authorized to grant approval for such changes.

The CQA Official shall perform construction oversight activities on behalf of WMI and shall attend all regular construction meetings and all emergency meetings.

WMI shall provide EPA and the Tulalip Tribe with access to the construction records and shall provide copies of such records upon request by EPA. These records shall include:

- Daily records, diaries, and weekly summary reports of construction activities;
- Construction submissions;
- QC test results and construction inspection reports;
- Updated drawings that reflect ongoing construction activities.

WMI shall submit to EPA and the Tulalip Tribe monthly Construction Administration Compliance Reports. The reports shall include the following: certificates of equipment, materials, and workmanship; change directives; claim documentation; QA/QC reporting requirements; and schedule updates.

5.0 RESPONSE ACTION WORK ACTIVITIES AND BUDGET

WMI shall conduct the following work activities as provided for under this Statement of Work and the AOC. The cost estimates and work activities in the following table will be revised within 30 days after the Remedial Design is completed and the prime contractor is selected.

• Design Work	$779,000
• Site Preparation	$452,000
• Surface Water Management	$630,000
• Geotextile, Liner	$4,445,000
• Mobilization	$425,000
• Perimeter Berm	$1,500,000
• Construction Activities	$658,977
TOTAL	$8,889,977

APPENDIX D

PROVISIONS OF THE DRAFT WASTE MANAGEMENT AND TRIBES CONSENT DECREE WHICH ARE REFERENCED IN AND ARE ENFORCEABLE PARTS OF THE ADMINISTRATIVE ORDER ON CONSENT BETWEEN EPA AND WASTE MANAGEMENT, INC.

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON

UNITED STATES OF AMERICA Plaintiff, v. SEATTLE DISPOSAL COMPANY, a former Washington general partnership, and John Banchero, Sr., Josie Razore and their respective marital communities, WASHINGTON WASTE HAULING & RECYCLING, INC., THE MONSANTO COMPANY, BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON, LOCKHEED MARTIN CORPORATION, PORT OF SEATTLE, SEARS, ROEBUCK AND CO., R.W. RHINE, INC., CITY OF MERCER ISLAND, a Municipal Corporation of the State of Washington, THE SEATTLE SCHOOL DISTRICT, AND QUEMETCO, INC. Defendants.	CIVIL ACTION NO. TULALIP LANDFILL SUPERFUND SITE CONSENT DECREE WITH WASHINGTON WASTE HAULING & RECYCLING, INC., THE TULALIP SECTION 17 CORPORATION, AND THE TULALIP TRIBES OF WASHINGTON
THE TULALIP TRIBES OF WASHINGTON AND THE TULALIP SECTION 17 CORPORATION Intervenors/Defendants Under Clean Water Act	

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X. ACCESS AND INSTITUTIONAL CONTROLS

44. Commencing upon the date of lodging of this Consent Decree, Waste Management and the Tulalip Tribes and BIA, as appropriate, agree to provide the United States and their representatives, including EPA and its contractors, access at all reasonable times to the Site and any other property to which access is required for the implementation of this Consent Decree, to the extent access to the property is controlled by Waste Management, BIA, or the Tulalip Tribes, for the purposes of conducting any activity related to this Consent Decree, including, but not limited to:

a. Monitoring the Work;

b. Verifying any data or information submitted to the United States;

c. Conducting investigations relating to contamination at or near the Site;

d. Obtaining samples;

e. Assessing the need for, planning, or implementing additional response actions at or near the Site;

f. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Waste Management or the Tulalip Tribes or their agents, consistent with Section XXVII; and

g. Assessing Waste Management's and the Tulalip Tribes' compliance with this Consent Decree.

45. To the extent that the Site or any other property to which access is required for the implementation of this Consent Decree is owned or controlled by a person other than Waste Management or the Tulalip Tribes, Waste Management or the

Tulalip Tribes, as appropriate, shall use its best efforts to secure from such person access for Waste Management or the Tulalip Tribes, as well as for the United States and their representatives, including, but not limited to, their contractors, as necessary for that Settlor to effectuate this Consent Decree. For purposes of this paragraph "best efforts" includes the payment of reasonable sums of money in consideration of access not to exceed the fair market value of the access rights taken. No payments for access shall be required to be made to a person who owns such property who is also a potentially responsible party at the Tulalip Landfill Site. If any access required to complete the Work is not obtained within forty-five (45) days of the date of lodging of this Consent Decree, or within forty-five (45) days of the date EPA notifies a Settlor, in writing, that additional access beyond that previously secured is necessary, that Settlor shall promptly notify the United States, in writing, and shall include in that notification a summary of the steps that Settlor has taken to attempt to obtain access. The United States may, as it deems appropriate, assist that Settlor in obtaining access.

46.a. The Tulalip Tribes and the BIA, to the extent that BIA has the authority to do so, hereby grant Waste Management and its authorized representatives the right to enter upon the respective portions of the Site that are located on lands held in trust by the United States for the benefit of the Tulalip Tribes of Washington or the Tulalip Section 17

Corporation. Such right shall be deemed a non-exclusive license to Waste Management and shall be limited to all access necessary to perform activities required under this Consent Decree and shall not be revocable for the duration of Waste Management's activities required under this Decree.

b. The Tulalip Tribes hereby grant Waste Management and its authorized representatives a non-exclusive license of such rights as the Tulalip Tribes possesses for ingress and egress to the Site across adjacent property as derived from the following documents: (1) Right of Entry agreement between the State of Washington and the Tulalip Section 17 Corporation dated September 1, 1970; (2) Stipulated and Agreed Order Adjudicating Private Use of Necessity entered by the Snohomish County Superior Court, in Cause No. 108571, dated November 30, 1971; (3) Private Roadway and Crossing Agreement between Burlington Northern Inc. and the Tulalip Tribes dated August 16, 1971; (4) the Agreement between Edwin W. Hayes and the Tulalip Tribes of Washington dated November 4, 1971; and (5) any other documents granting the Tulalip Tribes or the Tulalip Section 17 Corporation access to the Site across adjacent property; collectively "the Access Documents." The Tulalip Tribes make no representation or warranty regarding the adequacy or effect of the access granted herein as sufficient for performing the activities required under this Decree. Such rights given to Waste Management under this subparagraph shall be limited to all access necessary to perform activities required under this Consent Decree and shall not be

revocable for the duration of Waste Management's activities required under this Decree.

c. Waste Management shall comply with any and all terms and conditions of the Access Documents unless otherwise directed by EPA and shall take reasonable care during performance of the work required under this Decree to avoid unnecessary impairment of rights of access to the Site of the Tulalip Tribes.

d. Nothing herein shall limit the right or ability of Waste Management to obtain from adjacent property owners separate rights of access supplemental to or in lieu of rights granted herein by the Tulalip Tribes. The Tulalip Tribes agree to provide assistance to Waste Management in obtaining additional access to the Site or to adjoining properties that is necessary to carry out any of the activities of Waste Management pursuant to this Decree, including but not limited to making written request for necessary consents or approval required under the Access Documents. Waste Management agrees that the obligation to provide such assistance does not obligate the Tulalip Tribes to provide compensation, incur liability or undertake litigation to acquire additional access on behalf of Waste Management. Waste Management retains the right to recover compensation from the Tulalip Tribes for any additional access rights that are requested by and conveyed to the Tulalip Tribes.

e. The Tulalip Tribes shall be provided a reasonable opportunity to review any proposed access improvements to be installed by Waste Management that are required under the Access

Documents. Roadway improvements necessary for access will be constructed at Waste Management's expense. The Tulalip Tribes agree that they shall be responsible for all costs of additional improvements requested by the Tulalip Tribes to the extent such additional improvements are beyond what would otherwise be required under the Access Documents or this Consent Decree.

f. The Tulalip Tribes and the BIA expressly reserve full rights of access to the Site as such rights currently exist, provided, however, that the Tulalip Tribes and the BIA shall not, in the exercise of their property rights or rights of access to the Site interfere with or impede Waste Management's access to the Site or adjacent property or activities in performance of the Work required under this Decree, except as required by 1) applicable federal statute, regulation or permit, 2) EPA directive or order, or 3) court order. The Tulalip Tribes and the BIA shall comply with all approved Work Plans as those plans pertain to Site access including, but not limited to, the Health and Safety Plan. Any subsequent grants of access to the Site or under the Access Documents by the Tulalip Tribes or the BIA or other conveyance of property rights affecting access to the Site to third parties shall be expressly subject to and subordinate to access rights granted to Waste Management herein for the duration of this Decree.

g. For purposes of Waste Management's indemnification rights against the Tulalip Tribes pursuant to Paragraph 103(b) of Section XX herein, the Tulalip Tribes and EPA agree as follows;

however, nothing in this subparagraph prevents Waste Management from asserting that any action may qualify as a Force Majeure event pursuant to Section XXI (Force Majeure) of this Decree:

(1) With respect to the Tulalip Tribes' obligation to grant access pursuant to subparagraphs 46.a. and 46.b. herein, the Tulalip Tribes and EPA agree that any inability of Waste Management to use such access for performance of the Work that arises due to circumstances beyond the control of the Tulalip Tribes shall constitute a Force Majeure event. If the inability of Waste Management to use such access arises from the Tulalip Tribes' negligent or wrongful action, the Tulalip Tribes agree that the limited waiver of sovereign immunity set forth in Paragraph 1.c. of Section II (Jurisdiction) of this Decree shall, subject to the limitations therein, apply to any claim of damages which Waste Management can establish occurred as a direct result of such negligent or wrongful action.

(2) With respect to the Tulalip Tribes' obligation to assist in obtaining additional access pursuant to subparagraph 46.d. of this Decree, the Tulalip Tribes and EPA agree that any failure by the Tulalip Tribes to assist in obtaining such additional access required by Waste Management for performance of the Work that arises due to circumstances beyond the

control of the Tulalip Tribes shall constitute a Force Majeure event. If the failure to assist in obtaining such additional access arises from the Tulalip Tribes' negligent or wrongful action, the Tulalip Tribes agree that the limited waiver of sovereign immunity set forth in Paragraph 1.c. of Section II (Jurisdiction) herein shall, subject to the limitations therein, apply to any claim of damages which Waste Management can establish occurred as a direct result of such negligent or wrongful action.

(3) With respect to the Tulalip Tribes' obligation not to interfere with or impede Waste Management's access to the Site or adjacent property or Waste Management's activities in performance of the Work pursuant to subparagraph 46.f. of this Decree, the Tulalip Tribes and EPA agree that any delay resulting from the Tulalip Tribes' breach of this obligation due to circumstances beyond the control of the Tulalip Tribes shall constitute a Force Majeure event. If the breach of this obligation is due to the Tulalip Tribes' negligent or wrongful action, the Tulalip Tribes agree that the limited waiver of sovereign immunity set forth in Paragraph 1.c. of Section II (Jurisdiction) herein shall, subject to the limitations therein, apply to any claim of damages which Waste Management can establish

occurred as a direct result of such negligent or wrongful action.

(4) With respect to Waste Management's obligations under Section XVIII (Emergency Response) of this Decree, the Tulalip Tribes and EPA agree that any delay in the implementation of the Work resulting from an emergency situation under Section XVIII due to circumstances beyond the control of the Settling Parties shall constitute a Force Majeure event. If the emergency situation under Section XVIII is the direct result of the Tulalip Tribes' negligent or wrongful action, the Tulalip Tribes agree that the limited waiver of sovereign immunity set forth in Paragraph 1.c. of Section II (Jurisdiction) herein shall, subject to the limitations therein, apply to any claim of damages which Waste Management can establish occurred as a direct result of such negligent or wrongful action.

47. Notwithstanding any provision of this Consent Decree, the United States retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

48. When design and construction of the Interim Remedial Action selected in the Interim ROD are complete, EPA and the Tulalip Tribes shall develop and approve a land use plan

according to the Interim ROD entitled "Routine Use of Tulalip ('Big Flats') Landfill," the purpose of which shall be to identify future uses of the Site that are compatible with the continued integrity of the cover system and protective of the Off-Source Areas of the Site. Waste Management will be provided an opportunity to comment on the draft final version of this document. This document shall not impair either Waste Management's or the Tulalip Tribes' abilities to properly perform O&M in accordance with the O&M Work Plan developed pursuant to this Decree. This document shall be finalized and approved by EPA and the Tulalip Tribes no later than 365 days from the date EPA issues its Certification of Completion of Interim Remedial Action to Waste Management pursuant to Paragraph 93.b. of this Decree. The "Routine Use of Tulalip ('Big Flats') Landfill" document shall, at a minimum, delineate routine Site uses that may occur on the surface of the landfill cover and uses that shall not occur, in accordance with the land use restrictions established in the Interim ROD. Any land use and ground water use restrictions will be imposed on all necessary portions of property that comprises the Site as covenants running with the land for the purpose of protecting human health and the environment by protecting in perpetuity the Interim Remedial Action and other response actions taken at the Site under this Decree. The land use and ground water use restrictions shall be created by the Tulalip Tribes as covenants running with the land no later than 120 days from the date the "Routine Use of Tulalip

('Big Flats') Landfill" document has been finalized by EPA and the Tulalip Tribes. Such restrictions may include, but will not necessarily be limited to, items such as preserving existing access roadways to the landfill, maintenance of an "environmental buffer zone" which will be created on the surface of the landfill cover, and signage at the Site which summarizes the activities which may occur on the landfill cover as well as restrictions on use of the landfill cover and the location of the "environmental buffer zone."

[redacted]

49. In addition to any other requirement of this Consent Decree, Waste Management shall submit to EPA the number of copies of written monthly progress reports as specified in the SOW and associated Work Plans that: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous month; (b) include a summary of all results of sampling and tests and all other data received or generated by Waste Management or its contractors or agents in the previous month; (c) identify all Work Plans, plans, and other deliverables required by this Consent Decree completed and submitted during the previous month; (d) describe all actions, including, but not limited to, data collection and implementation of Work Plans, which are scheduled for the next sixty (60) days and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts, and/or Pert charts; (e) include

Section XXII (Dispute Resolution) and EPA's action is overturned or modified pursuant to that section. The provisions of Section XXII (Dispute Resolution) and Section XXIII (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is upheld, stipulated penalties shall accrue for each violation from the date on which the initial submission was originally required, as provided in Section XXIII.

61. All plans, reports and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event EPA approves or modifies a portion of a plan, report, or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

XIII. PROJECT MANAGERS

62. All aspects of the Work to be performed by the Settlors pursuant to this Consent Decree shall be under the direction and supervision of a qualified project manager, the selection of which shall be subject to disapproval by EPA. Within fifteen (15) days after the effective date of this Consent Decree, each Settlor shall notify EPA, in writing, of the name and qualifications of the project manager, including primary support entities and staff, proposed to be used in carrying out Work under this Consent Decree. If, at any time, a Settlor

proposes to use a different Project Manager, that Settlor shall notify EPA and shall obtain an authorization to proceed from EPA before the new project manager performs any Work under this Consent Decree.

63. EPA will review each Settlor's selection of a project manager according to the terms of this Section of the Decree. If EPA disapproves of the selection of the project manager, either Waste Management or the Tulalip Tribes, as appropriate, shall submit to EPA within thirty (30) days after receipt of EPA's disapproval of the project manager previously selected, a list of project managers, including primary support entities and staff, that would be acceptable to that Settlor. EPA will thereafter provide written notice to that Settlor of the names of the project managers that it disapproves and an authorization to proceed with respect to any of the others. That Settlor may then select any approved project manager from that list and shall notify EPA of the name of the project manager selected within twenty-one (21) days of EPA's designation of approved project managers.

64. If a Project Manager or Alternate Project Manager initially designated is changed, the identity of the successor will be given to the other Parties at least five (5) working days before the changes occur, unless impracticable, but in no event later than the actual day the change is made. Each Settlor's Project Manager shall be subject to disapproval by EPA pursuant to this Section of this Decree and shall have the technical

expertise sufficient to adequately oversee all aspects of the Work. Each Settlors' Project Manager shall not be an attorney for a Settlor in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities.

65. Plaintiff may designate other representatives, including, but not limited to, EPA employees, and federal contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Manager and Alternate Project Manager shall have the authority lawfully vested in a Remedial Project Manager (RPM) and an On-Scene Coordinator (OSC) by the NCP, 40 C.F.R. Part 300. In addition, EPA's Project Manager or Alternate Project Manager shall have authority, consistent with the NCP, to halt any Work required by this Consent Decree and to take any necessary response action when s/he determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

[redacted] TRANSFER OF SETTLEMENT FUNDS [redacted]ASTE MANAGEMENT

A. DISBURSE[redacted]T FROM E[redacted]PECIAL ACCOUNT

66. EPA h[redacted] and will deposit the United States' proce[redacted]rom EPA's de minimis [redacted]lements in connection with t[redacted]ite, including any interest earned thereon, [redacted] Site-

XX. INDEMNIFICATION AND INSURANCE

103.a. The United States does not assume any liability by entering into this agreement or by virtue of any designation of Waste Management as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Waste Management shall indemnify, save and hold harmless the United States and the Tulalip Tribes and their officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Waste Management, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of Waste Management as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Further, Waste Management agrees to pay the United States and the Tulalip Tribes all costs they incur including, but not limited to, attorneys fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or the Tulalip Tribes based on negligent or other wrongful acts or omissions of Waste Management, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree. The United States and the Tulalip Tribes shall

not be held out as a party to any contract entered into by or on behalf of Waste Management in carrying out activities pursuant to this Consent Decree unless otherwise agreed to in writing. Neither Waste Management nor any of its contractors shall be considered an agent of the United States.

b. The United States does not assume any liability by entering into this agreement or by virtue of any designation of the Tulalip Tribes as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). The Tulalip Tribes shall indemnify, save and hold harmless the United States and Waste Management and their officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of the Tulalip Tribes, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of the Tulalip Tribes as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Further, the Tulalip Tribes agrees to pay the United States and Waste Management all costs they incur including, but not limited to, attorneys fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or Waste Management based on negligent or other wrongful acts or omissions of the Tulalip Tribes, its

officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree. The United States and Waste Management shall not be held out as a party to any contract entered into by or on behalf of the Tulalip Tribes in carrying out activities pursuant to this Consent Decree unless otherwise agreed to in writing. Neither the Tulalip Tribes nor any of its contractors shall be considered an agent of the United States.

c. The United States shall give the appropriate Settlor notice of any claim for which the United States plans to seek indemnification pursuant to Paragraph 103.a. and 103.b., and shall consult with the Settlors prior to settling such claim.

104. Each Settlor waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between that Settlor and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, each Settlor shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between that Settlor and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

105. No later than fifteen (15) days before commencing any on-Site Work, Waste Management shall secure, and shall maintain comprehensive general liability insurance with limits of ten (10) million dollars, combined single limit, and automobile liability insurance with limits of one (1) million dollars, combined single limit, naming the United States as additional insureds. In addition, no later than fifteen (15) days before commencing any on-Site O&M Work, the Tulalip Tribes shall secure, and shall maintain comprehensive general liability insurance with limits of five (5) million dollars, combined single limit, and automobile liability insurance with limits of one (1) million dollars, combined single limit, naming the United States as additional insureds. Once Waste Management has begun on-Site O&M work and after receipt of written approval from EPA, it can reduce its comprehensive general liability insurance limit from ten (10) million dollars to five (5) million dollars. In addition, for the duration of each Settlor's obligations under this Consent Decree, each Settlor shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of that Settlor in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, each Settlor shall provide to EPA certificates of such insurance and a copy of each insurance policy. Each Settlor shall resubmit such certificates and copies of policies required by this Paragraph

each year on the anniversary of the effective date of this Consent Decree. If a Settlor demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, that Settlor need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

XXI. FORCE MAJEURE

106. "Force Majeure", for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of a Settlor, of any entity controlled by a Settlor, or of a Settlor's contractors, that delays or prevents the performance of any obligation under this Consent Decree despite a Settlor's best efforts to fulfill the obligation. The requirement that a Settlor exercises "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential Force Majeure event and best efforts to address the effects of any potential Force Majeure event (1) as it is occurring, and (2) following the potential Force Majeure event, such that the delay is minimized to the greatest extent possible. "Force Majeure" does not include financial inability to complete the Work or a failure to attain the Performance Standards as specified in the Interim ROD and as further delineated in the SOW.

107. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, a Settlor shall orally notify EPA's Project Manager or, in his or her absence, EPA's Alternate Project Manager or, in the event both of EPA's designated representatives are unavailable, the Director of the Office of Environmental Cleanup, EPA Region 10, within ten (10) days of when the invoking Settlor first knew that the event might cause a delay. Within five (5) days thereafter, the invoking Settlor shall provide to EPA, in writing, an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; the invoking Settlor's rationale for attributing such delay to a Force Majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of the invoking Settlor, such event may cause or contribute to an endangerment to public health, welfare, or the environment. The invoking Settlor shall include with any notice all available documentation supporting its claim that the delay was attributable to a Force Majeure. Failure to comply with the above requirements shall preclude the invoking Settlor from asserting any claim of Force Majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. The invoking Settlor shall be

deemed to know of any circumstance of which the invoking Settlor, any entity controlled by the invoking Settlor, or the invoking Settlor's contractors knew or should have known.

108. If EPA agrees that the delay or anticipated delay is attributable to a Force Majeure event, the time for performance of the obligations under this Consent Decree that are affected by the Force Majeure event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the Force Majeure event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a Force Majeure event, EPA will notify the invoking Settlor, in writing, of its decision. If EPA agrees that the delay is attributable to a Force Majeure event, EPA will notify the invoking Settlor, in writing, of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event.

109. If the invoking Settlor elects to invoke the dispute resolution procedures set forth in Section XXII (Dispute Resolution), it shall do so no later than fifteen (15) days after receipt of EPA's notice. In any such proceeding, the invoking Settlor shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be

warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that the invoking Settlor complied with the requirements of Paragraphs 107 and 108, above. If the invoking Settlor carries this burden, the delay at issue shall be deemed not to be a violation by the invoking Settlor of the affected obligation of this Consent Decree identified to EPA and the Court.

XXII. DISPUTE RESOLUTION

110. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in this section shall not apply to actions by the United States to enforce obligations of the Settlors that have not been disputed in accordance with this section.

111. Other than a dispute regarding a "Mediated Matter", as that term is defined in Paragraph 112.b. below, any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is extended by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute. A dispute regarding a "Mediated Matter" shall in the first instance shall be subject to the

informal dispute resolution provisions specified in Paragraph 112 below.

112.a. Any dispute of a matter subject to mediation under this Paragraph (hereinafter referred to as the "Mediated Matters") which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other party a written Notice of Dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is extended by written agreement of the parties to the dispute. After the end of this twenty (20) day period, Waste Management and/or EPA shall have an additional five (5) days to submit a written request for informal mediation of a Mediated Matter. Unless Waste Management or EPA requests mediation of a Mediated Matter specified in Paragraph 112.b. below in Waste Management's or EPA's written request for informal mediation (which must be submitted five (5) days after termination of the twenty (20) day informal negotiation period specified above), then the resolution of the dispute shall proceed under the provisions of Paragraphs 111, and 113 through 116 of this Decree. If Waste Management or EPA requests informal mediation pursuant to this Paragraph, then EPA and Waste Management shall meet to discuss an extension of time for informal resolution of the dispute and to establish informal mediation procedures to govern the use of mediation to assist EPA

and Waste Management in resolving the dispute informally. Once the mediation procedures have been established, such procedures shall apply to the dispute of a Mediated Matter, rather than the informal procedures of Paragraph 111. EPA and Waste Management agree that the mediation provisions established under this Paragraph will only apply to disputes regarding Mediated Matters.

b. For purposes of this Paragraph, the term "Mediated Matters" shall only include disputes regarding the following: 1) EPA's decision under Paragraphs 76.a. and 76.c. of this Decree that Waste Management is either materially failing to construct or has materially failed to construct the Interim Remedial Action selected in the Interim ROD in a manner which will allow the final Interim Remedial Action to meet the Performance Standards contained in the Interim ROD and as further delineated in the SOW attached to this Decree; or 2) EPA's decision under Paragraphs 76.a. and 76.c. of this Decree that Waste Management is either materially failing to construct or has materially failed to construct the Interim Remedial Action selected in the Interim ROD in accordance with the time frames specified in the SOW and associated Work Plans, as such documents are modified pursuant to the terms of this Consent Decree, wherein such delay in performance of the Work by Waste Management is not approved by EPA in writing, or such delay is not otherwise excused by EPA or the Court. Discussions regarding a Mediated Matter include all issues surrounding the dispute, including whether the administrative record of the dispute compiled by EPA regarding a

"Mediated Matter" was compiled by EPA in a fair and equitable manner and in accordance with CERCLA and the NCP. Unless otherwise agreed to by EPA and Waste Management in writing, only Mediated Matters may be the subject of a mediation process.

c. If for any reason EPA and Waste Management are unable to select a mediator, or are unable to approve and execute a contract for mediation services, or are unable to complete the mediation within the time periods specified for mediation as agreed to between EPA and Waste Management, then EPA may proceed as provided in Paragraphs 113 through 116 of this Consent Decree.

d. Unless EPA and Waste Management agree otherwise, in writing, the mediator's activity shall be as specified in this Paragraph. The mediator's role shall be to assist in negotiation between EPA and Waste Management and mediate the dispute. In order to assist the mediator, if EPA and Waste Management agree, the parties to the dispute may submit written statements of position to the mediator. Such statements submitted to the mediator shall not be part of the administrative record in any subsequent administrative or judicial proceeding or other future action regarding the subject matter of the mediation. If it will assist in resolution of the dispute, and upon request of either party, the mediator may render an opinion on the merits of the dispute. Any opinion rendered by the mediator shall not be made part of the administrative record. Mediation sessions shall not be recorded verbatim and no formal minutes or transcripts shall be maintained.

e. Any agreement reached by EPA and Waste Management to resolve a dispute of a "Mediated Matter" under this Paragraph shall be in writing and signed by both EPA and Waste Management, and shall be incorporated into and become an enforceable element of this Consent Decree. If any such agreement is reached between the parties regarding the dispute of a "Mediated Matter" under this Paragraph, and the agreement is not signed by both of the Parties within seven (7) days after the resolution of the dispute, the agreement shall be null and void, and the Parties shall then have five (5) days to submit their respective written Statements of Position to the EPA Region 10 Director of the Office of Environmental Cleanup as specified in Paragraph 113.a. below. If after completion of mediation pursuant to this Paragraph the Parties were unable to reach an agreement resolving the dispute, then the Parties shall have five (5) days to submit their respective written Statements of Position to the EPA Region 10 Director of the Office of Environmental Cleanup as specified in Paragraph 113.a. below. The EPA Region 10 Director of the Office of Environmental Cleanup will issue a final administrative decision resolving the dispute pursuant to Paragraph 114.b. of this Decree, and this final administrative decision shall be binding on Waste Management, subject only to the right to seek judicial review pursuant to Paragraph 114.c. and 114.d. of this Consent Decree.

113.a. In the event that the parties cannot resolve a dispute by informal negotiations under either Paragraph 112 (for

disputes regarding "Mediated Matters") or Paragraph 111 (for all other disputes arising under this Consent Decree), then the position advanced by EPA shall be considered binding unless, within five (5) days after the conclusion of the informal negotiation period, a Settlor invokes the formal dispute resolution procedures of this section by serving on the United States a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by that invoking Settlor. The Statement of Position shall specify the invoking Settlor's position as to whether formal dispute resolution should proceed under Paragraphs 114 or 115.

b. Within fourteen (14) days after receipt of the invoking Settlor's Statement of Position, EPA will serve on the invoking Settlor EPA's Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 114 or 115. Within seven (7) days after receipt of EPA's Statement of Position, the invoking Settlor may submit a Reply.

c. If there is disagreement between EPA and the invoking Settlor as to whether dispute resolution should proceed under Paragraph 114 or 115, the parties to the dispute shall follow the procedures set forth in the paragraph determined by

EPA to be applicable. However, if the invoking Settlor ultimately appeals to the Court to resolve the dispute, the Court shall determine which paragraph is applicable in accordance with the standards of applicability set forth in Paragraphs 114 and 115.

114. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this paragraph. For purposes of this paragraph, the adequacy of any response action includes, without limitation: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and (2) the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by any Settlor regarding the validity of the Interim ROD's provisions.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

b. The Director of the Office of Environmental Cleanup, EPA Region 10, or his designee, will issue a final

administrative decision resolving the dispute based on the administrative record described in Paragraph 114.a. This decision shall be binding upon the invoking Settlor, subject only to the right to seek judicial review pursuant to Paragraph 114.c. and d.

c. Any administrative decision made by EPA pursuant to Paragraph 114.b. shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by the invoking Settlor with the Court and served on all Parties within ten (10) days of receipt of EPA's decision. The motion shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to the invoking Settlor's motion.

d. In proceedings on any dispute governed by this paragraph, the invoking Settlor shall have the burden of demonstrating that the decision of the Director of the Office of Environmental Cleanup is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to Paragraph 114.a.

115. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative

record under applicable principles of administrative law, shall be governed by this paragraph.

a. Following receipt of the invoking Settlor's Statement of Position submitted pursuant to Paragraph 113, the Director of the Office of Environmental Cleanup, EPA Region 10, will issue a final decision resolving the dispute. The Office of Environmental Cleanup Director's decision shall be binding on the invoking Settlor unless, within ten (10) days of receipt of the decision, the invoking Settlor files with the Court and serves on the parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to the invoking Settlor's motion.

b. Notwithstanding Paragraph M of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this paragraph shall be governed by applicable principles of law.

116. The invocation of formal dispute resolution procedures under this section shall not extend, postpone, or affect in any way any obligation of a Settlor under this Consent Decree not directly in dispute, unless EPA or the Court agrees otherwise. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 121.

Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree as provided in Section XXIII (Stipulated Penalties) of this Decree. In the event that Waste Management or the Tulalip Tribes does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XXIII (Stipulated Penalties).

XXIII. STIPULATED PENALTIES

117. Each Settlor shall be liable for stipulated penalties in the amounts set forth in Paragraphs 118, 119, and 120 to the United States for its failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XXI (Force Majeure) or excused under Section XXII (Dispute Resolution). "Compliance" by a Settlor shall include completion by that Settlor of the activities required of it under this Consent Decree or any Work Plan or other plan approved under this Consent Decree identified below in accordance with all applicable requirements of law, this Consent Decree, the SOW, any plans or other documents approved by EPA pursuant to this Consent Decree, and within the specified time schedules established by and approved under this Consent Decree.

118.a. The following stipulated penalties shall accrue to a non-compliant Settlor per violation per day for any noncompliance by that Settlor identified in Subparagraph:

this Consent Decree it will notify the United States, in writing, no later than sixty (60) days prior to the initiation of such suit or claim.

152. In any subsequent administrative or judicial proceeding initiated by any party with respect to natural resource damages, payments due under this Decree, or compliance by Waste Management with the AOC for RI/FS for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, the Parties shall not assert or maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this paragraph affects the enforceability of the covenants not to sue set forth in Section XXIV (Covenants Not To Sue By United States).

XXVII. ACCESS TO INFORMATION

153. Each Settlor shall provide to EPA, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain-of-custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Each Settlor shall also make

available to EPA for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

154.a. A Settlor may assert business confidentiality claims covering part or all of the documents or information submitted to Plaintiff under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA, or if EPA has notified a Settlor that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), the public may be given access to such documents or information without further notice to that Settlor.

b. A Settlor may assert that certain documents, records, and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If a Settlor asserts such a privilege in lieu of providing documents, it shall provide the Plaintiff with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a

description of the contents of the document, record, or information: and (6) the privilege asserted by that Settlor. However, no documents, reports, or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

155. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XXVIII. RETENTION OF RECORDS

156. Until ten (10) years after Waste Management's receipt of EPA's notification pursuant to Paragraph 93.b. of Section XVII (Certification of Completion), Waste Management shall preserve and retain all records and documents now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or relate in any manner to the liability of any person for response actions conducted and to be conducted at the Site, regardless of any corporate retention policy to the contrary. Until ten (10) years after Waste Management's receipt of EPA's notification pursuant to Paragraph 93.b. of Section XVII (Certification of Completion), Waste Management shall also instruct its contractors and agents to preserve all documents, records, and information of whatever kind, nature, or description relating to the performance of the Work.

157. Until ten (10) years after Waste Management's receipt of EPA's notification pursuant to Paragraph 93.b. of Section XVII (Certification of Completion), the Tulalip Tribes shall preserve and retain all records and documents now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or relate in any manner to the liability of any person for response actions conducted and to be conducted at the Site, regardless of any tribal record retention policy to the contrary. Until ten (10) years after Waste Management's receipt of EPA's notification pursuant to Paragraph 93.b. of Section XVII (Certification of Completion), the Tulalip Tribes shall also instruct its contractors and agents to preserve all documents, records, and information of whatever kind, nature, or description relating to the performance of the Work.

158. At the conclusion of the time periods specified in Paragraphs 156 and 157 above, Waste Management and the Tulalip Tribes, as applicable, shall notify the United States at least ninety (90) days prior to the destruction of any such records or documents, and, upon request by the United States, Waste Management and the Tulalip Tribes, as applicable, shall deliver any such records or documents to EPA. Each Settlor may assert that certain documents, records, and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If a Settlor asserts such a privilege, it shall provide the Plaintiffs with the following:

(1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by that Settlor. However, no documents, reports, or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

159. Each Settlor hereby certifies individually that, to the best of its knowledge and belief, after thorough inquiry, that since the date EPA issued a general notice letter to Waste Management, it has not knowingly altered, mutilated, discarded, destroyed, or otherwise disposed of any records, documents, or other information relating to its potential liability regarding the Site which are the sole record of factual information, except for the one specific instance where Waste Management has informed EPA that Waste Management had destroyed or altered such documents in the ordinary course of Waste Management's business in compliance with state and federal law and were not destroyed for an improper purpose. Each Settlor warrants that it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

APPENDIX G

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CLERK U.S. DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
DEPUTY

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON

UNITED STATES OF AMERICA Plaintiff, v. SEATTLE DISPOSAL COMPANY, a former Washington general partnership, John Banchero, Sr. Josie Razore and their respective marital communities, WASHINGTON WASTE & HAULING, INC. MONSANTO COMPANY, BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON, LOCKHEED MARTIN CORPORATION, PORT OF SEATTLE, SEARS, ROEBUCK AND CO., R.W. RHINE, INC., CITY OF MERCER ISLAND, a Municipal Corporation of the State of Washington, the SEATTLE SCHOOL DISTRICT, and QUEMETCO, INC. Defendants. THE TULALIP TRIBES OF WASHINGTON AND THE TULALIP SECTION 17 CORPORATION, Intervenors/Defendants Under the Clean Water Act.	CIVIL ACTION NO. _____ C97-1462 TULALIP LANDFILL CONSENT DECREE WITH THE SDC DEFENDANTS

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I. BACKGROUND

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), filed a Complaint in this matter pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9606 and 9607, against Seattle Disposal Company, John Banchero, Sr., Josie Razore, and their respective marital communities; Washington Waste Hauling & Recycling, Inc. ("Waste Management"), Monsanto Company, Board of Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., R.W. Rhine, Inc., City of Mercer Island, the Seattle School District, and Quemetco, Inc. The United States in its Complaint also filed an action against the Tulalip Tribes of Washington and the Tulalip Section 17 Corporation pursuant to Sections 301, 309 and 311 of the CWA, 33 U.S.C. §§ 1311, 1319, and 1321. The Tulalip Tribes of Washington and the Tulalip Section 17 Corporation are Intervenors in this matter under CERCLA.

B. The United States in its Complaint seeks, inter alia: (1) reimbursement of costs incurred by EPA and the Department of Justice for response actions at the Tulalip Landfill Superfund Site in Marysville, Washington, together with accrued interest; (2) performance of studies and response work by the Defendants at the Site consistent with the National Oil and Hazardous Substance Pollution Contingency Plan, 40 C.F.R. Part

300 (as amended) ("NCP") and (3) civil penalties and injunctive relief under the CWA.

C. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of Washington (the "State") of negotiations with PRPs regarding the implementation of the remedial design and interim remedial action for the Site.

D. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the Bureau of Indian Affairs, U.S. Department of Interior, U.S. Fish and Wildlife Service, Department of Commerce, State of Washington Department of Ecology, and the Tulalip Tribes of Washington of negotiations with PRPs regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal trusteeship.

E. The SDC Defendants do not admit any liability arising out of the transactions or occurrences that were or could have been alleged in the Complaint, nor do they acknowledge that the release or threatened release of hazardous substances at or from the Site constitutes an imminent or substantial endangerment to the public health or welfare or the environment.

F. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List ("NPL"), set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on April 25, 1995, 60 Fed. Reg. 20330.

G. The SDC Defendants and other PRPs at the Site commenced in August 1993, pursuant to an Administrative Order on Consent, a Remedial Investigation and Feasibility Study ("RI/FS") for the Site.

H. The SDC Defendants and other PRPs at the Site completed the RI Report for the On-Source and Off-Source Areas and the FS for the On-Source Area of the Site on May 4, 1995.

I. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the On-Source Area FS and of the proposed plan for Interim Remedial Action on August 4, 1995, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for Interim Remedial Action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Regional Administrator based the selection of the Interim Remedial Action.

J. The decision by EPA on the Interim Remedial Action to be implemented at the Site is embodied in an Interim Record of Decision ("ROD"), executed on March 1, 1996, on which the State has given its concurrence. The Interim ROD includes a responsiveness summary to the public comments. Notice of the final plan for the Interim Remedial Action for the On-Source Area of the Site was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

K. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith, and that implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

THEREFORE, with the consent of the Parties to this Decree, it is ORDERED, ADJUDGED, AND DECREED:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and 42 U.S.C. §§ 6973, 9607 and 9613(b) and 33 U.S.C. § 1319(b). This Court also has personal jurisdiction over the SDC Defendants. The Complaint of the United States states a claim upon which relief may be granted. Solely for the purposes of this Consent Decree and the underlying Complaint, the SDC Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District and shall not challenge the terms of this Consent Decree, the standing of the Tulalip Tribes of Washington to intervene, this Court's jurisdiction to grant the Tulalip Tribes of Washington intervention or this Court's jurisdiction to enter and enforce

this Consent Decree in any action by Plaintiff to enter or to enforce the terms of this Consent Decree.

III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States and upon the SDC Defendants. Any change in ownership or corporate or other legal status, including, but not limited to, any transfer of assets or real or personal property, shall in no way alter the status or responsibilities of the SDC Defendants under this Consent Decree.

IV. DEFINITIONS

3. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree, or in any appendix attached hereto, the following definitions shall apply:

"Administrative Order on Consent" or "AOC" shall mean the Administrative Order on Consent between the United States and Waste Management for purposes of beginning Remedial Design and Site stabilization and Site preparation work;

"Administrative Order on Consent for RI/FS" or "AOC for RI/FS" shall mean the Administrative Order on Consent for the Remedial Investigation and Feasibility Study for the On-Source

Area of the Site which was signed by EPA on August 12, 1993, and to which the SDC Defendants, EPA and other PRPs are signatories.

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq., as the same may be amended or superseded.

"Consent Decree" shall mean this Decree and all appendices attached hereto. In the event of conflict between this Decree and any appendix, this Decree shall control.

"Clean Water Act" or "CWA" shall mean the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq., as the same may be amended or superseded.

"Day" shall mean a calendar day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or Federal Holiday, the period shall run until the close of business of the next working day.

"EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

"Generator Defendants" shall mean Monsanto Company, Board of Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., R.W. Rhine, Inc., City of Mercer Island, Quemetco, Inc., and the Seattle School District;

"Generator Defendants Consent Decree" shall mean the Consent Decree between the United States, including the Settling

Federal Agencies identified in Appendix B, and Monsanto Company, Board of Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., R.W. Rhine, Inc., City of Mercer Island (a municipal corporation of the state of Washington), the Seattle School District, Quemetco, Inc., attached hereto as Appendix D;

"Interest" shall mean interest at the rate specified for interest on investments of the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the U.S. Code, compounded on October 1 of each year, in accordance with 42 U.S.C. § 9607(a).

"Interim Record of Decision" or "ROD" shall mean the EPA Interim Record of Decision relating to the Site signed on March 1, 1996 by the Regional Administrator, EPA Region 10, and all attachments thereto.

"Interim Remedial Action" shall mean those activities, to be undertaken by Waste Management, their subcontractors and delegatees, to construct a cover system which is part of the remedy selected in the Interim ROD and those activities undertaken by Waste Management and/or the Tulalip Tribes, their subcontractors and delegatees, to perform O&M for the On-Source Areas of the Site, in accordance with the SOW and the final Remedial Design/Remedial Action Work Plan and other plans approved by EPA pursuant to the Administrative Order on Consent and the Consent Decree between the United States and Waste Management and the Tulalip Tribes. The term "cover system" is a

subset of the Interim Remedial Action and describes the landfill cover system that Waste Management shall construct over the On-Source Areas of the Site under this Decree.

"Landfill Berm" shall mean the berm denoted as "Landfill Berm" in Appendix A of this Consent Decree, and shall extend to the outer toe of the Landfill Berm.

"Morelli Family" shall include the Estate of Tito O. Morelli Ida Morelli, as Personal Representative of the Estate of Tito O. Morelli, Ida Morelli in her individual capacity, Anna Morelli Armstrong, Tina Maria Morelli, Gabriel M. Morelli, Clorinda Morelli Edson, Emilia Morelli Di Corpo, individually, Nello C. and Emilia G. Di Corpo, Trustees of the Nello C. and Emilia G. Di Corpo Revocable Estate Trust Agreement dated January 16, 1991, Albarosa Morelli, Panfilo S. Morelli, Dante E. Morelli, Robert D. Morelli, Elisa M. Kokesh, Panfilo S. Morelli and Elisa M. Kokesh as Trustees of the Trust under the Will of Silvio Morelli, Marion V. Larson, Executor of the Estate of Tito T. Morelli, any spouse, marital community or descendant(s) of any person heretofore named, the Morelli Brothers partnership, and the Morelli Brothers II partnership.

"National Contingency Plan" shall mean the National Oil and Hazardous Substance Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including, but not limited to, any amendments or superseding regulations related thereto.

"Off-Source Areas" of the Site shall mean the environmentally sensitive wetlands located outside and adjacent to the On-Source Areas of the Site as denoted as "Off-Source Areas" in Appendix A of this Consent Decree. These Off-Source areas extend in a northerly direction from the Landfill Berm to Ebey Slough; in a southerly direction from the Landfill Berm to Steamboat Slough; in a westerly direction from the Landfill Berm to Puget Sound; in an easterly direction from the Landfill Berm to Interstate 5.

"On-Source Areas" of the Site shall mean the 147 acres located within and including the Landfill Berm.

"Operation and Maintenance" or "O&M" shall mean all activities required to maintain the integrity of the Interim Remedial Action as required under the Operation and Maintenance Plan approved or developed by EPA pursuant to the Consent Decree between the United States, Waste Management, and the Tulalip Tribes, and the Statement of Work ("SOW") pursuant thereto.

"Paragraph" shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper case letter.

"Parties" shall mean the United States and each and every SDC Defendant.

"Plaintiff" shall mean the United States.

"PRP" shall mean a potentially responsible party pursuant to CERCLA.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq. (also known as the Resource

Conservation and Recovery Act), as the same may be amended or superseded.

"Related Entities" as the term refers to the SDC Defendants shall mean the SDC Defendants and their heirs, any heirs' spouses, and their marital communities, successors, and assigns, the SDC Defendants' past, present, and future officers and directors who have acted or are acting in those capacities, and where the SDC Defendant is a corporate entity, its corporate successors to potential liability for the Tulalip Landfill Site. "Related Entities" shall also mean the following named entities associated with one or more of the SDC Defendants: the Morelli Family and those entities identified in Appendix C of this Decree, attached hereto.

"Related Entities" as the term relates to Generator Defendants shall mean (a) the heirs, successors, and assigns of the Generator Defendants; and (b) their past, present, and future officers and directors who have acted or are acting in those capacities, and where the Related Entity is a corporate entity, its successors to potential liability for the Tulalip Landfill Site.

"Related Entities" as the term relates to Waste Management and the Tribes shall mean Waste Management and the Tulalip Tribes and their heirs, successors, and assigns, Waste Management's and the Tulalip Tribes' past, present, and future officers and directors who have acted or are acting in those capacities, and Waste Management's corporate successors to

potential liability for the Tulalip Landfill Site. "Related Entities" shall also mean the following named entities associated with Waste Management:

<u>Related Entities of Washington Waste Hauling & Recycling, Inc.</u> (currently known as Waste Management, Inc.)

Apex Garbage Co., Inc.
Bayside Waste Hauling and Transfer Co., Inc.
Container Hauling Corporation
Eastside Disposal Co., Inc.
Bruce J. Leven
Nancy Meyer Leven
National Disposal Contractors, Inc. (does not include any liability that Browning-Ferris Industries of Illinois might have at the Site related to its prior ownership of National Disposal)
Universal Refuse Removal Co., Inc.
Waste Management, Inc.
WMX Technologies, Inc.
Industrial Transport
Northwest Garbage Company, Inc.
SnoKing Garbage Company, Inc.

"Response Costs" shall mean all expenses, costs, and disbursements, direct and indirect, incurred or to be incurred by the United States, the Tulalip Tribes, or any person or entity for response activities, including investigation, oversight, removal or remedial actions, and all administrative and enforcement activities with respect to the Site including, without limitation: (1) past costs incurred prior to entry of this Consent Decree, excluding those past costs related to the AOC for RI/FS; (2) all costs for implementing, developing, performing, overseeing or verifying any investigatory or response activities at the Site, including the Interim Remedial Action requirements of this Consent Decree; and (3) any other or future response costs incurred in connection with the Site after entry

of this Consent Decree, including O&M; however, excluding future response costs relating to the AOC for RI/FS.

"SDC Defendants" shall mean Seattle Disposal Company (a former Washington general partnership), John Banchero, Sr., Josie Razore, and their respective marital communities.

"Section" shall mean a portion of this Consent Decree identified by a Roman numeral.

"Settling Federal Agencies" shall mean those departments, agencies and instrumentalities of the United States identified in Appendix B.

"Site" shall mean the Tulalip Landfill Superfund Site, located on Ebey Island between Steamboat Slough and Ebey Slough in the Snohomish River delta system between Everett and Marysville, Washington. The Site, depicted generally on the map attached as Appendix A, is located largely within the Tulalip Indian Reservation, and includes the "On-Source Areas," the "Off-Source Areas", the areas immediately adjacent to the landfill necessary to develop access roads to and from the landfill for the purposes of implementing the Interim Remedial Action, the areal extent of contamination that originated in the Tulalip Landfill and is presently located in the vicinity of the Tulalip Landfill, and all suitable areas in very close proximity to the contamination necessary for the implementation of the response actions.

"State" shall mean the State of Washington.

"Tulalip Tribes" shall refer collectively to the Tulalip Tribes of Washington (a federally recognized Indian tribe organized under Section 16 of the Indian Reorganization Act (IRA) of 1934, as amended, 25 U.S.C. § 476), and its successors and assigns, and the Tulalip Section 17 Corporation (a federal corporation chartered as "The Tulalip Tribes" on September 8, 1936, and ratified on October 3, 1936, pursuant to Section 17 of the IRA, as amended, 25 U.S.C. § 477), and the Tulalip Section 17 Corporation's assigns or corporate successors.

"United States" shall mean the United States of America, including all of its departments, agencies and instrumentalities.

"Waste Management" shall mean Washington Waste Hauling & Recycling, Inc., its successors and assigns.

"Waste Management and Tribes Decree" shall mean the Consent Decree between the United States and Waste Management and the Tulalip Tribes attached hereto as Appendix D.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27) or any "solid waste" under Ch. 70.95 of the Revised Code of Washington and implementing regulations at Ch. 173-304; and (4) any "dangerous waste" under Ch. 70.105 of the Revised Code of Washington and implementing regulations at Ch. 173-303 of the Washington Administrative Code.

V. REIMBURSEMENT OF RESPONSE COSTS

4. Payment of Response Costs. Within thirty (30) days of entry of this Consent Decree, the SDC Defendants shall pay $9,500,000 in payment of Response Costs in the manner set forth below:

a. $2,935,434 shall be paid by Electronic Funds Transfer ("EFT" or wire transfer) or certified or cashier's check to the EPA Tulalip Landfill Special Account payable to "EPA Hazardous Substance Superfund" and referencing EPA Region 10, the Tulalip Landfill Special Account, EPA Site/Spill ID #10B3. The SDC Defendants shall send the check(s) to the following address:

Mellon Bank
EPA-Region 10, Attention: Superfund Accounting
P.O. Box 360903M
Pittsburgh, PA 15251

b. $3,164,566 shall be paid to Waste Management for implementation and performance of the Interim Remedial Action at the Site by wire transfer to the following address:

Mellon Bank
Pittsburgh, PA
ABA Routing No. 043000261
WMX Technologies, Inc., Account No. 1979409

and notice that such disbursement to Waste Management has been made by the SDC Defendants shall be sent to Waste Management at the following address:

Steven D. Richtel
Waste Management, Inc.
3900 South Wadsworth Boulevard
Suite 800
Lakewood, CO 80235.

c. $3,400,000 shall be paid toward Response Costs at the Site in the form of a certified cashiers check to a private trust account established by the Tulalip Tribes for the purpose of conducting O&M at the Site, with distributions from such account occurring only after EPA's written approval, under account number 20-20-373-4123360 at Seattle First National Bank, referencing the Tulalip Landfill Superfund Site.

5. The SDC Defendants shall send notice that such payments pursuant to this Section have been made, together with a copy of the check or EFT confirmations to the United States as specified in Section XII (Notices and Submissions) and to Joseph Penwell, Regional Financial Management Officer, 1200 6th Avenue, Seattle, Washington 98101.

VI. FAILURE TO MAKE TIMELY PAYMENTS

6. Interest on Late Payments. In the event that the SDC Defendants fail to make the payments required by Paragraph 4 above within thirty (30) days of entry of this Consent Decree, the SDC Defendants shall pay Interest to EPA on the unpaid balance. The Interest to be paid on payments set forth in Paragraph 4 shall begin to accrue on entry of this Consent Decree. The Interest shall accrue through the date of the SDC Defendants' payment. Payments of Interest made under this paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of the SDC Defendants'

failure to make timely payments under this section. The SDC Defendants shall make all payments required by this paragraph in the manner described in Paragraph 4.a.

7. Stipulated Penalty. If any amounts due under this Consent Decree are not paid by the required date, the SDC Defendants shall pay as a stipulated penalty, in addition to the Interest required by Paragraph 6, an amount of $3,000.00 per day that such payment is late. Stipulated penalties are due and payable within thirty (30) days of the SDC Defendants' receipt from EPA of a demand for payment of the penalties. Payments of stipulated penalties and Interest for late payments due under this Consent Decree shall be paid to EPA's Tulalip Landfill Site-Specific Account pursuant to the payment provisions of Paragraph 4.a. of this Decree. All payments under this Paragraph shall be paid by certified check. Copies of check(s) paid pursuant to this paragraph, and any accompanying transmittal letter, shall be sent to the United States as provided in Section XI (Notices and Submissions).

8. If the United States must bring an action to collect any payment required by this Consent Decree, the SDC Defendants shall reimburse the United States for all costs of such action, including, but not limited to, costs of attorney time.

9. Payments made under Paragraphs 6 and 7 shall be in addition to any other remedies or sanctions available to

Plaintiff by virtue of the SDC Defendants' failure to make timely payments required by this Decree.

10. The obligations of the SDC Defendants to make payments pursuant to this Consent Decree are joint and several. In the event of the failure of any one or more the SDC Defendants to make the payments required under this Consent Decree, the remaining the SDC Defendants shall be responsible for such payments.

VII. COVENANT NOT TO SUE BY UNITED STATES

11. Covenant Not To Sue. Except as provided in Paragraph 12, and in consideration of the payments made by the SDC Defendants and the covenants provided by the SDC Defendants under the terms of this Consent Decree, the United States covenants not to sue or to take administrative action against the SDC Defendants or Related Entities with respect to the Site pursuant to Sections 106 and 107(a) of CERCLA, Section 7003 of RCRA, Section 311 of the Clean Water Act as that section pertains to "removal actions and removal costs" only, and Sections 301 and 309 of the Clean Water Act (with respect to liability for civil penalties for discharges resulting solely from disposal of Waste Materials at On-Source Areas of the Site prior to issuance of the Interim ROD); including implementation of remedial action for the On-Source Areas and Off-Source Areas and all response costs related thereto, except as provided in this Consent Decree. In addition, except as provided in Paragraph 12 of this Consent

Decree, and in consideration of the SDC Defendants' and Related Entities' covenant not to sue and agreement not to assert any claims or causes of action against the Settling Federal Agencies contained in Paragraph 15 of this Decree, the Settling Federal Agencies covenant not to sue the SDC Defendants or their Related Entities pursuant to Sections 107 and/or 113 of CERCLA with respect to the Site; provided, however, each of the Settling Federal Agencies reserves, and this Consent Decree is without prejudice to, the rights of each Settling Federal Agency to assert claims that each Settling Federal Agency may have against the SDC Defendants or their Related Entities if such SDC Defendant or Related Entity brings an action against that Settling Federal Agency seeking to require further response actions, to recover response costs, or otherwise seeking to impose liability or to recover response costs for Matters Addressed in this Consent Decree. Such claims brought by or on behalf of a Settling Federal Agency shall be limited to the same scope and may be asserted only to the same extent and for the same matters, transactions, or occurrences as are raised in the claim asserted against that Settling Federal Agency. These covenants not to sue extend only to the SDC Defendants and Related Entities and do not extend to any other person. These covenants not to sue shall take effect upon receipt by the United States of all payments required by Sections V and VI of this Consent Decree. However, if any Related Entity asserts any claims or causes of action with respect to the Site against the

United States, which if asserted by the SDC Defendants would be inconsistent with the Covenant Not to Sue by the SDC Defendants in Paragraph 15, these Covenants not to Sue by the United States shall be void with respect to that party or any alter ego of that party bringing the claims or causes of action.

12. Reservation of Rights by United States

a. General. The covenant not to sue set forth in the preceding paragraph does not pertain to any matters other than those expressly specified therein. The United States reserves, and this Consent Decree is without prejudice to, all rights against the SDC Defendants and their Related Entities with respect to all other matters.

b. Specific. Except as provided in the preceding paragraph, the United States reserves, and this Consent Decree is without prejudice to, all rights against the SDC Defendants and their Related Entities with respect to all other matters, including, but not limited to, the following, provided, however, that claims or causes of action brought by the United States pursuant to the reservation of rights in this Paragraph shall not void the contribution protection provided pursuant to this Decree or the covenant not to sue for matters outside the scope of these reservations of rights:

(1) claims based on a failure by the SDC Defendants to meet the requirements of this Consent Decree;

(2) claims based on a failure by the SDC Defendants to fulfill the remaining obligations of the existing

Administrative Order on Consent for RI/FS to which the SDC Defendants are parties. Such remaining obligations of the SDC Defendants pursuant to the AOC for RI/FS shall not include implementation of remedial action for the Site. If the Final Comprehensive Baseline Risk Assessment ("CBRA") for the Off-Source Areas of the Site is not released by EPA to the AOC for RI/FS Signatories ("AOC Signatories") by August 29, 1997, then the AOC Signatories, including the SDC Defendants, shall not be responsible for EPA response costs under the AOC for RI/FS which are incurred from August 29, 1997, through the date of issuance of the CBRA to the AOC Signatories. In addition, if by September 30, 1997, EPA fails to send the AOC Signatories a letter containing EPA's decision regarding whether the AOC Signatories will have to prepare either a feasibility study for the Off-Source Areas of the Site which evaluates technical remediation alternatives of wetland sediments in the Off-Source Areas or a more streamlined feasibility study, then the AOC Signatories, including the SDC Defendants, shall not be responsible for EPA response costs under the AOC for RI/FS which are incurred from September 30, 1997, to the date of issuance of the letter to the AOC Signatories;

(3) liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Site, except to the extent that the sole basis for liability at another Site is the migration of Waste Material from the Site;

(4) liability for future placement, transportation, storage, arrangement for disposal, or disposal of Waste Material at the Site, excluding continuing releases of Waste Material existing at the Site prior to issuance of the Interim ROD;

(5) liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments, including, without limitation, any such claims brought by or on behalf of any Settling Federal Agency; and,

(6) criminal liability.

13. Notwithstanding any other provision of this Consent Decree, the United States retains all authority and reserves all rights to take any and all response actions authorized by law; however such authorities and reservation of rights do not impair the covenants as set forth in this Section.

14. Notwithstanding any provision of this Consent Decree, the United States hereby retains all of its information gathering and inspection authorities and rights, including enforcement actions related to such information gathering and inspection authorities, under CERCLA, RCRA, and any other applicable statutes or regulations.

VIII. COVENANTS BY THE SDC DEFENDANTS

15. Subject only to the specific reservations set forth in Paragraph 20, the SDC Defendants hereby covenant not to

sue and agree not to assert any claims or causes of action against the United States with respect to the Site or this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA §§ 106(b)(2), 107, 111, 112, or 113, or any other provision of law;

b. any claims arising out of response activities at the Site, including claims based on EPA's selection of response actions, oversight of response activities, or approval of plans for such activities. However, notwithstanding the foregoing, if the United States brings a claim or cause of action related to costs associated with the CBRA or the letter referenced in Paragraph 12.b.(2) of this Decree which is inconsistent with the United States commitments in Paragraph 12.b.(2), SDC may assert counterclaims under Paragraph 12.b.(2) to the same extent and for the same matter as that raised in the claim asserted against that SDC Defendant; or

c. any claims against the United States, including any department, agency or instrumentality of the United States under Section 107 and/or 113 of CERCLA, 42 U.S.C. §§ 9607 or 9613, related to the Site.

d. Nothing in Paragraph 15 is intended to waive any rights that the SDC Defendants may have in the AOC for RI/FS to dispute resolution for the SDC Defendants' continuing obligations under the AOC for RI/FS.

16. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

17. In consideration of the Waste Management and Tulalip Tribes' covenant not to sue and agreement not to assert any claims or causes of action against any of the SDC Defendants or their Related Entities with respect to the Site in the Waste Management and Tribes Decree, and except as otherwise provided in Paragraph 20 a., b., and d. of this Consent Decree, the SDC Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against Waste Management or its Related Entities and the Tulalip Tribes or its Related Entities with respect to the Site.

18. In consideration of the Generator Defendants' and the Settling Federal Agencies' covenant not to sue and agreement not to assert any claims or causes of action against any of the SDC Defendants or their Related Entities with respect to the Site in the Generator Defendants Decree, and except as otherwise provided in Paragraph 20 a., b. and d. of this Consent Decree, the SDC Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against Generator Defendants or their Related Entities and the Settling Federal Agencies with respect to the Site.

19. Subject only to the specific reservations set forth in Paragraphs 20 and 22, each of the SDC Defendants hereby

covenants not to sue and agrees not to assert any claims or causes of action, including claims pursuant to sections 107 and/or 113 of CERCLA, against any person relating to liability for Matters Addressed in this Consent Decree.

20. SDC Defendants' reservations. Notwithstanding Paragraphs 15, 17, 18 and 19, each of the SDC Defendants reserves, and this Consent Decree is without prejudice to, the rights of each SDC Defendant:

a. to assert defenses or claims that each SDC Defendant may have against any person or entity, with the exception of the United States on behalf of EPA, who brings an action against that SDC Defendant seeking to require further response actions, to recover response costs, or otherwise seeking to impose liability or to recover response costs for Matters Addressed in this Consent Decree; provided, however, that such claims may be asserted by the SDC Defendants only to the same extent and for the same matters, transactions, or occurrences as are raised in the claim asserted against that SDC Defendant;

b. to assert any claims against any person or entity other than the United States, and to assert claims against Settling Federal Agencies pursuant to Sections 107 and/or 113 of CERCLA, if the United States or any of the natural resource trustees institute judicial proceedings, issues an order or takes administrative action against that SDC Defendant or Related Entities for natural resource damages; provided, however, that such claims shall be limited to the same scope and may be

asserted only to the same extent and for the same matters, transactions, or occurrences as are raised in the natural resource damage claim asserted against that SDC Defendant or Related Entity. Notwithstanding any other provision of this Consent Decree, in the event that any of the claims listed above in this subparagraph are asserted against the SDC Defendants, the SDC Defendants' reservations and rights against Settling Federal Agencies are limited to those set forth in this subparagraph 20.b.;

c. to assert any and all claims or causes of action that the SDC Defendants may have against insurers;

d. to assert any and all claims or causes of action and to exercise any and all other rights that they may have with respect to matters beyond those addressed in this Consent Decree;

e. to assert any and all claims or causes of action against any non-settling PRP at this Site, and Generator Defendant Quemetco, Inc., only with respect to costs incurred or to be incurred by any SDC Defendant pursuant to the AOC for RI/FS.

21. <u>SDC Defendants' reservations to contest or defend.</u>

a. If the United States exercises its information gathering or inspection authorities or rights, institutes an enforcement action, or takes other action against the SDC Defendants pursuant to Paragraph 14, the SDC Defendants reserve, and this Consent Decree is without prejudice to, rights of the SDC Defendants to contest or defend against any such action.

b. If any of the natural resource trustees brings an action for natural resource damages, the SDC Defendants reserve, and this Consent Decree is without prejudice to, the rights of the SDC Defendants to contest or defend against any such action.

22. The SDC Defendants and their Related Entities hereby reserve their rights in connection with any claims under or with respect to the Morelli/Banchero/Razore Tulalip Settlement Agreement.

IX. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

23. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a signatory to this Consent Decree other than the Related Entities which shall be entitled to the protection afforded by Paragraph 11 (Covenants by the United States), and Paragraph 24 (Contribution Protection) of this Consent Decree. Nothing herein shall constitute an admission of liability by the SDC Defendants or Related Entities. The SDC Defendants and the United States hereby agree that the Generator Defendants and their Related Entities, the Settling Federal Agencies, Waste Management and its Related Entities, and the Tulalip Tribes and its Related Entities are third-party beneficiaries of the Covenants Not To Sue by the SDC Defendants in this Decree as specified in Section VIII (Covenants By SDC Defendants) in this Decree.

24. With regard to claims for contribution against the SDC Defendants and Related Entities, the Parties hereto agree that, upon receipt by the parties specified in Paragraph 4 of this Consent Decree of the payments required pursuant to Paragraph 4 of this Consent Decree, the SDC Defendants and Related Entities are entitled to the fullest extent of protection from actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2) and other applicable law, for Matters Addressed in this Consent Decree. However, if any Related Entity of a SDC Defendant initiates any claim or cause of action with respect to the Site, against the Tulalip Tribes, any PRP, or any other person or entity which if asserted by the SDC Defendants would be inconsistent with the Covenants Not to Sue and Reservation of Rights by the SDC Defendants in Paragraphs 15, 17, 18, 19, 20, and 22, the contribution protection granted to such Related Entity pursuant to this Consent Decree shall be void. "Matters Addressed" in this Consent Decree shall mean all response actions taken or to be taken and all Response Costs incurred or to be incurred by the United States, the Tulalip Tribes, or any other person or entity with respect to the Site, except those response actions and response costs incurred or to be incurred pursuant to the AOC for RI/FS for which the SDC Defendants have remaining obligations. Such remaining obligations of the SDC Defendants pursuant to the AOC for RI/FS shall not include implementation of remedial action for the Site.

25. The Parties agree that with respect to any suit or claim for contribution brought against any of them for matters related to this Consent Decree, each of them will notify, in writing, each other within ten (10) days of service of the complaint on it. In addition, the Parties shall notify each other within ten (10) days of service or receipt of any Motion for Summary Judgment and within ten (10) days of receipt of any order from a court setting a case for trial for matters related to this Consent Decree.

26. In any subsequent administrative or judicial proceeding initiated by any party with respect to natural resource damages, payments due under this Decree, or compliance with the AOC for RI/FS for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, the Parties shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this paragraph affects the enforceability of the covenants not to sue set forth in Section VII (Covenants Not to Sue by the United States).

X. RETENTION OF RECORDS

27. Until ten (10) years after the entry of this Consent Decree, each SDC Defendant shall preserve and retain all

records and documents now in its possession or control or which come into its possession or control that relate in any manner to response actions taken at the Site or the liability of any person for response actions conducted and to be conducted at the Site, regardless of any corporate retention policy to the contrary.

28. At the conclusion of this document retention period, the SDC Defendants shall notify the United States at least ninety (90) days prior to the destruction of any such records or documents, and, upon request by the United States, the SDC Defendants shall deliver any such record or documents to EPA. The SDC Defendants may assert that certain documents, records, and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the SDC Defendants assert such a privilege, they shall provide the Plaintiff with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each address and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted. However, no documents, reports, or other information created or generated pursuant to the requirements of this or any other Consent Decree with the United States shall be withheld on the grounds that they are privileged.

29. The SDC Defendants hereby certify that to the best of their knowledge, information, and belief, and after thorough

inquiry, they have not altered, mutilated, discarded, destroyed, or otherwise disposed of any records, documents, or other information relating to their potential liability regarding the Site since notification of potential liability by the United States or the filing of suit against them regarding the Site and that they have fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622, and Section 3007 of RCRA.

XI. NOTICES AND SUBMISSIONS

30. Whenever, under the terms of this Consent Decree, written notice is required to be given or a document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice, in writing, of a change to the other Parties. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, and the SDC Defendants, respectively.

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044
Re: DOJ number 90-11-3-1412

As to EPA:

Elizabeth McKenna
Environmental Protection Agency
1200 6th Avenue
ORC-158
Seattle, Washington 98101

As to the SDC Defendants:

Josie Razore
200 112th Avenue N.E., Suite 300
Bellevue, WA 98004

cc: Robert Jaffe
Preston Gates & Ellis LLP
5000 Columbia Center
701 Fifth Avenue
Seattle, WA 98104-7078

John Banchero, Sr.
54 South Dawson Street
Seattle, WA 98134

cc: Charles Blumenfeld
Bogle & Gates P.L.L.C.
601 Union Street
Seattle, WA 98101-2340

XII. EFFECTIVE DATE

31. This Consent Decree shall not take effect until entry of this Consent Decree and entry of the Waste Management and Tribes Decree by the Court.

XIII. RETENTION OF JURISDICTION

32. This Court shall retain jurisdiction of this matter for the purposes of enforcing the terms of this Consent Decree.

XIV. APPENDICES

33. The following appendices are attached to and are incorporated into this Consent Decree:

"Appendix A" is a description and/or map of Site.

"Appendix B" is the complete list of Settling Federal Agencies.

"Appendix C" is the list of Related Entities for the SDC Defendants.

"Appendix D" is the Generator Defendants Consent Decree, and the Waste Management and Tribes Consent Decree.

XV. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

34. This Consent Decree shall be lodged with the Court for a period of thirty (30) days for public notice and comment. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations which indicate that this Consent Decree is inappropriate, improper, or inadequate. Except as provided in Paragraph 37, the SDC Defendants consent to the entry of this Consent Decree or waive any right to respond to a motion to enter this Consent Decree by the United States.

35. If for any reason this Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XVI. SIGNATORIES/SERVICE

36. Each undersigned representative of a SDC Defendant to this Consent Decree and the Assistant Attorney General for the Environment and Natural Resources Division of the United States Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

37. Each SDC Defendant consents to the entry and hereby agrees not to oppose entry by this Court or to challenge any provision of this Consent Decree or of any contemporaneous Consent Decree with Waste Management and the Tulalip Tribes or the Generator Defendants attached hereto, which is lodged with the Court by the United States and provided that it contains substantially equivalent covenants not to sue extending to the SDC Defendants and their Related Entities, unless the United States has notified the SDC Defendants, in writing, that it no longer supports entry of the Consent Decree.

38. Each SDC Defendant shall identify, on the attached signature page, the name and address of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. The SDC Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil

Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons.

SO ORDERED THIS ____ DAY OF _____, 199_.

_____
United States District Judge

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Seattle Disposal Company, et al., relating to the Tulalip Landfill Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date: Aug. 28, 1997

LOIS J. SCHIFFER
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

for

JAMES L. NICOLL
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
10th and Pennsylvania Avenue, N.W.
Washington, D.C. 20530

AUG 15

STEVEN A. HERMAN
Assistant Administrator for
Enforcement
U.S. Environmental Protection
Agency
401 M Street, S.W.
Washington, D.C. 20460

8/3/

GARY WORTHMAN
Office of Enforcement
and Compliance Assurance
U.S. Environmental Protection
Agency
401 M Street, S.W.
Washington, D.C. 20460

for Chuck Fulling

CHUCK CLARKE
Regional Administrator
Region 10
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Elizabeth A. McKenna

ELIZABETH A. MCKENNA
Assistant Regional Counsel
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company, et al., relating to the Tulalip Landfill Superfund Site.

FOR SEATTLE DISPOSAL COMPANY, a former Washington General Partnership

Date: July 11, 1997 _____

Date: July 11, 1997 _____

Agent Authorized to Accept Service on Behalf of Above-signed Parties:

Robert Jaffe
Preston Gates & Ellis LLP
5000 Columbia Center
701 Fifth Avenue
Seattle, WA 98104-7078

and

Charles Blumenfeld
Bogle & Gates P.L.L.C.
601 Union Street, # 4700
Seattle, WA 98101-2340

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company, et al., relating to the Tulalip Landfill Superfund Site.

FOR JOSIE RAZORE AND HIS MARITAL COMMUNITY

Date: July 11, 1997

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Robert Jaffe
Preston Gates & Ellis LLP
5000 Columbia Center
701 Fifth Avenue
Seattle, WA 98104-7078

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company, et al., relating to the Tulalip Landfill Superfund Site.

FOR JOHN BANCHERO AND HIS MARITAL COMMUNITY

Date: July 11, 1997 John S. Banchero Sr

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Charles Blumenfeld
Bogle & Gates P.L.L.C.
601 Union Street, # 4700
Seattle, WA 98101-2340

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON

UNITED STATES OF AMERICA Plaintiff, v. SEATTLE DISPOSAL COMPANY, a former Washington general partnership, JOHN BANCHERO, Sr., and JOSIE RAZORE and their respective marital communities, WASHINGTON WASTE HAULING & RECYCLING, INC., MONSANTO COMPANY, BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON, LOCKHEED MARTIN CORPORATION, PORT OF SEATTLE, SEARS, ROEBUCK AND CO., R.W. RHINE, INC., CITY OF MERCER ISLAND, a Municipal Corporation of the State of Washington, the SEATTLE SCHOOL DISTRICT, and QUEMETCO, INC. Defendants.	CIVIL ACTION NO. C97-1462 TULALIP LANDFILL SUPERFUND SITE GENERATOR DEFENDANTS CONSENT DECREE
THE TULALIP TRIBES OF WASHINGTON AND THE TULALIP SECTION 17 CORPORATION, Intervenors/Defendants Under Clean Water Act.	

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I. BACKGROUND

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), filed a Complaint in this matter pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9606 and 9607, against Seattle Disposal Company, John Banchero, Sr., Josie Razore, and their respective marital communities; Washington Waste Hauling & Recycling, Inc., Monsanto Company, Board of Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., R.W. Rhine, Inc., City of Mercer Island, the Seattle School District and Quemetco, Inc. The United States in its Complaint also filed an action against the Tulalip Tribes of Washington and the Tulalip Section 17 Corporation pursuant to Sections 301, 309 and 311 of the CWA, 33 U.S.C. §§ 1311, 1319, and 1321. The Tulalip Tribes of Washington and the Tulalip Section 17 Corporation are Intervenors in this matter under CERCLA. The United States also is signing this Consent Decree on behalf of the Settling Federal Agencies, as defined in Paragraph 3 below.

B. The United States in its Complaint seeks, inter alia: (1) reimbursement of costs incurred by EPA and the Department of Justice for response actions at the Tulalip Landfill Superfund Site in Marysville, Washington, together with accrued interest; (2) performance of studies and response work by

the Defendants at the Site consistent with the National Oil and Hazardous Substance Pollution Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP"); and (3) civil penalties and injunctive relief under the CWA.

C. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of Washington (the "State") of negotiations with potentially responsible parties regarding the implementation of the Remedial Design and Interim Remedial Action for the Site.

D. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the U.S. Bureau of Indian Affairs, U.S. Department of Interior, U.S. Fish and Wildlife Service, U.S. Department of Commerce, State of Washington Department of Ecology, and the Tulalip Tribes of Washington of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal trusteeship.

E. The Defendants that have entered into this Consent Decree ("Generator Defendants") do not admit any liability arising out of the transactions or occurrences that were or could have been alleged in the Complaint, nor do they acknowledge that the release or threatened release of hazardous substances at or from the Site constitutes an imminent or substantial endangerment to the public health or welfare or the environment. The Settling Federal Agencies do not admit any liability arising out of the

transactions or occurrences that were or could be alleged in any claim asserted by the Generator Defendants.

F. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List ("NPL"), set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on April 25, 1995, 60 Fed. Reg. 20330.

G. In response to a release or a substantial threat of a release of hazardous substances at or from the Site, some of the Generator Defendants and other PRPs at the Site, commenced in August 1993, a Remedial Investigation and Feasibility Study ("RI/FS") for the Site pursuant to 40 C.F.R. § 300.430.

H. Some of the Generator Defendants and other PRPs at the Site completed a Remedial Investigation ("RI") Report for the On-Source and Off-Source Areas of the Site, and a Feasibility Study ("FS") for the On-Source area of the Site on May 4, 1995.

I. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the On-Source FS and of the proposed plan for Interim Remedial Action on August 4, 1995, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for Interim Remedial Action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Regional Administrator based the selection of the Interim Remedial Action.

J. The decision by EPA on the Interim Remedial Action to be implemented at the Site is embodied in an Interim Record of Decision ("ROD"), executed on March 1, 1996, on which the State has given its concurrence. The Interim ROD includes a responsiveness summary to the public comments. Notice of the final interim plan for the On-Source Area of the Site was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

K. For the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), among other purposes, the Interim Remedial Action selected by the Interim ROD and the work to be funded by Generator Defendants and Settling Federal Agencies constitute a response action ordered by the President.

L. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331, 1345 and 1355,

42 U.S.C. §§ 9606, 9607, and 9613(b) and 33 U.S.C. § 1319(b). This Court also has personal jurisdiction over the Generator Defendants. Solely for the purposes of this Consent Decree and the underlying Complaint, Generator Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District and shall not challenge the terms of this Consent Decree, the standing of the Tulalip Tribes of Washington or the Tulalip Section 17 Corporation to intervene, this Court's jurisdiction to grant the Tulalip Tribes of Washington and the Tulalip Section 17 Corporation intervention or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States and upon Generator Defendants and their heirs, successors, and assigns. Any change in ownership or corporate status of a Generator Defendant, including, but not limited to, any transfer of assets or real or personal property, shall in no way alter such Generator Defendant's responsibilities under this Consent Decree.

IV. DEFINITIONS

3. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or in the

appendices attached hereto and incorporated hereunder, the following definitions shall apply:

A. "Administrative Order on Consent" or "AOC" shall mean the Administrative Order on Consent between the United States and Washington Waste Hauling & Recycling, Inc. ("Waste Management") for purposes of beginning Remedial Design and Site stabilization and Site preparation work;

B. "Administrative Order on Consent for RI/FS" or "AOC for RI/FS" shall mean the Administrative Order on Consent for the Remedial Investigation and Feasibility Study for the On-Source Area of the Site which was signed by EPA on August 12, 1993, and to which Generator Defendants Monsanto Company and the Port of Seattle, as well as Waste Management are signatories;

C. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, et seq., as the same may be amended or superseded;

D. "Consent Decree" shall mean this Decree and all appendices attached hereto (listed in Section XVIII). In the event of conflict between this Decree and any appendix, this Decree shall control;

E. "CWA" or "Clean Water Act" shall mean the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq., as the same may be amended or superseded;

F. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other

than a Saturday, Sunday, or federal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next working day;

G. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States;

H. "Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs at or in connection with the Site, including those related to reviewing or developing plans, reports, and other items pursuant to this Consent Decree or the Administrative Order on Consent and the Consent Decree between the United States and Waste Management and the Tulalip Tribes (Consent Decree referred to herein as "Waste Management and Tribes Decree"), verifying the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree or the Administrative Order on Consent and the Waste Management and Tribes Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Sections V, VI and VIII (including, but not limited to, attorneys fees and any monies paid to secure access and/or to secure institutional controls, including the amount of just compensation). Future Response Costs shall also include all Interim Response Costs;

I. "Generator Defendants" shall mean Monsanto Company, Board of Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., R.W. Rhine, Inc., City of Mercer Island, the Seattle School District, and Quemetco, Inc.;

J. "Interest" shall mean interest at the rate specified for interest on investments of the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the U.S. Code, compounded on October 1 of each year, in accordance with 42 U.S.C. § 9607(a);

K. "Interim Record of Decision" or "ROD" shall mean the EPA Interim Record of Decision relating to the Tulalip Landfill Superfund Site signed on March 1, 1996, by the Regional Administrator, EPA Region 10, and all attachments thereto. The Interim ROD is attached as Appendix A;

L. "Interim Remedial Action" shall mean those activities to be undertaken by Waste Management, their subcontractors and delegatees, to construct the cover system which is part of the remedy selected in the Interim ROD and those activities undertaken by Waste Management and/or the Tulalip Tribes, their subcontractors and delegatees, to perform O&M for the On-Source Areas of the Site, in accordance with the SOW and the final Remedial Design/Remedial Action Work Plan and other plans approved by EPA. The term "cover system" is a subset of the Interim Remedial Action and describes the landfill cover

system that Waste Management shall construct over the On-Source Areas of the Site under this Decree;

M. "Interim Response Costs" shall mean all costs, including direct and indirect costs (a) paid by the United States at or in connection with the Site between September 1, 1995 and the effective date of this Consent Decree, or (b) incurred prior to the effective date of this Consent Decree but paid after that effective date;

N. "Landfill Berm" shall mean the berm denoted as "Landfill Berm" in Appendix B of this Consent Decree, and shall extend to the outer toe of the Landfill Berm;

O. "Morelli Family" shall include the Estate of Tito O. Morelli, Ida Morelli, as Personal Representative of the Estate of Tito O. Morelli, Ida Morelli in her individual capacity, Anna Morelli Armstrong, Tina Maria Morelli, Gabriel M. Morelli, Clorinda Morelli Edson, Emilia Morelli Di Corpo, individually, Nello C. and Emilia G. Di Corpo, Trustees of the Nello C. and Emilia G. Di Corpo Revocable Estate Trust Agreement dated January 16, 1991, Albarosa Morelli, Panfilo S. Morelli, Dante E. Morelli, Robert D. Morelli, Elisa M. Kokesh, Panfilo S. Morelli and Elisa M. Kokesh as Trustees of the Trust under the Will of Silvio Morelli, Marion V. Larson, Executor of the Estate of Tito T. Morelli, any spouse, marital community or descendant(s) of any person heretofore named, the Morelli Brothers partnership, and the Morelli Brothers II partnership;

P. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including, but not limited to, any amendments or superseding regulations related thereto;

Q. "Off-Source Areas" of the Site shall mean the environmentally sensitive wetlands located outside and adjacent to the On-Source Areas of the Site which are denoted as "Off-Source Areas" in Appendix B of this Consent Decree. These Off-Source Areas extend in a northerly direction from the Landfill Berm to Ebey Slough; in a southerly direction from the Landfill Berm to Steamboat Slough; in a westerly direction from the Landfill Berm to Puget Sound; in an easterly direction from the Landfill Berm to Interstate 5;

R. "On-Source Areas" of the Site shall mean the 147 acres located within and including the Landfill Berm;

S. "Operation and Maintenance" or "O&M" shall mean all activities required to maintain the integrity of the Interim Remedial Action as required under the Operation and Maintenance Plan approved or developed by EPA pursuant to the Waste Management and Tribes Decree and the Statement of Work ("SOW") pursuant thereto;

T. "Paragraph" shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper case letter;

U. "Parties" shall mean the United States and each and every Generator Defendant;

V. "Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through September 1, 1995;

W. "Plaintiff" shall mean the United States;

X. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, et seq., (also known as the Resource Conservation and Recovery Act), as the same may be amended or superseded;

Y. "Related Entities" as the term relates to Generator Defendants shall mean (a) the heirs, successors, and assigns of the Generator Defendants; and (b) their past, present, and future officers and directors who have acted or are acting in those capacities, and where the Related Entity is a corporate entity, its successors to potential liability for the Tulalip Landfill Site;

Z. "Related Entities" as the term refers to SDC Defendants shall mean SDC Defendants and their heirs, any heirs' spouses, and their marital communities, successors, and assigns, the SDC Defendants' past, present, and future officers and directors who have acted or are acting in those capacities, and where the SDC Defendant is a corporate entity, its corporate successors to potential liability for the Tulalip Landfill Site. "Related Entities" shall also mean the following named entities associated with one or more of the SDC Defendants: the Morelli

Family and those entities identified in Appendix C of the SDC Defendants Decree, attached hereto as Appendix F;

aa. "Related Entities" as the term relates to Waste Management and the Tribes shall mean Waste Management and the Tulalip Tribes and their heirs, successors, and assigns, Waste Management's and the Tulalip Tribes' past, present, and future officers and directors who have acted or are acting in those capacities, and Waste Management's corporate successors to potential liability for the Tulalip Landfill Site. "Related Entities" shall also mean the following named entities associated with Waste Management:

<u>Related Entities of Washington Waste Hauling & Recycling, Inc.</u> (currently known as Waste Management, Inc.)

Apex Garbage Co., Inc.
Bayside Waste Hauling and Transfer Co., Inc.
Container Hauling Corporation
Eastside Disposal Co., Inc.
Bruce J. Leven
Nancy Meyer Leven
National Disposal Contractors, Inc. (does not include any liability that Browning-Ferris Industries of Illinois might have at the Site related to its prior ownership of National Disposal)
Universal Refuse Removal Co., Inc.
Waste Management, Inc.
WMX Technologies, Inc.
Industrial Transport
Northwest Garbage Company, Inc.
SnoKing Garbage Company, Inc.

bb. "Remedial Design/Remedial Action Work Plan" or "RD/RA Work Plan" shall mean the document approved by EPA, including any amendments thereto, and developed pursuant to the AOC and the Waste Management and Tribes Decree and any amendments thereto;

cc. "Remedial Design" shall mean those activities to be undertaken by Waste Management to develop the final plans and specifications for the Interim Remedial Action pursuant to the Remedial Design Work Plan;

dd. "SDC Defendants" shall mean the Seattle Disposal Company (a former Washington general partnership), John Banchero, Sr., Josie Razore, and their respective marital communities;

ee. "SDC Defendants Decree" shall mean the Consent Decree between the United States and the Seattle Disposal Company, attached hereto as Appendix F;

ff. "Section" shall mean a portion of this Consent Decree identified by a Roman numeral;

gg. "Settling Federal Agencies" shall mean those departments, agencies and instrumentalities of the United States identified in Appendix C;

hh. "Site" shall mean the Tulalip Landfill Superfund Site, located on Ebey Island between Steamboat Slough and Ebey Slough in the Snohomish River delta system between Everett and Marysville, Washington. The Site, depicted generally on the map attached as Appendix B, is located largely within the Tulalip Indian Reservation, and includes the "On-Source Areas," and "Off-Source Areas", the areas immediately adjacent to the landfill necessary to develop access to and from the landfill for purposes of implementation of the Interim Remedial Action, the areal extent of contamination that originated in the Tulalip Landfill and is presently located in the vicinity of the Tulalip Landfill,

and all suitable areas in close proximity to the contamination necessary for the implementation of the response actions;

ii. "State" shall mean the State of Washington;

jj. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Design, Interim Remedial Action, and Operation and Maintenance at the Site, as set forth in the AOC and the Waste Management and Tribes Decree and any modifications made thereto;

kk. "Tulalip Tribes" shall refer collectively to the Tulalip Tribes of Washington (a federally recognized Indian tribe organized under Section 16 of the Indian Reorganization Act (IRA) of 1934, as amended, 25 U.S.C. § 476), and its successors and assigns, and the Tulalip § 17 Corporation (a federal corporation chartered as "The Tulalip Tribes" on September 8, 1936, and ratified on October 3, 1936, pursuant to Section 17 of the IRA, as amended, 25 U.S.C. § 477), and the Tulalip § 17 Corporation's assigns or corporate successors;

ll. "United States" shall mean the United States of America, including all of its departments, agencies and instrumentalities;

mm. "Waste Management" shall mean Washington Waste Hauling & Recycling, Inc., its successors and assigns;

nn. "Waste Management and Tribes Decree" shall mean the Consent Decree between the United States and Waste Management and the Tulalip Tribes, attached hereto as Appendix F;

oo. "Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27) or any "solid waste" under Ch. 70.95 of the Revised Code of Washington and implementing regulations at Ch. 173-304, or (4) any "dangerous wastes" under Ch. 70.105 of the Revised Code of Washington and implementing regulations at Ch. 173-303 of the Washington Administrative Code;

pp. "Work" shall mean all activities Waste Management is required to perform under the Administrative Order on Consent and all activities Waste Management or the Tulalip Tribes are required to perform under the Waste Management and Tribes Decree, except those required by Section XIV (Retention of Records).

V. REMEDY REVIEW

4. EPA Selection of Further Response Actions. If EPA determines, at any time, that the Interim Remedial Action is not protective of human health and the environment, EPA may select further response actions for the Site in accordance with the requirements of CERCLA and the NCP. Except as otherwise provided in the Consent Decree, the Generator Defendants, Settling Federal Agencies and SDC Defendants and their Related Entities shall not be responsible for funding further response actions.

5. Opportunity To Comment. Generator Defendants and, if required by Sections 113(k)(2) or 117 of CERCLA, 42 U.S.C.

§§ 9613(k)(2) or 9617, the public, will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and to submit written comments for the record during the comment period.

VI. EMERGENCY RESPONSE

6. In the event of any action or occurrence during the construction of the cover system by Waste Management which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health, welfare, or the environment, Generator Defendants, Settling Federal Agencies, Waste Management and the Tulalip Tribes shall be responsible for all costs of the response action or actions taken pursuant to this Section not inconsistent with the NCP. Such reimbursements shall be made pursuant to Paragraph 14. Any disputes regarding a Generator Defendant's obligation to reimburse response costs incurred pursuant to this Section shall be subject to the provisions of Section X of this Decree. This Paragraph does not apply to the Seattle School District or SDC Defendants or their Related Entities.

7. Subject to Section XI (Covenants by Plaintiff), nothing in this Consent Decree shall be deemed to limit any authority of the United States (1) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste

Material on, at, or from the Site, or (2) to direct or order such action, or seek an order from the Court, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site. Generator Defendants reserve, and this Consent Decree is without prejudice to, rights of Generator Defendants to contest or defend against any such action taken pursuant to this Paragraph.

8. Generator Defendants, Settling Federal Agencies, and SDC Defendants and their Related Entities shall not be responsible for any response action taken pursuant to this Section which was necessitated by negligent or wrongful acts or omissions of Waste Management, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities related to the construction of the cover system pursuant to the Waste and Tribes Decree, or any negligent or wrongful acts or omissions of the Tulalip Tribes or its agents, contractors, subcontractors during the construction of the cover system. The actions of Waste Management or the Tulalip Tribes shall not be deemed to be negligent or wrongful as long as Waste Management or the Tulalip Tribes can demonstrate that it was acting in compliance with and within the scope of Work Plans approved by EPA or otherwise acting in compliance with and within the scope of an Order issued by EPA.

VII. REIMBURSEMENT OF RESPONSE COSTS

9. Within thirty (30) days of the effective date of this Consent Decree, Generator Defendants Monsanto Company, Lockheed Martin Corporation, Sears, Roebuck and Co., Port of Seattle, R.W. Rhine, Inc., City of Mercer Island, Seattle School District, and Quemetco, Inc. shall pay the amounts set forth in Appendix D to Waste Management for implementation and performance of the Interim Remedial Action at the Site by wire transfer to the following address:

Mellon Bank
Pittsburgh, PA
ABA Routing No. 043000261
WMX Technologies, Inc.
Account No. 1979409

and notice that such disbursement to Waste Management has been made by the Generator Defendants shall be sent to Waste Management at the following address:

Steven D. Richtel
Waste Management, Inc.
3900 South Wadsworth Boulevard
Suite 800
Lakewood, CO 80235.

10. Generator Defendant Board of the Regents of the University of Washington shall pay the amount set forth in Appendix D to Waste Management in accordance with instructions provided in Paragraph 9 thirty (30) days of the effective date of this Consent Decree. Generator Defendant Board of the Regents of the University of Washington shall make all

interest payments required by this paragraph in the manner described in Paragraph 14.

11. Subject to the provisions of Paragraph 12 of this Consent Decree, the United States, on behalf of the Settling Federal Agencies, shall, within 120 days after receipt of notice of the effective date of this Consent Decree, pay to Waste Management the amount set forth in Appendix D by certified check in accordance with instructions provided in Paragraph 9.

12. The Generator Defendants recognize and acknowledge that the payment obligations of the Settling Federal Agencies under this Consent Decree can only be paid from appropriated funds legally available for such purpose. Nothing in this Consent Decree shall be interpreted or construed as a commitment or requirement that any Settling Federal Agency obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341, or any other applicable provision of law.

13. Subject to the fulfillment of each of their respective obligations pursuant to this Decree, the payments provided in Paragraphs 9, 10 and 11 above, reflect each of the Generator Defendants' and the Settling Federal Agencies' equitable share of Past and Future Response Costs.

14. Within thirty (30) days of receipt of notice from EPA that payment of stipulated penalties, Interest, and/or Future Response Costs are due and payable pursuant to Paragraphs 15, 21, 22, 23 and Section VI of this Decree, the Generator Defendant who received such notice shall send its payment to EPA's Tulalip

Landfill Special Account in the form of a Fedwire electronic Funds Transfer ("EFT" or wire transfer) or certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund" and referencing EPA Region 10, the Tulalip Landfill Special Account, EPA Site/Spill ID #10B3, and the name and address of the party making payment. Such Settlor shall send the check(s) to the following address:

Mellon Bank
EPA-Region 10
Attention: Superfund Accounting
P.O. Box 360903M
Pittsburgh, PA 15251

Any payments made pursuant to this Paragraph shall be deposited in the Tulalip Landfill Special Account within the EPA Hazardous Substances Superfund to be retained and used to conduct or finance the response action at or in connection with the Site. Any balance remaining in the Tulalip Landfill Special Account shall be transferred by EPA to the EPA Hazardous Substances Superfund. Generator Defendants and the Settling Federal Agencies shall send notice that the payments required pursuant to this Paragraph and Paragraphs 9, 10 and 11, above, have been made to Waste Management, as specified in Section XV (Notices and Submissions) and to Joseph Penwell, Regional Financial Management Officer, 1200 6th Avenue, Seattle, Washington 98101. Within 120 days of receipt of notice that Future Response Costs are due and payable Settling Federal Agencies shall make such payments in the manner set forth in this Paragraph.

15. In the event that any Generator Defendant fails to make the payments required by Paragraph 9 above within thirty (30) days of the dates provided in this Consent Decree, such Generator Defendant shall pay Interest to EPA on the unpaid balance. The Interest to be paid on payments set forth in Appendix D and Paragraph 9 shall begin to accrue from the effective date of this Consent Decree. The Interest shall accrue through the date of the Generator Defendant's payment. Payments of Interest made under this paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of a Generator Defendant's failure to make timely payments under this section. Such Generator Defendant shall make all payments required by this paragraph in the manner described in Paragraph 14.

VIII. FAILURE OF INTERIM REMEDIAL ACTION

16. Generator Defendants' and Settling Federal Agencies' Obligation To Perform or Fund Further Response Actions to Address Failure of Interim Remedial Action. If EPA selects response actions to address Failure of the Interim Remedial Action, such further response actions shall be funded consistent with this Section. Such method of funding set forth in this Section shall solely apply to Generator Defendants' and Settling Federal Agencies' obligations to fund further response actions to address Failure of the Interim Remedial Action. "Failure of the Interim Remedial Action" shall mean that EPA has made a written determination that the cover system constructed by Waste

Management and the Operation and Maintenance performed by Waste Management and the Tulalip Tribes has not effectively provided long-term minimization of the migration of liquids through the landfill such that further response action is necessary in order to protect public health or the environment. The necessity for further response action shall be determined by EPA after the performance of a written, streamlined risk assessment consistent with EPA's policies and procedures on the presumptive remedies for CERCLA municipal landfill sites. It may rely upon information already contained in the August, 1995 Tulalip Landfill Risk Assessment for the Interim Remedial Action, including the contaminants of concern, the relevant receptors and media, toxicity evaluations, and other relevant information. The assessment will incorporate monitoring data collected during operation and maintenance of the cap as specified in the Interim ROD and any post-construction care document approved by EPA. If leachate seeps of concern continue after the cover system has been certified complete and the cover system was constructed in accordance with the performance standards in the Interim ROD and the SOW, EPA will consider the following factors in order to determine whether further response actions are necessary:

a. the number and magnitude of exceedances over relevant standards for each contaminant of concern over time;

b. the number of contaminants in exceedance of environmental standards and criteria;

c. the number and/or flow rates of leachate seeps over time; and

d. the costs and benefits of additional remedial action.

17. Generator Defendants and Settling Federal Agencies shall not be responsible for costs of further response actions to address Failure of the Interim Remedial Action to the extent that Generator Defendants or Settling Federal Agencies can establish:

a. within three (3) years (or longer period of time to be determined by EPA and Waste Management in writing pursuant to the criteria specified in Section 4.6.4 of the SOW attached to the Waste and Tribes Decree, but in any event not to exceed five (5) years) from the date Generator Defendants received EPA's written certification of completion of the cover system, that such costs are incurred as a result of

(i) Waste Management's failure to perform the Work as specified in the Waste Management and Tribes AOC and Decree, including the SOW developed thereto, and as specified in the Interim ROD, or,

(ii) Waste Management's failure to comply with work plans and other plans, standards, and specifications set forth in the Waste Management and Tribes AOC and Decree, including Performance Standards identified in the Interim ROD and as further delineated in the SOW, and the Construction Quality Assurance Plan, the Operation and Maintenance Plan; or,

b. that such costs are incurred as a result of a failure by the Tulalip Tribes to comply with the Operation and Maintenance Plan, and the land use plan according to the Interim

ROD entitled "Routine Use of Tulalip ('Big Flats') Landfill" developed pursuant to the Waste Management and Tribes Decree.

18. Subject to the provisions of the preceding Paragraph 17, Generator Defendants and Settling Federal Agencies responsible for further response actions shall make payments in the following manner:

a. The first $250,000 of response costs incurred shall be the responsibility of the Tulalip Tribes.

b. The next $3,000,000 of response costs incurred shall be the responsibility of EPA.

c. The next $1,750,000 of response costs incurred shall be the responsibility, jointly and severally, of Generator Defendants Monsanto Company, Board of the Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., City of Mercer Island, and Quemetco, Inc.

d. Any response costs incurred above $5,000,000 shall be the responsibility of the Settling Federal Agencies.

e. R.W. Rhine, Inc. and the Seattle School District have no obligations to perform or fund further response actions at the Site to address Failure of the Interim Remedial Action.

19. For purposes of paragraph 18(c) above, Generator Defendants Monsanto Company, Board of the Regents of the University of Washington, Lockheed Martin Corporation, Port of Seattle, Sears, Roebuck and Co., City of Mercer Island, and Quemetco, Inc. shall calculate their individual shares of

liability as follows, pursuant to the amount set forth in Appendix E: each such Generator Defendant's total payment set forth in Appendix E shall be divided by the total payments of all Generator Defendants referenced in Appendix E of this Consent Decree. This number shall be multiplied by 100 to determine an individual Generator Defendants' percentage share of response costs to address Failure of the Interim Remedial Action.

20. To the extent that any Generator Defendant fails to pay its share of response costs to address the Failure of Interim Remedial Action, each of the other Generator Defendants who is responsible for costs of further response actions pursuant to this Section, must increase its share proportionately to account for that portion of a payment not paid by another Generator Defendant.

21. Within 30 days of receipt of written notice from EPA that further response actions are necessary and payments are due pursuant to Paragraph 16, to address Failure of the Interim Remedial Action, the Generator Defendants shall make all payments to fund the performance of such further response actions. Within 120 days of receipt of written notice from EPA that further response actions are necessary and payments are due pursuant to Paragraph 16, to address Failure of the Interim Remedial Action, Settling Federal Agencies shall make all payments to fund performance of such further response actions. Such payments shall be made by Generator Defendants and Settling Federal Agencies in the form of a certified or cashier's check or checks

made payable to the EPA Tulalip Landfill Site Specific Account pursuant to the payment provisions of Paragraph 14 of this Decree and reference the name and address of the party making payment. The Generator Defendants and Settling Federal Agencies shall send copies of the check(s) to the United States as specified in Section XV, Notices and Submissions.

22. In the event that any Generator Defendant fails to make the payments required by Paragraph 16 above within thirty (30) days of receipt of a demand for payment, such Generator Defendant shall pay Interest on the unpaid balance. The Interest to be paid on the unpaid balance shall begin to accrue from the date of receipt of the demand for payment through the date of payment. Payments of Interest made under this paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of a Generator Defendant's failure to make timely payments under this section. Such Generator Defendant shall make all payments required by this paragraph in the manner described in Paragraph 14.

IX. FAILURE TO MAKE TIMELY PAYMENTS

23. Stipulated Penalty. If any amounts due to the United States or Waste Management under this Consent Decree are not paid by a Generator Defendant by the required date, such Generator Defendant shall pay to EPA as a stipulated penalty, in addition to the Interest required by Paragraphs 15 and 22, up to $3,000.00 per day at EPA's discretion, that such payment is late. Stipulated penalties are due and payable within thirty (30) days

of the Generator Defendant's receipt from EPA of a demand for payment of the penalties. However, Stipulated Penalties shall not accrue with respect to a decision by the Director of the Office of Environmental Cleanup, EPA Region 10, under Paragraphs 28.b. or 29.b. of Section X (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that an invoking Generator Defendant's reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute. Payments of stipulated penalties and Interest for late payments due under this Consent Decree shall be paid to EPA's Tulalip Landfill Site-Specific Account pursuant to the payment provisions of Paragraph 14 of this Decree. All payments under this paragraph shall be paid by certified check. Copies of check[s] paid pursuant to this paragraph, and any accompanying transmittal letter, shall be sent to the United States as provided in Section XV (Notices and Submissions).

24. If the United States must bring an action to collect any payment required by this Consent Decree, the Generator Defendant against whom the United States files an action shall reimburse the United States for all costs of such action, including, but not limited to, costs of attorney time.

25. Payments made under Paragraph 23 shall be in addition to any other remedies or sanctions available to Plaintiff by virtue of a Generator Defendant's failure to make timely payments required by this Decree.

X. DISPUTE RESOLUTION

26. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree.

27. Any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

28. a. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding paragraph, then the position advanced by EPA shall be considered binding unless, within 20 days after the conclusion of the informal negotiation period, Generator Defendants invoke the formal dispute resolution procedures of this section by serving on the United States a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the Generator Defendants. The Statement of Position shall specify the Generator Defendants' position as to whether formal dispute resolution should proceed under Paragraph 29 or Paragraph 30.

b. Within 20 days after receipt of Generator Defendants' Statement of Position, EPA will serve on Generator Defendants its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 29 or 30. Within 20 days after receipt of EPA's Statement of Position, Generator Defendants may submit a Reply.

c. If there is disagreement between the United States and the Generator Defendants as to whether dispute resolution should proceed under Paragraph 29 or 30, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if the Generator Defendants ultimately appeal to the Court to resolve the dispute, the Court shall determine which paragraph is applicable in accordance with the standards of applicability set forth in Paragraphs 29 and 30.

29. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this paragraph. For purposes of this paragraph, the adequacy of any response action includes, without limitation, EPA's determination that there has been a Failure of the Interim Remedial Action at the

Site, as defined in Paragraph 16 above. Nothing in this Consent Decree shall be construed to allow any dispute by Generator Defendants regarding provisions of the Interim ROD.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute invoking dispute resolution.

b. The Director of the Office of Environmental Cleanup, EPA Region 10, will issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 29 a. This decision shall be binding upon the Generator Defendants, subject only to the right to seek judicial review pursuant to Paragraph 29 c. and d.

c. Any administrative decision made by EPA pursuant to Paragraph 29 b. shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by the Generator Defendants with the Court and served on all Parties within 20 days of receipt of EPA's decision. The motion shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Generator Defendants' motion.

d. In proceedings on any dispute governed by this paragraph, Generator Defendants shall have the burden of demonstrating that the decision of the Director of the Office of Environmental Cleanup is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to Paragraph 29 a.

30. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this paragraph.

a. Following receipt of Generator Defendants' Statement of Position submitted pursuant to Paragraph 28, the Director of the Office of Environmental Cleanup, EPA Region 10, will issue a final decision resolving the dispute. The Office of Environmental Cleanup Director's decision shall be binding on the Generator Defendants unless, within 20 days of receipt of the decision, the Generator Defendants file with the Court and serve on the parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to Generator Defendants' motion.

b. Notwithstanding Paragraph K of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this paragraph shall be governed by applicable principles of law.

31. The invocation of formal dispute resolution procedures under this section shall not extend, postpone, or affect in any way any obligation of the Generator Defendants under this Consent Decree not directly in dispute, unless EPA or the Court agrees otherwise. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 14. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that the Generator Defendants do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section IX (Failure to Make Timely Payments).

XI. COVENANTS BY PLAINTIFF

32. In consideration of the payments that will be made by the Generator Defendants and the payments that will be made by the Settling Federal Agencies under the terms of the Consent Decree, and except as specifically provided in Paragraphs 16, 33, 34, 35, 36, 37, and 38 of this Section, the United States covenants not to sue or to take administrative action against Generator Defendants and their Related Entities with respect to

the Site and EPA covenants not to take administrative action against the Settling Federal Agencies with respect to the Site, pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607, Section 311 of the CWA as that section pertains to "removal actions and removal costs" only, Section 301 and 309 of the CWA with respect to liability for civil penalties for discharges resulting solely from disposal of Waste Material at On-Source Areas of the Site prior to issuance of the Interim ROD, and Section 7003 of RCRA. The United States' covenants as to each Generator Defendant and their Related Entities shall take effect upon the receipt by EPA of Notice required pursuant to Paragraph 14 and receipt by Waste Management of the payments by such Generator Defendant required by Paragraphs 9 and 10. EPA's covenants not to take administrative action against the Settling Federal Agencies shall take effect upon receipt by EPA and Waste Management of the payments required by Paragraph 11 of Section VII (Reimbursement of Response Costs). However, if any Related Entity of a Generator Defendant asserts any claims or causes of action with respect to the Site against the United States, which if asserted by such Generator Defendant would be inconsistent with the Covenant Not to Sue by Generator Defendants in Paragraphs 39, 41, 42, and 43, the Covenant By Plaintiff shall be void with respect to that party or any alter ego of that party bringing the claims or causes of action. The United States' covenants and EPA's covenants not to take administrative action against the Settling Federal Agencies extend only to the

Generator Defendants and their Related Entities and the Settling Federal Agencies and do not extend to any other person.

33. United States' reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Generator Defendants and their Related Entities, and EPA reserves the right to issue an administrative order seeking to compel the Settling Federal Agencies (1) to perform further response actions relating to the Site, or (2) to reimburse the United States for additional costs of response, if:

(i) conditions at the Site, previously unknown to EPA, are discovered; or

(ii) information, previously unknown to EPA, is received, in whole or in part;

and these previously unknown conditions or information together with any other relevant information indicates that the Interim Remedial Action is not protective of human health or the environment. EPA, the Settling Federal Agencies, and the Generator Defendants agree that the terms "new conditions" or "new information" shall not include a determination by EPA that the Selected Interim Remedial Action, despite being properly designed and constructed by Waste Management in compliance with all obligations and requirements imposed by EPA, including those under the AOC between Waste Management and EPA, and the Waste Management and Tribes Decree (including the SOW developed

thereto), the Interim ROD (including the performance standards therein), the Construction Quality Assurance Plan, and Operation and Maintenance Plan, has failed to minimize migration of liquids through the landfill. This Paragraph shall not apply to the Seattle School District or the SDC Defendants and their Related Entities.

34. For purposes of Paragraph 33, the information and the conditions known to EPA shall include only that information and those conditions known to EPA as of the date the Interim ROD was signed and set forth in the Record of Decision for the Site and the administrative record supporting the Record of Decision.

35. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or a new action against Generator Defendants or their Related Entities, or to issue an administrative order or take administrative action seeking Generator Defendants or their Related Entities or Settling Federal Agencies, to perform further response actions necessary to protect human health and the environment relating to the Off-Source Areas. This Paragraph shall not apply to R.W. Rhine, Inc., the Seattle School District, or SDC Defendants and their Related Entities.

36. General reservations of rights. The covenants not to sue set forth above do not pertain to any matters other than those expressly specified in Paragraph 32. The United States

reserves, and this Consent Decree is without prejudice to, all rights against Generator Defendants and Related Entities and the Settling Federal Agencies, with respect to all other matters, including, but not limited to, the following, provided, however, that claims or causes of action brought by the United States pursuant to the reservation of rights in this Paragraph shall not void the contribution protection pursuant to this Decree or the covenant not to sue for matters outside the scope of these reservations of rights:

(a) claims based on a failure by Generator Defendants or the Settling Federal Agencies to meet a requirement of this Consent Decree;

(b) claims against Monsanto and/or the Port of Seattle based on a failure by Monsanto or the Port of Seattle to fulfill the remaining obligations of the existing AOC for RI/FS to which Monsanto Company and the Port of Seattle are signatories. Such remaining obligations of Monsanto and the Port of Seattle pursuant to the AOC for RI/FS shall not include implementation of remedial action for the Site. If the Final Comprehensive Baseline Risk Assessment ("CBRA") for the Off-Source Areas of the Site is not released by EPA to the AOC for RI/FS Signatories ("AOC Signatories") by August 29, 1997, then the AOC Signatories, including Monsanto and the Port of Seattle, shall not be responsible for EPA response costs under the AOC for RI/FS which are incurred from August 29, 1997, through the date of issuance of the CBRA to the AOC Signatories. In addition, if by

September 30, 1997, EPA fails to send the AOC Signatories a letter containing EPA's decision regarding whether the AOC Signatories will have to prepare either a feasibility study for the Off-Source Areas of the Site which evaluates technical remediation alternatives of wetland sediments in the Off-Source Areas or a more streamlined feasibility study, then the AOC Signatories, including Monsanto and the Port of Seattle, shall not be responsible for EPA response costs under the AOC for RI/FS which are incurred from September 30, 1997, to the date of issuance of the letter to the AOC Signatories;

(c) liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Site, except to the extent that the sole basis for liability at another Site is the migration of Waste Material from the Site;

(d) liability for future placement, transportation, storage, arrangement for disposal or disposal of Waste Material at the Site, excluding continuing releases of Waste Material existing at the Site prior to issuance of the Interim ROD;

(e) liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments, including, without limitation, any such claims brought by or on behalf of any Settling Federal Agency;

(f) criminal liability; and

(g) liability for violations of federal law which occur during or after implementation of the Interim Remedial Action.

37. Notwithstanding any other provision of this Consent Decree, the United States retains all authority and reserves all rights to take any and all response actions authorized by law. However, such authorities and reservation of rights do not impair the covenants as set forth in this Section.

38. Notwithstanding any provision of this Consent Decree, the United States hereby retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XII. COVENANTS BY GENERATOR DEFENDANTS AND SETTLING FEDERAL AGENCIES

39. Covenant Not to Sue by Generator Defendants. Subject only to the specific reservations set forth in Paragraph 44, Generator Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States with respect to the Site or this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through Sections 106(b)(2), 107, 111, 112, and 113 of CERCLA, 42 U.S.C.

§§ 9606(b)(2), 9607, 9611, 9612, and 9613, or any other provision of law;

b. any claims against the United States, including any department, agency, or instrumentality of the United States under Sections 107 and/or 113 of CERCLA, 42 U.S.C. §§ 9607 or 9613, related to the Site; or

c. any claims arising out of response activities at the Site, including claims based on EPA's selection of response actions, oversight of response activities, or approval of plans for such activities. However, notwithstanding the foregoing, if the United States brings a claim or cause of action related to costs associated with the CBRA or the letter referenced in Paragraph 36(b) of this Decree which is inconsistent with the United States' commitments in Paragraph 36(b), Generator Defendants may assert counterclaims under Paragraph 36(b) to the same extent and for the same matter as that raised in the claim asserted against that Generator Defendant.

40. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

41. In consideration of the Waste Management and Tulalip Tribes' covenant not to sue and agreement not to assert any claims or causes of action against any of the Generator Defendants or their Related Entities with respect to the Site in the Waste Management and Tribes Decree, and except as otherwise

provided in Paragraph 44 a., b., c., and e. of this Consent Decree, Generator Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against Waste Management or their Related Entities and the Tulalip Tribes or their Related Entities with respect to the Site.

42. In consideration of the SDC Defendants' covenant not to sue and agreement not to assert any claims or causes of action against any of the Generator Defendants or their Related Entities with respect to the Site in the SDC Defendants Decree, and except as otherwise provided in Paragraph 44 a., b., and e. of this Consent Decree, Generator Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against SDC Defendants or their Related Entities with respect to the Site.

43. Subject only to the specific reservations set forth in Paragraphs 44 and 52, each of the Generator Defendants hereby covenants not to sue and agrees not to assert any claims or causes of action, including claims pursuant to Sections 107 and/or 113 of CERCLA, against any person relating to liability for Matters Addressed in this Consent Decree.

44. <u>Generator Defendants' reservations.</u> Notwithstanding Paragraphs 39, 41, 42, and 43, each of the Generator Defendants reserves, and this Consent Decree is without prejudice to, the rights of each Generator Defendant:

a. to assert claims or defenses that each Generator Defendant may have against any person or entity, with the

exception of the United States on behalf of EPA, who brings an action against that Generator Defendant seeking to require further response actions, to recover response costs, or otherwise seeking to impose liability or to recover response costs for Matters Addressed in this Consent Decree; provided, however, that such claims shall be limited to the same scope and may be asserted only to the same extent and for the same matters, transactions, or occurrences as are raised in the claim asserted against that Generator Defendant;

b. to assert any claims against any person or entity other than the United States, and to assert claims against Settling Federal Agencies pursuant to sections 107 and/or 113 of CERCLA, if the United States institutes judicial proceedings, issues an order or takes administrative action against that Generator Defendant pursuant to Paragraphs 33, 35, or 36 (other than subparagraphs a., b., f., and g.), or if any of the natural resource trustees brings an action for natural resource damages; provided, however, that such claims shall be limited to the same scope and may be asserted only to the same extent and for the same matters, transactions, or occurrences as are raised in the claim asserted by the United States against that Generator Defendant. Notwithstanding any other provision of this Consent Decree, in the event that the United States institutes judicial proceedings, issues an order, or takes administrative action against a Generator Defendant pursuant to Paragraphs 33, 35, or 36 (other than subparagraphs a., b., f., and g.) or if any of the

natural resource trustees brings an action for natural resource damages, that Generator Defendant's reservations and rights against Settling Federal Agencies are limited to those set forth in this subparagraph 44 b. Further, in the event that any such claims are asserted against the Settling Federal Agencies, the Settling Federal Agencies reserve, and this Consent Decree is without prejudice to, all rights of the Settling Federal Agencies to contest or defend against those claims. Notwithstanding any other provision of this Consent Decree, Generator Defendants shall not bring a claim or cause of action, including claims pursuant to sections 107 and/or 113 of CERCLA, against SDC Defendants or their Related Entities or the Seattle School District in the event the United States brings an action against such Generator Defendant pursuant to Paragraph 33; against SDC Defendants or their Related Entities, the Seattle School District, Waste Management or their Related Entities, or R.W. Rhine, Inc. in the event that the United States brings an action against such Generator Defendant pursuant to Paragraph 35; or against SDC Defendants or their Related Entities, the Seattle School District, Waste Management or their Related Entities, or R.W. Rhine, Inc., in the event that the United States requires further response action pursuant to Paragraph 16 of this Consent Decree;

c. to assert any and all claims or causes of action against Waste Management, the Tulalip Tribes, Settling Federal Agencies or other Generator Defendants relating to costs incurred

pursuant to Section VI (Emergency Response) of this Decree; except that no such claims or causes of action may be asserted against the Seattle School District or SDC Defendants or their Related Entities;

d. to assert any and all claims or causes of action that they may have against insurers;

e. to assert any and all claims or causes of action and to exercise any and all other rights that they may have with respect to matters beyond those addressed in this Consent Decree;

f. to assert any and all claims or causes of action against a non-settling PRP at the Site, and Generator Defendant Quemetco, Inc., only with respect to costs incurred or to be incurred by Monsanto Company, the Port of Seattle, and Quemetco, Inc., pursuant to the AOC for RI/FS; and

g. to assert claims against any Generator Defendant who fails to make a required payment under Paragraph 18.c.

45. Covenant Not to Sue by Settling Federal Agencies. In consideration of the Waste Management and Tulalip Tribes' covenant not to sue and agreement not to assert any claims or causes of action against the Settling Federal Agencies with respect to the Site in the Waste Management and Tribes Decree, and except as otherwise provided in this Consent Decree or the Waste and Tribes Decree, the Settling Federal Agencies hereby covenant not to sue and agree not to assert any claims or causes of action against Waste Management or their Related Entities and

the Tulalip Tribes or their Related Entities with respect to the Site.

46. In consideration of the SDC Defendants' covenant not to sue and agreement not to assert any claims or causes of action against the Settling Federal Agencies with respect to the Site in the SDC Defendants' Decree, and except as otherwise provided in this Consent Decree or in the SDC Defendants' Consent Decree, the Settling Federal Agencies hereby covenant not to sue and agree not to assert any claims or causes of action against SDC Defendants or their Related Entities with respect to the Site.

47. Subject only to the specific reservations set forth in Paragraph 48, each of the Settling Federal Agencies hereby covenants not to sue and agrees not to assert any claims or causes of action, including pursuant to sections 107 and/or 113 of CERCLA, against Generator Defendants or any person, relating to liability for Matters Addressed in this Consent Decree.

48. <u>Settling Federal Agencies' reservations.</u> Notwithstanding Paragraphs 45, 46, and 47 above, each of the Settling Federal Agencies reserves, and this Consent Decree is without prejudice to, the rights of each Settling Federal Agency:

a. to assert claims that each Settling Federal Agency may have against any person or entity who brings an action against that Settling Federal Agency seeking to require further response actions, to recover response costs, or otherwise seeking

to impose liability or recover response costs for Matters Addressed in this Consent Decree; provided, however, that such claims shall be limited to the same scope and may be asserted only to the same extent and for the same matters, transactions, or occurrences as are raised in the claim asserted against that Settling Federal Agency.

b. to assert claims pursuant to sections 107 and/or 113 of CERCLA against any person or entity, including Generator Defendants, if EPA issues an order or takes administrative action against that Settling Federal Agency pursuant to Paragraphs 33, 35, or 36 (other than subparagraphs a., b., f., and g.), if a non-federal natural resource trustee brings an action for natural resource damages, or if a federal resource trustee issues an order or takes administrative action for natural resource damages; provided, however, that such claims shall be limited to the same scope and may be asserted only to the same extent and for the same matters, transactions, or occurrences as are raised in the claim asserted by EPA or a natural resource trustee against that Settling Federal Agency. Notwithstanding any other provision of this Consent Decree, in the event that EPA issues an order, or takes administrative action against a Settling Federal Agency pursuant to Paragraphs 33, 35, or 36 (other than subparagraphs a., b., f., and g.), if a non-federal natural resource trustee brings an action for natural resource damages or a federal natural resource trustee issues an order or takes administrative action for natural resource damages, that Settling

Federal Agency's reservations and rights against Generator Defendants are limited to those set forth in this subparagraph 48.b. Notwithstanding any other provision of this Consent Decree, Settling Federal Agencies shall not bring a claim or cause of action, including claims pursuant to sections 107 and/or 113 of CERCLA, against the SDC Defendants or their Related Entities or the Seattle School District in the event EPA takes action against such Settling Federal Agency pursuant to Paragraph 33; against the SDC Defendants or their Related Entities, the Seattle School District, Waste Management or their Related Entities, or R.W. Rhine, Inc. in the event that EPA takes administrative action against such Settling Federal Agency pursuant to Paragraph 35; or against the SDC Defendants or their Related Entities, the Seattle School District, Waste Management or their Related Entities, or R.W. Rhine, Inc. in the event that EPA requires further response action pursuant to Paragraph 16 of this Consent Decree.

c. to assert any and all claims or causes of action against Waste Management, Tulalip Tribes, or other Generator Defendants relating to costs incurred pursuant to Section VI (Emergency Response) of this Decree; except that no such claims or causes of action may be asserted against the Seattle School District or SDC Defendants or their Related Entities.

d. to assert any and all claims or causes of action and to exercise any and all other rights that they may have with respect to matters beyond those addressed in this Consent Decree.

49. Generator Defendants' reservations to contest or defend. If the United States institutes proceedings, issues an order, or takes other action pursuant to Paragraphs 33 or 35, or if any of the natural resource trustees brings an action for natural resource damages, Generator Defendants reserve, and this Consent Decree is without prejudice to, the rights of Generator Defendants to contest or defend against the proceedings, order, or action.

50. If the United States takes any response action pursuant to Paragraph 16, Generator Defendants reserve, and this Consent Decree is without prejudice to, the rights of Generator Defendants to contest or defend against any such action, pursuant to Section X (Dispute Resolution) of this Consent Decree.

51. If the United States exercises its information gathering or inspection authorities or rights, institutes an enforcement action, or takes other action against Generator Defendants pursuant to Paragraph 38, Generator Defendants reserve, and this Consent Decree is without prejudice to, rights of Generator Defendants to contest or defend against any such action.

52. Notwithstanding Paragraph 43, the Port of Seattle reserves its right to assert a claim or cause of action against Manson Construction Company arising out of liability for Waste Material brought to the Site.

XIII. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

53. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree other than Related Entities which shall be entitled to the protection afforded by Paragraph 32 and Paragraph 54 of this Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this Decree may have under applicable law. The Generator Defendants, Settling Federal Agencies, and the United States hereby agree that Waste Management and its Related Entities, the Tulalip Tribes and their Related Entities and SDC Defendants and their Related Entities are third-party beneficiaries of the Covenants Not To Sue by the Generator Defendants and Settling Federal Agencies as specified in Section XII (Covenants By Generator Defendants And Settling Federal Agencies) of this Decree.

54. The Parties agree, and by entering this Consent Decree this Court finds, that the Generator Defendants and their Related Entities and the Settling Federal Agencies are entitled, as of the date of receipt by EPA of notice required pursuant to Paragraph 14 and receipt by Waste Management of the payments by such Generator Defendant or Settling Federal Agencies required by Paragraphs 9, 10, and 11 to the fullest extent of protection from actions or claims as provided by Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2) and other applicable law, for Matters Addressed in this Consent Decree. However, if a Related Entity

of a Generator Defendant initiates any claims or causes of action against the Tulalip Tribes, any PRP, or any other person or entity which if asserted by such Generator Defendant would be inconsistent with the Covenants Not to Sue and Reservation of Rights by Generator Defendants in Paragraphs 39, 41, 42, 43, and 44, the contribution protection granted to such Related Entity pursuant to this Consent Decree shall be void. "Matters Addressed" in this Consent Decree shall mean all response actions taken or to be taken and all response costs incurred or to be incurred by the United States or the Tulalip Tribes, or any other person or entity with respect to the Site; provided, however, with respect to Monsanto, the Port of Seattle, and Quemetco, Inc., Matters Addressed shall not include response actions and response costs incurred or to be incurred pursuant to the AOC for RI/FS for which Monsanto and the Port of Seattle have remaining obligations; and provided further that R.W. Rhine, Inc. and the Seattle School District shall have no obligations with respect to response actions performed or to be performed and response costs incurred or to be incurred pursuant to the AOC for RI/FS. The remaining obligations of Monsanto Company and the Port of Seattle pursuant to the AOC for RI/FS shall not include implementation of remedial action for the Site.

55. The Generator Defendants agree that with respect to any claim brought by them for matters related to this Consent Decree they will notify the United States, in writing, no later than sixty (60) days prior to the initiation of such suit or

claim, other than claims or actions relating to obligations of insurers.

56. In any subsequent administrative or judicial proceeding initiated by any party with respect to natural resources damages, payments due under this Decree, or compliance with the AOC for RI/FS for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, the Parties shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this paragraph affects the enforceability of the covenants not to sue set forth in Section X (Covenants by Plaintiff).

XIV. RETENTION OF RECORDS

57. Until ten (10) years after the Generator Defendants' receipt of EPA's notification that Waste Management has received Certification of Completion of the construction of the cover system, each Generator Defendant shall preserve and retain all records and documents now in its possession or control or which come into its possession or control that relate in any manner to the liability of any person for response actions conducted and to be conducted at the Site, regardless of any corporate retention policy to the contrary.

58. At the conclusion of this document retention period, Generator Defendants shall notify the United States at least ninety (90) days prior to the destruction of any such records or documents, and, upon request by the United States, Generator Defendants shall deliver any such records or documents to EPA. The Generator Defendants may assert that certain documents, records, and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Generator Defendants assert such a privilege, they shall provide the Plaintiff with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Generator Defendants.

59. Each Generator Defendant hereby certifies individually that, to the best of its knowledge and belief, after thorough inquiry, it has not knowingly altered, mutilated, discarded, destroyed, or otherwise disposed of any records, documents, or other information relating to its potential liability regarding the Site since notification of potential liability by the United States regarding the Site, and that it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA, 42 U.S.C.

§§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927. Each Generator Defendant shall identify all records, documents or other information relating to its potential liability regarding the Site that it has reason to believe have been altered, mutilated, discarded, destroyed or otherwise disposed of by it since notification of potential liability by the United States.

60. Each Settling Federal Agency hereby certifies that, to the best of its knowledge and belief, (1) it has complied, and will continue to comply, with all applicable Federal record retention laws, regulations, and policies, (2) after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any records, documents, or other information relating to its potential liability regarding the Site since notification of potential liability by EPA or the filing of suit against it regarding the Site, and (3) it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA, 42 U.S.C. § 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 9627.

XV. NOTICES AND SUBMISSIONS

61. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a

change to the other Parties, in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the Settling Federal Agencies, and the Generator Defendants, respectively.

<u>As to the United States:</u>

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044
Re: DOJ # 90-11-3-1412

and

Chief, Environmental Defense Section
United States Department of Justice
Environmental and Natural Resources Division
P.O. Box 23986
Washington, D.C. 20026-3986

<u>As to EPA:</u>

Loren McPhillips
EPA Project Coordinator
United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

<u>As to the Generator Defendant Monsanto:</u>

Brent J. Gilhousen, Esq.
Monsanto Company
800 North Lindbergh Boulevard
St. Louis, MO 63167

Mr. Larry Adams
Monsanto Company
8192 Deauville Drive
Huntington Beach, CA 92646

As to the Generator Defendant Sears, Roebuck and Co.:

Frederick J. Kulevich, Esq.
Sears, Roebuck and Co.
Law Department, Mail Box B-6-371B
3333 Beverly Road
Hoffman Estates, IL 60179

As to the Generator Defendant Port of Seattle:

Rod Brown, Esq.
Marten & Brown
1191 Second Avenue, Suite 2200
Seattle, WA 98101

Thomas A. Newlon, Esq.
Port of Seattle
2711 Alaskan Way, Pier 69
Seattle, WA 98121

As to the Generator Defendant R.W. Rhine, Inc., Board of Regents of the University of Washington, Lockheed Martin Corporation, City of Mercer Island, Seattle School District, and Quemetco, Inc.:

As set forth on each of the Generator Defendants' respective signature page.

XVI. EFFECTIVE DATE

62. This Consent Decree shall not take effect until entry of this Consent Decree and entry of the Waste Management and Tribes Decree by the Court, except as otherwise provided herein.

XVII. RETENTION OF JURISDICTION

63. This Court retains jurisdiction over both the subject matter of this Consent Decree and the Generator Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further

order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section X (Dispute Resolution) hereof.

XVIII. APPENDICES

64. The following appendices are attached to and incorporated into this Consent Decree:

"Appendix A" is the Record of Decision.

"Appendix B" is a description and/or map of the Site.

"Appendix C" is the complete list of Settling Federal Agencies.

"Appendix D" is the amount due by Generator Defendants.

"Appendix E" is the list of dollar amounts (with credits) to be used by Generator Defendants for future work calculations under Paragraph 19 of this Decree.

"Appendix F" is the Waste Management and Tribes Decree and the SDC Defendants Decree.

XIX. MODIFICATION

65. Nothing in this Decree shall be deemed to alter the Court's power to enforce, supervise, or approve modifications to this Consent Decree.

XX. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

66. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States

reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. Generator Defendants consent to the entry of this Consent Decree and waive any right to respond to a motion to enter this Consent Decree by the United States.

67. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XXI. SIGNATORIES/SERVICE

68. Each undersigned representative of a Generator Defendant to this Consent Decree and the Assistant Attorney General for Environment and Natural Resources Division of the United States Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

69. Each Generator Defendant consents to the entry and hereby agrees not to oppose entry by this Court or to challenge any provision of this Consent Decree or of any contemporaneous Consent Decree with Waste Management and the Tulalip Tribes or the SDC Defendants Decree attached hereto, which is lodged with

the Court by the United States and provided that it contains substantially equivalent covenants not to sue extending to Generator Defendants and Related Entities, unless the United States has notified the Generator Defendants, in writing, that it no longer supports entry of the Consent Decree.

70. Each Generator Defendant shall identify, on the attached signature page, the name, address, and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. Generator Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons.

SO ORDERED THIS _____ __ DAY OF _____, 19__.

_____
United States District Judge

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date: Aug. 28 1997

LOIS J. SCHIFFER
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

for

JAMES L. NICOLL
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
7600 Sand Point Way, NE
Seattle, WA 98115

for

MARK A. NITCZYNSKI
KAREN SCHODOWSKI
Environmental Defense Section
Environmental & Natural Resources Division
P.O. Box 23986
Washington, D.C. 20026-3986

AUG 15 1997

STEVEN A. HERMAN
Assistant Administrator for
Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

8/5/97

GARY WORTHMAN
Office of Enforcement
and Compliance Assurance
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

CHUCK CLARKE
Regional Administrator, Region 10
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

ELIZABETH A. MCKENNA
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, ORC-158
Seattle, Washington 98101

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR MONSANTO COMPANY,

Date: _____

Michael R. Forrester 7/25/97

Name

Director, Remediation Management Group

Title

800 N. Lindbergh Blvd. - F2EA

Address St. Louis, MO 63167

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Brent J. Gilhousen, Esq.

Title: Assistant General Counsel

Address: 800 N. Lindbergh Blvd.
St. Louis, MO 63167

Tel. Number: (314) 694-8504)

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON,

Date: 15 July 1997

Name

Executive Vice President
Title

Gerberding Hall, U of WA
Address
Seattle WA 98195

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Elizabeth Cherry

Title: Director, Risk Management

Address: 22 Gerberding Hall, University of Washington
Seattle, Washington 98195

Tel. Number: (206) 543-3420

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR LOCKHEED MARTIN CORPORATION,

Date: July 9, 1997

Name James R. Buckley

Associate General Counsel
Title

310 N. Westlake Blvd., Suite 200
Westlake Village, CA 91362
Address

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: James J. DeNapoli

Title: Assistant General Counsel

Address: 7921 Southpark Plaza, Suite 210
Littleton, CO 80120

Tel. Number: (303) 971-1905

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR PORT OF SEATTLE,

Date: 7/9/97

Name

Executive Director

Title

Address

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Linda J. Strout

Title: General Counsel

Address: P.O. Box 1209
Seattle, Washington 98111

Tel. Number: (206) 728-3000

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR SEARS, ROEBUCK AND CO.,

Date: 7/9/97

WILLIAM BAKER
Assistant General Counsel
Sears, Roebuck and Co.
3333 Beverly Road
Hoffman Estates, IL 60179

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Frederick J. Kulevich, Esq.

Title: Tulalip Landfill Project Coordinator

Address: Law Department, Mail Box B6-371B
3333 Beverly Road
Hoffman Estates, IL 60179

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR R.W. RHINE, INC.

Date: JULY 8, 1997

× [signature]
Name

President
Title

1124 112th St E, Tacoma WA 98445
Address

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Ater Wynne Hewitt Dodson & Skerritt, LLP
Thomas M. Kilbane

Title: Attorney

Address: Two Union Square, 601 Union Street
Suite 5450
Seattle, Washington 98101-2327

Tel. Number: (206) 623-4711

ORIGINAL

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR CITY OF MERCER ISLAND,

Date: 6-30-97

Richard M. Conrad
Name

City Manager
Title

9611 SE 36th Street
Address mercer Island WA. 98040

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: David Kahn or Wayne Stewart

Title: City Attorney / Assistant City Attorney

Address: 9611 SE 36th Street
Mercer Island, Washington 98040

Tel. Number: (206) 236-3571

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR SEATTLE SCHOOL DISTRICT,

Date: _____

John Stanford
Name

Superintendent
Title

815 4th Ave. N.
Seattle, WA 98109
Address

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Mark Green

Title: General Counsel

Address: 815 Fourth Avenue North
Seattle, WA 98109

Tel. Number: (206) 298-9110

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. Seattle Disposal Company et al., relating to the Tulalip Landfill Superfund Site.

FOR QUEMETCO, INC.

Date: July 10, 1997

Name: John A. De Paul

Title: Vice President

Address: 2777 Stemmons Freeway
Dallas, Texas 75207

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Hackett, Beecher & Hart
or any member of the Firm

Title:

Address: 2200 Westlake Center
1601 Fifth Avenue
Seattle, Washington 98101-1625

Tel. Number: (206) 624-2200

or

CT Corporation System
520 Pike Street
Seattle, Washington 98101