



January 17, 2012

Ms. Martha Hankins
Washington State Department of Ecology
Toxics Cleanup Program
300 Desmond Drive
Lacey, WA 98503

RE: Comments on the Fish Consumption Rates Technical Support Document, Version 1.0 prepared by the Washington State Department of Ecology, Toxics Cleanup Program, dated September 2011.

Dear Ms. Hankins:

Lockheed Martin Corporation (LMC) has been actively involved in sediment cleanup projects in the Pacific Northwest, including Washington State. As such, we appreciate the opportunity to comment on the Fish Consumption Rates Technical Support Document, Version 1.0 as prepared by Washington Department of Ecology (Ecology) Toxics Cleanup Program dated September 2011. As stated in the problem statement of the technical support document, this document has been prepared in support of and in conjunction with ongoing revisions of the Washington State Sediment Management Standards (SMS) (Washington Administrative Code [WAC] 173-304). The text of the problem statement also states that the adopted fish consumption rates may also be used in consideration of future revisions of the Washington Water Quality Standards for Surface Water (WAC 173-201A) and the Washington State Model Toxics Control Act (MTCA) (WAC 173-340).

LMC's comments on the fish consumption rate technical support document are summarized below, and are organized under two primary topics, including 1) reliance on EPA Region 10 Tribal Framework and 2) overly conservative estimate of risk. Our comments are accompanied by reference to the corresponding document chapter, topic, and page(s) for convenience.

1. RELIANCE ON EPA REGION 10 TRIBAL FRAMEWORK

The EPA Region 10 Framework for Selecting and Using Tribal Fish and Consumption Rates is cited repeatedly in Ecology's fish consumption rates technical support document, and was used to help develop the range of fish consumption rates. The EPA Framework title states that it is a "working document to be applied in consultation with Tribal Governments on a Site-Specific Basis." The EPA Region 10 Tribal Framework does not state that it represents final EPA guidance or policy or that it has been subject to internal or public review and approval. EPA has a federal government trust responsibility to assure that tribal concerns and interests are considered whenever EPA's actions and/or decisions may affect Tribes (particularly on tribal lands). Washington State Department of Ecology does not have this same trust responsibility. For these reasons, it appears inappropriate for the framework to serve as a primary basis for selection of state fish consumption rates and related rulemaking in Washington State (*Chapter 5, EPA Region 10 Framework, pages 78 through 79*).

2. OVERLY CONSERVATIVE ESTIMATE OF RISK

From a sediment cleanup perspective, adoption of the recommended range in fish consumption rates will result in closer to a worst-case scenario based on protection of a very small portion of the population than a reasonable maximum exposure (RME) scenario as defined under MTCA (i.e. the highest exposure that is reasonably expected to occur at a site). In many cases, the high seafood consumption rate associated with that population is not occurring or is not possible at a particular site or site area.

Ecology has defined the fish consumption rates based on the RME of the high-fish consumer population (90 and 95 percentile of the Tribal and Asian Pacific Islander seafood consumption rate surveys) regardless of the source of the seafood being consumed, rather than the RME of the statewide fish consuming population that consumes seafood from Washington waters. For this reason, the selected consumption rates represent more of a worst-case scenario than a RME scenario (*Chapter 5, Reasonable Maximum Exposure defined under MTCA, page 75, Choice of the Reasonable Maximum Exposure, page 109*).

The following factors related to seafood consumption rates also contribute to overly conservative determinations of human health risks under MTCA:

Inclusion of Salmon in Default Seafood Consumption Rate. From a sediment cleanup perspective, salmon are migratory and spend the vast majority of their lives in the open ocean where they are not exposed to localized site-related contaminants. Because the uptake of specific contaminants into biota from contaminated sediment is complex and the biota do not always reside through their complete lifecycle at a given site, the contaminated sediments at a particular site may not impact the seafood being consumed. Although the document states that salmon are recognized to not reside in most areas of the Sound, Ecology's recommended range of seafood consumption rates is based on total fish consumption including salmon. For a location with no resident salmon, that inclusion may result in a sediment cleanup action that does not result in any risk-reduction for people eating seafood harvested from the location. For these reasons, the default seafood consumption rate should not include salmon (*Chapter 7, The Question of Whether to Include Salmon, pages 108-109*).

Risk Assessment Issues Identified During Ongoing Sediment Cleanups. In addition to providing a framework for the selection of seafood consumption rates, the EPA Region 10 Tribal Framework also includes assumptions and guidance on how the consumption rates will be applied in human health risk assessments (a key technical and regulatory issue). Concerns regarding whether sediment cleanup level may represent more of a worst-case scenario as opposed to a RME are highlighted by ongoing Puget Sound EPA-led cleanups as well as recent EPA presentations in which EPA has specified that site-specific risk assessments under the Region 10 Tribal Framework include the following assumptions: 1) harvested fish and shellfish represented by consumption rate are assumed to have originated at the site and could be impacted by site-related contaminants; the same consumption rate is used regardless of the site size and its proximity to actual seafood harvest areas, 3) use of the same overall consumption rate regardless of species actually present at the site (a secondary related assumption is that Tribes will harvest alternate species if desired species are not present), and 4) an adopted exposure duration of 70 years, rather than EPA typical default value of 30 years to account for Tribal lifestyles. Routine application of the EPA Region 10 Tribal Framework risk assessment approach will result in overly

conservative sediment cleanup levels that represent more of a worst-case scenario than a RME developed under MTCA (*Chapter 5, EPA Region 10 Framework, pages 78 through 79, Chapter 6, Fish Diet Fraction, page 98, first bullet*).

Sediment Cleanup Levels Below Background Concentrations. Recent risk assessments for sediment sites in Puget Sound urban areas also show that the range of background concentrations of bioaccumulative contaminants in sediment in urban areas (e.g., PCBs) exceed acceptable levels based on risk as calculated using a similar proposed range of seafood consumption rates and the EPA Region 10 Tribal Framework risk assessment approach. For this reason, MTCA risk-reduction goals for these chemicals cannot be attained through remediation. This problem greatly complicates remedy selection and increases the timeframe and expense for completing a sediment cleanup and evaluating its effectiveness (*Chapter 5, Sediment Management Standards, page 76*).

Estimation of High-Fish Consumers. The document estimates the number of high fish consumers (the most sensitive receptors) that would be protected by the change in fish consumption rates and lacks any comprehensive survey data to support this estimate. The estimate also includes fish consumers that do not obtain their fish from Washington waters and therefore is overly conservative. Based on review of the document, comprehensive state-wide survey data are needed to establish technically defensible seafood consumption rates that more realistically reflect the seafood consumption rate of the overall Washington population (*Chapter 2, High-Fish Consuming Populations, pages 2 through 27*).

Origin of Consumed Seafood. The document does not adequately specify the amount of consumed seafood that comes from waters of Washington State versus other locations (e.g., Alaska), the amount from commercial aquaculture operations in Washington and elsewhere, and the amount of consumed seafood representing natural resources of Washington state (i.e., the amount of seafood living in an uncontrolled environment that may be exposed to environmental contaminants). The seafood consumption rate is most reasonably defined based on the seafood representing natural resources of Washington State. The recommended range of fish consumption rates is overly conservative because the rates were not adjusted to account for the percentage of seafood consumed that originates in other locations. Further surveys should be performed if adequate data are unavailable (*Chapter 2, High-Fish Consuming Populations, pages 2 through 27*).

The text states that traditional fishing areas for tribes cover essentially all of Washington. While this may be true based on treaty rights, it appears that the majority of the fishing and seafood harvesting (particularly subsistence fishing and seafood harvesting) occurs in significantly less areas of the state. It does not appear technically justifiable to apply a high-fish consumer seafood consumption rate (that likely includes subsistence fishers) to all locations in Washington when not all locations are used or can be used (due to their ecologic productivity) for this purpose. (*Chapter 2, Washington Native American Tribes, page 27*).

Representativeness of Surveys. The combined population of Washington State Native American Tribes and Asian-Pacific Islanders (API) is 625,411 people and the high-fish consuming adult population is assumed by Ecology to be between 146,000 and 381,000 people (Refer to Chapter 2). Table 21 shows that survey results for only 1,188 people (of a population of about 6.7 million in Washington State) were included as the data set to determine the revised consumption rates. Ecology's recommended range of consumption rates (157 to 267 g/day) overlaps with both the 90th or 95th percentiles of the Table 21 data set, and represents a very small number of people relative to the survey size of 1,188 people. The range of seafood consumption rates for the 90th or 95th percentiles is variable

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(113 to 489 g/day). From a sediment cleanup perspective, variations in the seafood consumption rate can significantly impact the outcome of risk assessments. A more comprehensive survey of seafood consumption patterns should be performed, before revised default fish consumption rates are selected for adoption (*Chapter 4, Table 21, Summary of Fish Consumption Rate Surveys Considered by Ecology, page 71*).

LMC appreciates the opportunity provided by the Washington State Department of Ecology to comment on the Fish Consumption Rates Technical Support Document and may provide additional comments at other points in the review process.

Sincerely,



Gene Matsushita

Senior Manager, Environmental Remediation