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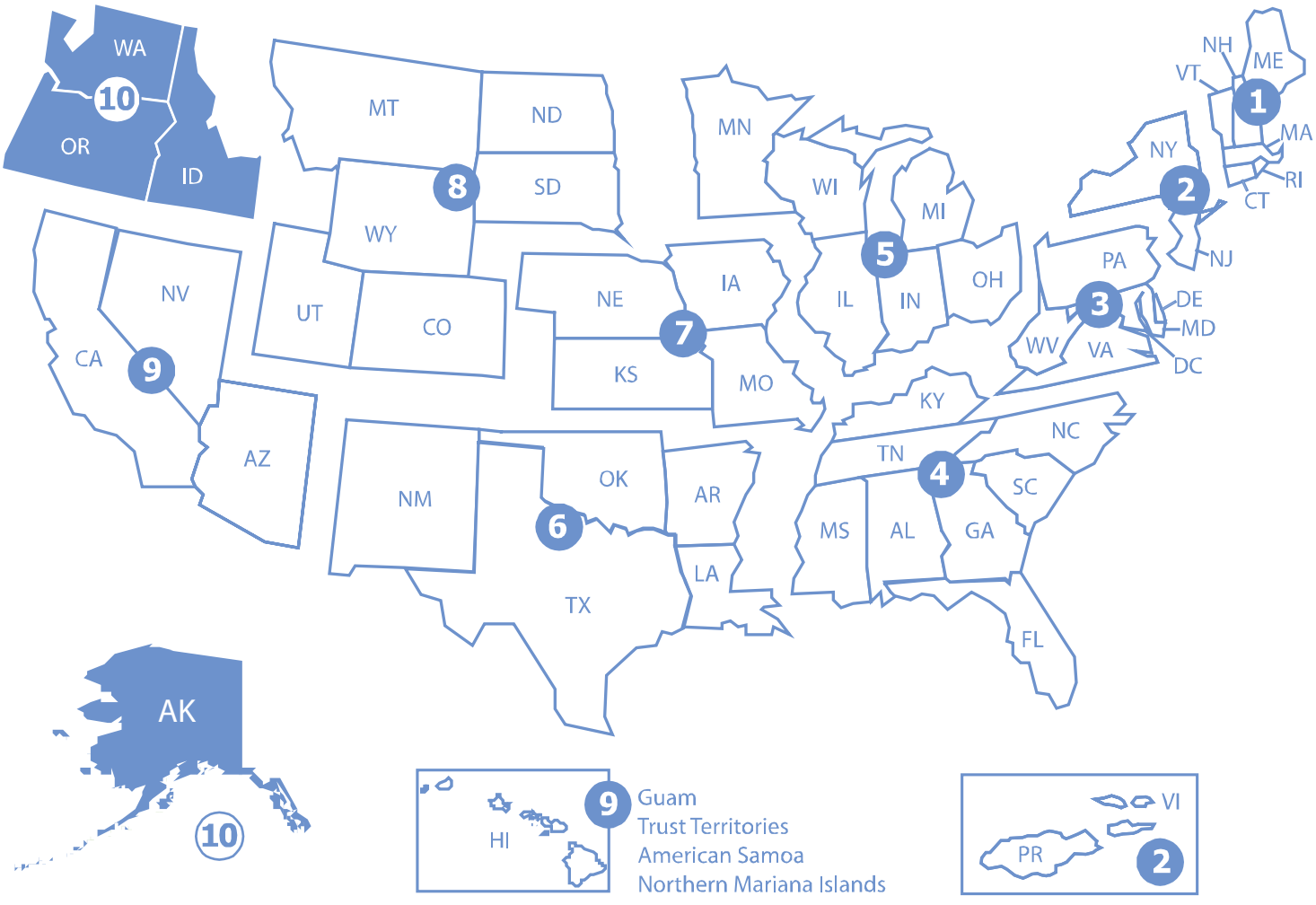
Office of Land and Emergency Management

Support Document for the Revised National Priorities List Final Rule – Bradford Island



Support Document for the Revised National Priorities List Final Rule

Bradford Island

March 2022

Site Assessment and Remedy Decisions Branch
Office of Superfund Remediation and Technology Innovation
Office of Land and Emergency Management
U.S. Environmental Protection Agency
Washington, DC 20460

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Executive Summary

Section 105(a)(8)(B) of CERCLA, as amended by SARA, requires that the EPA prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. An original National Priorities List (NPL) was promulgated on September 8, 1983 (48 FR 40658). CERCLA requires that EPA update the list at least annually.

This document provides responses to public comments received on the Bradford Island site, proposed on September 9, 2021 (86 FR 50515). This site is being added to the NPL based on an evaluation under EPA's Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in March 2022.

Introduction

This document explains the rationale for adding the Bradford Island site in Cascade Locks, Oregon to the National Priorities List (NPL) of uncontrolled hazardous waste sites and provides responses to public comments received on this site listing proposal. The EPA proposed this site to the NPL on September 9, 2021 (86 FR 50515). This site is being added to the NPL based on an evaluation under the Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in March 2022.

Background of the NPL

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9601 *et seq*. in response to the dangers of uncontrolled hazardous waste sites. CERCLA was amended on October 17, 1986, by the Superfund Amendments and Reauthorization Act (SARA), Public Law No. 99-499, stat., 1613 *et seq.* To implement CERCLA, EPA promulgated the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, on July 16, 1982 (47 FR 31180), pursuant to CERCLA Section 105 and Executive Order 12316 (46 FR 42237, August 20, 1981). The NCP, further revised by EPA on September 16, 1985 (50 FR 37624) and November 20, 1985 (50 FR 47912), sets forth guidelines and procedures needed to respond under CERCLA to releases and threatened releases of hazardous substances, pollutants, or contaminants. On March 8, 1990 (55 FR 8666), EPA further revised the NCP in response to SARA.

Section 105(a)(8)(A) of CERCLA, as amended by SARA, requires that the NCP include:

> criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable, taking into account the potential urgency of such action, for the purpose of taking removal action.

Removal action involves cleanup or other actions that are taken in response to emergency conditions or on a short-term or temporary basis (CERCLA Section 101). Remedial action is generally long-term in nature and involves response actions that are consistent with a permanent remedy for a release (CERCLA Section 101). Criteria for placing sites on the NPL, which makes them eligible for remedial actions financed by the Trust Fund established under CERCLA, were included in the HRS. EPA promulgated the HRS as Appendix A of the NCP (47 FR 31219, July 16, 1982). On December 14, 1990 (56 FR 51532), EPA promulgated revisions to the HRS in response to SARA, and established the effective date for the HRS revisions as March 15, 1991. On January 9, 2017, EPA promulgated a further revision to the HRS that added a component for evaluating the threats posed by the intrusion of subsurface contamination into regularly occupied structures. These changes are consistent with, and comply with, the statutory requirements of SARA.

Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The list, which is Appendix B of the NCP, is the NPL.

An original NPL of 406 sites was promulgated on September 8, 1983 (48 FR 40658). At that time, an HRS score of 28.5 was established as the cutoff for listing because it yielded an initial NPL of at least 400 sites, as suggested by CERCLA. The NPL has been expanded several times since then, most recently on September 9, 2021 (86 FR 50477). The Agency also has published a number of proposed rulemakings to add sites to the NPL. The most recent proposal was on September 9, 2021 (86 FR 50515).

Development of the NPL

The primary purpose of the NPL is stated in the legislative history of CERCLA (Report of the Committee on Environment and Public Works, Senate Report No. 96-848, 96th Cong., 2d Sess. 60 [1980]).

> The priority list serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

The NPL, therefore, is primarily an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation. Finally, listing a site may, to the extent potentially responsible parties are identifiable at the time of listing, serve as notice to such parties that the Agency may initiate CERCLA-financed remedial action.

CERCLA Section 105(a)(8)(B) directs EPA to list priority sites among the known releases or threatened release of hazardous substances, pollutants, or contaminants, and Section 105(a)(8)(A) directs EPA to consider certain enumerated and other appropriate factors in doing so. Thus, as a matter of policy, EPA has the discretion not to use CERCLA to respond to certain types of releases. Where other authorities exist, placing sites on the NPL for possible remedial action under CERCLA may not be appropriate. Therefore, EPA has chosen not to place certain types of sites on the NPL even though CERCLA does not exclude such action. If, however, the Agency later determines that sites not listed as a matter of policy are not being properly responded to, the Agency may consider placing them on the NPL.

Hazard Ranking System

The HRS is the principle mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations -- the preliminary assessment and site inspection -- to assess the relative potential of sites to pose a threat to human health or the environment. HRS scores, however, do not determine the sequence in which EPA funds remedial response actions, because the information collected to develop HRS scores is not sufficient in itself to determine either the extent of contamination or the appropriate response for a particular site. Moreover, the sites with the highest scores do not necessarily come to the Agency's attention first, so that addressing sites strictly on the basis of ranking would in some cases require stopping work at sites where it was already underway. Thus, EPA relies on further, more detailed studies in the remedial investigation/feasibility study that typically follows listing.

The HRS uses a structured value analysis approach to scoring sites. This approach assigns numerical values to factors that relate to or indicate risk, based on conditions at the site. The factors are grouped into three categories. Each category has a maximum value. The categories are:

- likelihood that a site has released or has the potential to release hazardous substances into the environment;
- characteristics of the waste (e.g., toxicity and waste quantity); and
- targets (e.g., people or sensitive environments) affected by the release.

Under the HRS, four pathways can be scored for one or more components and threats as identified below:

- Ground Water Migration (S_{gw})
  - population

- Surface Water Migration (S_{sw})
  The following threats are evaluated for two separate migration components, overland/flood migration and ground water to surface water.
  - drinking water
  - human food chain
  - sensitive environments

- Soil Exposure and Subsurface Intrusion (S_{sessi})
  - Soil Exposure Component:
    - resident population
    - nearby population
  - Subsurface Intrusion Component
    - population

- Air Migration (S_a)
  - population

After scores are calculated for one or more pathways according to prescribed guidelines, they are combined using the following root-mean-square equation to determine the overall site score (S), which ranges from 0 to 100**:**

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{sessi}^2 + S_a^2}{4}}$$

If all pathway scores are low, the HRS score is low. However, the HRS score can be relatively high even if only one pathway score is high. This is an important requirement for HRS scoring because some extremely dangerous sites pose threats through only one pathway. For example, buried leaking drums of hazardous substances can contaminate drinking water wells, but -- if the drums are buried deep enough and the substances not very volatile -- not surface water or air.

Other Mechanisms for Listing

There are two mechanisms other than the HRS by which sites can be placed on the NPL. The first of these mechanisms, authorized by the NCP at 40 CFR 300.425(c)(2), allows each State and Territory to designate one site as its highest priority regardless of score. The last mechanism, authorized by the NCP at 40 CFR 300.425(c)(3), allows listing a site if it meets the following three requirements:

- Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends dissociation of individuals from the release;
- EPA determines the site poses a significant threat to public health; and
- EPA anticipates it will be more cost-effective to use its remedial authority than to use its emergency removal authority to respond to the site.

Organization of this Document

The following section contains EPA responses to site-specific public comments received on the proposal of the Bradford Island site on September 9, 2021 (86 FR 50515). The site discussion begins with a list of commenters, followed by a site description, a summary of comments, and Agency responses to each comment. A concluding statement indicates the effect of the comments on the HRS score for the site.

Glossary

The following acronyms and abbreviations are used throughout the text:

AOPC	Area of Potential Concern
Agency	U.S. Environmental Protection Agency
ATSDR	Agency for Toxic Substances and Disease Registry
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 *et seq*., also known as Superfund
CFR	Code of Federal Regulations
COC	Contaminant of Concern
CRP	Community Relations Plan
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
FFA	Federal Facilities Agreement
FR	Federal Register
HRS	Hazard Ranking System, Appendix A of the NCP
HRS score	Overall site score calculated using the Hazard Ranking System; ranges from 0 to 100
MOU	Memorandum of Understanding
µg/kg	Microgram per kilogram
MRL	Method Reporting Limit
NCP	National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300
NPL	National Priorities List
ODEQ	Oregon Department of Environmental Quality
OHA	Oregon Health Authority
OLEM	EPA Office of Land and Emergency Management
OU	Operable Unit
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PPE	Probable Point of Entry
PRP	Potentially Responsible Party
RSET	Regional Sediment Evaluation Team
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RM	River Mile
SARA	Superfund Amendments and Reauthorization Act
SSL	Soil Screening Level

TAG	Technical Advisory Group
T&E	Threatened and Endangered
TDL	Target Distance Limit
USACE	The United States Army Corp of Engineers
VOC	Volatile Organic Compound
WDOE	Washington Department of Ecology Toxics Cleanup Program

1.0 List of Commenters and Correspondence

EPA-HQ-OLEM-2021-0462-0003	Correspondence, dated October 10, 2021, submitted by Phil Rigdon, Superintendent, Department of Natural Resources, Yakama Nation; Richard Whitman, Director, Oregon Department of Environmental Quality; and Maia Bellon, Director, Washington Department of Ecology.
EPA-HQ-OLEM-2021-0462-0004	Correspondence, dated February 2, 2021, submitted by Phil Rigdon, Superintendent, Department of Natural Resources, Yakama Nation; Richard Whitman, Director, Oregon Department of Environmental Quality; and Laura Watson, Director, Washington Department of Ecology.
EPA-HQ-OLEM-2021-0462-0006	Comment, dated September 23, 2021, submitted by Brian McCavitt.
EPA-HQ-OLEM-2021-0462-0007	Comment, dated September 30, 2021, submitted by Zeoma Olszewski.
EPA-HQ-OLEM-2021-0462-0008	Comment, dated October 2, 2021, submitted by Maxim Poudrier-Tudan.
EPA-HQ-OLEM-2021-0462-0009	Comment, dated October 12, 2021, submitted by Donald Schmidt.
EPA-HQ-OLEM-2021-0462-0010	Comment, dated November 1, 2021, submitted by Amber Wong.
EPA-HQ-OLEM-2021-0462-0011	Comment with attachments, dated November 4, 2021, submitted by Delano Saluskin, Chairman, Yakima Tribal Council, Confederated Tribes and Bands of the Yakama Nation.
EPA-HQ-OLEM-2021-0462-0012	Comment, dated November 4, 2021, submitted by Rebecca S. Lawson, Section Manager, Toxics Cleanup Program, Washington State Department of Ecology.
EPA-HQ-OLEM-2021-0462-0013	Comment, dated November 4, 2021, submitted by an anonymous commenter.
EPA-HQ-OLEM-2021-0462-0014	Comment, dated November 5, 2021, submitted by Richard Whitman, Director, Department of Environmental Quality, State of Oregon.
EPA-HQ-OLEM-2021-0462-0015	Comment, dated November 8, 2021, submitted by Columbia Riverkeeper, Audubon Society of Portland, Comunidades, Friends of the Columbia Gorge, PHCC, NEDC, and Sierra Club.
EPA-HQ-OLEM-2021-0462-0016	Comment with attachments, dated November 5, 2021, submitted by Vance F. Stewart, III, Acting Principal Deputy Assistant, Office of the Assistant Secretary (Civil Works), Department of the Army.

EPA-HQ-OLEM-2021-0462-0017	Comment, dated November 8, 2021, submitted by Columbia Riverkeeper with Petitioners.
EPA-HQ-OLEM-2021-0462-0018	Comment, dated November 3, 2021, submitted by Lori Cohen.

2.0 Site Description

The Bradford Island site (the Site) is located within the Bonneville Dam complex on Bradford Island within the Columbia River at river mile (RM) 146.1, approximately 40 miles east of Portland, Oregon. The Bonneville Dam complex is a multipurpose facility that consists of the First and Second Powerhouses, the Old and New Navigation Locks, the Bonneville Dam and Spillway, and a fish hatchery. The United States Army Corp of Engineers (USACE) operates and maintains the Bonneville Lock and Dam for hydropower, fish and wildlife protection, recreation, and navigation. USACE and its contractors have performed numerous environmental investigations focusing on two operable units (OUs): the Upland OU and the River OU. The Upland OU includes four areas of potential concern (AOPCs): the Landfill AOPC, Sandblast Area AOPC, Pistol Range AOPC, and Bulb Slope AOPC while the River OU consists only of portions of the Columbia River within the Bonneville Dam Forebay. Five sources were scored in the HRS documentation record at proposal: the Landfill AOPC (Source 1); the Spent Sandblast Grit Disposal Area (Source 2); the Equipment Laydown Area (Source 3) within the Sandblast Area AOPC; the Bulb Slope AOPC (Source 4); and the River OU Former Debris Piles (Source 5). Source samples exhibited various contaminants, including metals, butyltins, polychlorinated biphenyls (PCBs, in the form of various Aroclors), polycyclic aromatic hydrocarbons (PAHs), and pesticides. Surface water pathway targets scored for HRS purposes at the site include a fishery, critical habitats for federal designated threatened species, and habitat for a federal designated threatened/state designated endangered species within the zone of actual contamination. Sediment, clam, and smallmouth bass tissue samples indicate elevated concentrations of PCBs at the Site. Sediment samples also indicate elevated concentrations of bis(2-thylhexyl)phthalate at the Site.

3.0 Summary of Comments

The Bradford Island site received thirteen comment submittals and two correspondence documents from twenty-two commenters. One of these comment submittals, EPA-HQ-OLEM-2021-0462-0009 was an erroneous comment submitted to the incorrect docket. All relevant comments expressed either support for listing the Site on the NPL or did not oppose listing. The comment submitted by Columbia Riverkeeper included a petition signed by 1,695 individuals in support of listing (many of the petition signatories also included comments with their signatures).

The State of Oregon through its Department of Environmental Quality (ODEQ) stated that the NPL is the means to assure that adequate resources will be available for a timely completion of investigation and cleanup of the Site.

Washington Department of Ecology Toxics Cleanup Program (WDOE) stated Superfund designation will prioritize the cleanup and create the potential to secure needed resources.

The Confederated Tribes and Bands of the Yakama Nation (herein referred to as Yakama Nation) made numerous comments on the risk posed by the Site and the status of cleanup of the Site. It asserted that it is imperative that a thorough and fully protective cleanup be performed in accordance with the statutory requirements of CERCLA and the NCP and in full consultation with Yakama Nation, whose enrolled members are exposed to significant risk associated with ceremonial and subsistence fishing in the area. They also commented that the damage to Columbia River and Bradford Island has impacted Tribal resources.

Yakama Nation, ODEQ, and WDOE also jointly submitted comments (jointly herein referred to as Yakama Nation, ODEQ, and WDOE). These comments included that the current sampling data, continuing fish advisories, and the potential exposure to sensitive populations support that the Bradford Island site continues to pose a serious threat to human health and the environment requiring thorough investigation and expedited remediation.

Joint comments in support of listing the Site on the NPL were submitted from the Columbia Riverkeeper, the Audubon Society of Portland, Comunidades, Friends of the Columbia Gorge, the Northwest Environmental Defense Center, the Portland Harbor Community Coalition, and the Sierra Club (herein referred to as Columbia Riverkeeper et al.). They stated that listing will facilitate funding and accountability for the needed cleanup of the Site. Columbia Riverkeeper et al., asserted that a CERCLA-funded cleanup with Tribal consultation is essential. They also commented that the Federal Government has an obligation to ensure that its past disposal activities do not compromise current and future generations' use and enjoyment of the Columbia River.

Columbia Riverkeeper included in its comments a petition signed by 1,695 private citizen petition signatories that supported the listing. They support a cleanup of Bradford Island that protects human health and the environment and urge the EPA to list Bradford Island and surrounding waters on the NPL.

The United States Army Corps of Engineers of the Department of the Army (herein referred to as USACE) submitted comments expressing that the USACE does not oppose listing and requested an accurate record for the Site. USACE stated that it takes its responsibility to clean up Bradford Island seriously, and it will remain committed to accomplishing that goal under CERCLA and the NCP by working with Yakama Nation and other agencies and Tribes, including ODEQ and WDOE, and through public engagement and outreach. USACE also commented on the HRS package, stating that concentrations of butyltin in the HRS documentation record at proposal are below soil screening levels and Regional Sediment Evaluation Team values. Commenting on the fishery at the site, it stated that there has not been a federal adjudication of usual and accustomed cultural, subsistence, and commercial fishing areas on Bradford Island. USACE also commented that its 2020 sampling event documented lower concentrations of contaminants at the Site. USACE also stated that the remedial investigation did not find species listed as threatened and endangered under the federal Endangered Species Act on Bradford Island. It elaborated that the Columbia River near Bradford Island is used mainly as a migratory route between the Pacific Ocean and upstream spawning area; USACE contended that the residence time of salmonids at Bradford Island is limited in terms of exposure to site. USACE requested clarifications to text in the HRS package.

Private citizens including Mr. Brian McCavitt of White Salmon, Washington, Ms. Zeoma Olszewski of El Paso, Texas, Ms. Maxim Poudrier-Tudan of Spokane, Washington, Ms. Amber Wong of Seattle, Washington, Ms. Lori Cohen, and an anonymous commenter support placement of the Site on the NPL. Mr. McCavitt stated that USACE has been slow in cleaning up this Site and listing may be the only way to get USACE to take positive action. Ms. Zeoma expressed that there is special concern for the health of native people who have treaties allowing them to fish in these waters of their traditional home. Ms. Poudrier-Tudan stated that listing would create the ability for the EPA to determine whether the hazardous substances, and public health risks warrants a second look. Ms. Wong stated that "[o]nly with an enforceable Federal Facilities Agreement in place, with its rigor and timeline for action, can the public be assured that the site – the upland areas and river sediments – will be thoroughly investigated and cleaned up." Ms. Cohen stated that NPL listing will provide the necessary oversight of the investigations and development of cleanup plans, and an enforceable schedule for action. An anonymous commenter stated that the NPL will ensure that areas with high risk for contamination are being monitored.

3.1 Support for Listing and Other Non-Opposition Comments

The EPA received 13 comments from 22 commenters in support of listing the Bradford Island site (the Site) on the NPL, as well as a Columbia Riverkeeper petition signed by 1,695 individuals in support of listing (many of the petition signatories also included comments with their signatures). Commenters included ODEQ, WDOE, Yakama Nation, joint comments from Columbia Riverkeeper et al., joint comments from Yakama Nation, ODEQ, and WDOE, and numerous citizens. USACE submitted comments expressing that the USACE does not oppose listing.

3.1.1 General Support for Listing

Comment: Several commenters supported the listing and provided specific reasons for their support of placing the Site on the NPL.

Yakama Nation, ODEQ, and WDOE jointly requested in October 2019 and February 2021 that the EPA place the Bradford Island site on the National Priorities List ("NPL"). They commented that they are natural resource trustees for the Bradford Island facility and are currently participating in oversight of lead agency response actions by the USACE, Portland District. Yakama Nation stated that Bradford Island is vital to Yakama enrolled members as one of many usual and accustomed treaty fishing places in the Columbia River Basin.

USACE stated that it does not oppose listing, but it provided comments on the October 10, 2019, request letter from Yakama Nation, ODEQ, and WDOE and on the HRS package. It stated it will remain committed to working with Yakama Nation, other agencies, other Tribes, ODEQ, and WDOE, and committed to public engagement and outreach. According to USACE, it has completed numerous response actions at Bradford Island at the upland and the in-water areas, and additional information about USACE's cleanup of Bradford Island can be found at https://www.nwp.usace.army.mil/bonneville/bradford-island/.

The State of Oregon, through ODEQ, supports placement of the Site on the NPL. ODEQ stated that the NPL is the means to assure that adequate resources will be available for a timely completion of investigation and cleanup of the Site. ODEQ stated that sampling of sediments, clams, and smallmouth bass in 2011, which was confirmed by sampling in 2020, indicate that PCB concentrations are still too high to protect fish living nearby and people who eat the fish. ODEQ stated more work is needed to fully identify and address the source of PCBs.

The WDOE also supports listing the Site on the NPL. WDOE stated Superfund designation will prioritize the cleanup and create the potential to secure needed resources. WDOE stated that contaminant levels in fish tissue continue to rise since the last cleanup activity in 2007.

Mr. Brian McCavitt of White Salmon, Washington, Ms. Zeoma Olszewski of El Paso, Texas, Ms. Maxim Poudrier-Tudan of Spokane, Washington, Ms. Amber Wong of Seattle, Washington, Ms. Lori Cohen, and an anonymous commenter support placement of the Site on the NPL.

Ms. Zeoma Olszewski stated that it was distressing to learn that, over decades, the soil and water in the Bradford Island area have become so contaminated that there are significant health risks to humans as well as wildlife habitat and endangered species. She expressed that there is special concern for the health of native people who have treaties allowing them to fish in these waters of their traditional home.

Ms. Maxim Poudrier-Tudan stated that the addition of the Site to the NPL would be a much needed addition to CERCLA. She asserted that "[e]ven if the NPL is only of limited significance, as it does not assign liability to any party or to the owner of any specific property, it would create the ability for the EPA to determine whether those hazardous substances, and public health risks warrants a second look. Then the EPA would be able to decide whether or not to pursue action."

Ms. Amber Wong stated that there is already known contamination in the food chain and people and endangered and threated species continue to be exposed to toxic substances. Ms. Wong added that "[o]nly with an enforceable Federal Facilities Agreement in place, with its rigor and timeline for action, can the public be assured that the site – the upland areas and river sediments – will be thoroughly investigated and cleaned up." She added that contaminated sediments, in some cases, are the more insidious, ongoing threat.

Columbia Riverkeeper et al., submitted joint comments in support of the addition of the Site to the NPL. They commented that the listing will facilitate funding and accountability for the needed cleanup of the Site to address the deleterious impacts on the environment and human health. They stated that "NPL listing is essential to protect human health and the environment, honor the federal government's treaty obligations to sovereign Tribal Nations,

and encourage and consider public participation in cleanup decisions."

The Columbia Riverkeeper and 1,695 private citizen petition signatories supported the listing. They support a cleanup of Bradford Island that protects human health and the environment and urge the EPA to list Bradford Island and surrounding waters on the NPL. Many of the Columbia Riverkeeper petition signatories also provided individualized comments. These individualized petition signatories include the following comments:

- The Columbia River has been polluted and neglected for far too long, and the Columbia River is the lifeblood of the region and a crucial component of the fisheries industry, recreation, and tourism.
- The river needs to be cleaned up by keeping it clear of pollution/run-off, pesticides, and toxic waste.
- The Columbia River is the provider of fresh water for vegetation, animals (especially for the native salmon population/habitat), and for the Yakima Nation and tribal native Americans who have historically fished the area.
- Fishing in the Columbia River is concerning due to contaminants being absorbed through the food chain making it unsafe for anyone to consume, and the commenter demanded it be cleaned up immediately.
- The government is accountable for the river's pollution.
- The Columbia River should be a priority and not profit driven.
- "For over 40 years, the U.S. government dumped toxic pollution in and along the Columbia's shores at Bradford Island, located near Bonneville Dam."
- The Trump administration did not respect the natural environment.
- The Trump administration inappropriately cut funding related to Bradford Island cleanup.

Concern for Risk to Health and the Environment

Yakama Nation, ODEQ, and WDOE commented that given the exposure risks and other reasons outlined in their 2019 letter to the EPA, they had hoped that the EPA would prioritize this Site for a potential listing in 2020. Yakama Nation, ODEQ, and WDOE expressed that current sampling data, continuing fish advisories, and the potential exposure to sensitive populations supports that the contaminants at the Bradford Island facility continue to pose a serious threat to human health and the environment requiring thorough investigation and expedited remediation. They commented:

- People consuming fish caught at, or near the Site, will likely be exposed to contaminants significantly above regulatory standards established for protection of human health.
- Fish advisories remain in effect which impair and restrict the use of the area for both tribal fishers and recreational users. "Nevertheless, because this is a heavily used area, both tribal and recreational fishers continue to use it in spite of the fish advisories, and known exposures are ongoing, particularly of tribal site users who rely on fish in the area as an important and traditional food source."
- USACE advanced very few and limited meaningful measures to remedy risks after 22 years of on-again, off-again attention.
- Impacts have occurred to sediment and the fractured bedrock river-bottom in the vicinity of the Bradford Island facility.
- The full nature and extent of contamination in the Columbia River is undefined.
- Resident fish, such as smallmouth bass caught near Bradford Island, contain extremely high concentrations of PCBs as well as other contaminants. Despite multiple removal actions, sediment, clam, and fish tissue sampling in 2011 indicate that contaminant of concern (COC) concentrations have not declined and have increased in fish.

- Impacted surface soils in certain parts of the facility, such as the sandblast and bulb slope areas, remain uncontained (e.g., sandblast grit triggering RCRA hazardous waste criteria).
- Stormwater discharge from contaminated areas of Bradford Island has not been regulated or monitored pursuant to a National Permit Discharge Elimination System (NPDES) permit; stormwater in 2018-2019 and catch basin sampling results from the sandblast area indicate that stormwater continues to be an ongoing source of contamination to the river; and results of porewater and near-bottom surface water sampling that was conducted in 2018 were inconclusive. Sampling of stormwater and near-bottom surface water is planned for 2019-2020.

Yakama Nation stated that the culmination of over two decades of USACE cleanup mismanagement has left the Columbia River with continuing fish consumption advisories and lingering questions about the extent and gravity of hazardous contamination. As a result of these problems, Yakama Nation, ODEQ, and WDOE jointly requested that the Bradford Island site be added to the NPL in October 2019. They noted that given the current data and the potential exposure to sensitive populations, it is clear that the contaminants of concern at the Bradford Island facility continue to pose a serious threat to human health and the environment requiring thorough investigation and expedited remediation. Expressing a need for listing, Yakama Nation, ODEQ, and WDOE stated that:

- Data collected in 2011 indicate that PCB levels in fish tissue, including sculpin and smallmouth bass, remain significantly elevated, and in some samples exceeded levels observed prior to the USACE 2007 removal action and the previous HRS evaluation.
- "In 2013, both the Oregon Health Authority and the Washington Department of Health issued fish consumption advisories for resident fish species in the Columbia River above Bonneville Dam due to elevated levels of mercury and PCBs."
- Fetuses in utero, nursing babies, and small children are most vulnerable to the health effects of PCBs and mercury. "Fetuses and babies exposed to high levels of mercury and PCBs can suffer life-long learning and behavior problems. Fishers have been warned not to give resident fish caught from the middle Columbia River to others unless the recipients are aware of where the fish were caught and understand the recommendations in the state fish advisories."
- "The cultural impacts of contaminated resident species on Indian treaty fishing in the Columbia River are enormous because enrolled tribal members traditionally do not waste by-catch caught in gill nets."

Yakama Nation made numerous comments on risks it noted were posed by the Site:

- Concentrations of PCBs and mercury in resident fish and shellfish within one river mile of Bradford Island have been among the highest reported in the nation and are several orders of magnitude greater than PCB concentrations at other major PCB-driven Superfund sites. These toxins have direct exposure pathways to Tribal members and members of the public; other wildlife and biota are also directly exposed to these toxins through consumption of fish and shellfish, as well as through other pathways.
- Reported concentrations of PCBs and mercury are so high that the Oregon Health Authority and Washington Department of Health have issued a recommended total ban on consumption of resident fish taken between Bonneville Dam and Ruckel Creek, a reach of one river mile that falls directly within Yakama Nation's usual and accustomed treaty fishing areas.
- Contamination has multiple direct migration pathways to the Columbia River, including stormwater runoff, mass wasting events, and groundwater discharge.
- Columbia River aquatic biota, including Endangered Species Act (ESA) listed species, are already under significant stress due to pressure applied from the Columbia River dam system, climate change, and other industrial pollution. Additional concentrated point-source exposure from Bradford Island (which has measurable localized impacts) further exacerbates existing problems in an already severely stressed system.
- Tribal members' exposure to contamination, including to bio-accumulative toxins such as PCBs, pesticides, and heavy metals through consumption of resident fish and shellfish from the Bradford Island

> site is orders of magnitude greater than the exposure risk posed to the general public.

Yakama Nation asserted that it is imperative that a thorough and fully protective cleanup be performed in accordance with the statutory requirements of CERCLA and the NCP and in full consultation with Yakama Nation, whose enrolled members are exposed to significant risk associated with ceremonial and subsistence fishing in the area.

Yakama Nation stated that without a thorough understanding of risks using appropriate scenarios, USACE will not be able to design a remedy that is protective of the Yakama Nation's future exercise of treaty fishing rights. They added that USACE's evaluation of exposure scenarios in the RI, remarkably, did not include an exposure scenario for Tribal members using fishing platforms on the island, which had to be added in the Baseline Human Health and Environmental Risk Assessment, Upland Unit.

Commenting on tribal risk evaluation, Yakama Nation asserted that USACE "must assess both actual and potential exposure pathways, especially for sensitive populations such as Yakama enrolled members who both reside and conduct subsistence fishing at the Site." They stated that Yakama enrolled fishers tend to occupy treaty fishing areas for most, if not all of their lives, including for residential use and the platforms and locations are handed down, generation to generation, and are fished by the entire family. They also explained that the fish consumption rate used to calculate preliminary screening levels was 142.4 grams per day, which is also less than the ODEQ default fish consumption rate of 175 grams per day. Yakama Nation stated that they expect that, following cleanup and restoration of Bradford Island, its members to be able to resume occupancy of the island and surrounding shorelines and to fish the platform locations that they and their ancestors have fished since time immemorial.

WDOE stated it is time to turn needed attention to cleaning up this site and protecting human health and environment for all who depend on the Columbia River as a natural resource. It asserted that the Yakama Nation and other local communities depend on the water resources of the Columbia basin, but Washington State Department of Health and Oregon Health Authority warn against eating fish caught near the Bonneville Dam due to high levels of PCBs in fish tissue. WDOE explained that as part of the Bonneville Dam complex, the USACE used Bradford Island as a landfill from 1942 to 1982. Landfill debris and other industrial activities on the island contaminated the area with mercury, PCBs, and other contaminants of concern. WDOE commented that Superfund designation of the Site will prioritize the cleanup for the USACE and create the potential to secure needed resources.

The Columbia Riverkeeper petition stated that the Columbia River shore at Bradford Island is a historical tribal fishing area and tribal people and diverse communities use the area for subsistence and recreational fishing despite advisories warning not to eat resident fish. The Columbia Riverkeeper et al., asserted that the proposed listing is essential to address the impacts to fish, wildlife and public health. They stated that concentrations of PCB and mercury in resident fish and shellfish within one mile of Bradford Island are among the highest reported in the Nation. The Columbia Riverkeeper et al., commented that the Federal Government has an obligation to ensure that its past disposal activities do not compromise current and future generations' use and enjoyment of the Columbia River.

Future Funding

Yakama Nation, ODEQ, and WDOE stated:

> The President's Budget for Fiscal Year 2020 did not request that Congress appropriate any funds for the Portland District's lead agency activities at the Bradford Island facility. It is not yet clear if the 2021 budget prioritizes funding for this important project. While we rely on Congress to appropriate funding, lack of support from the administration puts at risk the prospect that the RI/FS process, that is required in the NCP, will reach a final Record of Decision any time in the near future.

Yakama Nation, ODEQ, and WDOE stated than an HRS evaluation and listing on the NPL is not only warranted but necessary given the continued concerns about the performance of the USACE, as well as the potential elimination of funding for the existing CERCLA cleanup project.

ODEQ stated that inclusion of the Site on the NPL will ensure adequate resources will be available for a timely completion of investigation and cleanup of the Site It added that the local community and tribes have strong historic and present-day connections to the river. ODEQ stated that cleanup of Bradford Island will enhance the river as a resource and support Oregon's mission to maintain the health of the Columbia River.

USACE stated it has completed numerous response actions at Bradford Island at the upland and the in-water areas and it will proceed to carry out response actions in accordance with the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601 et seq. (CERCLA). However, it explained that funding for this project is an equal combination of federal appropriations and Bonneville Power Administration funding. USACE stated it will continue to advocate for funding of this important project and be prepared to execute work as funding becomes available.

Columbia Riverkeeper et al., asserted that a CERCLA-funded cleanup with Tribal consultation is essential. They stated that the Federal Government has an obligation to ensure that its past disposal activities do not compromise current and future generations' use and enjoyment of the Columbia River. The EPA's decision to add Bradford Island to the NPL is therefore an essential step in restoring clean and safe water in the Columbia River. The Columbia Riverkeeper petition stated that a new approach is needed to address the lack of funding.

Concern for Effective Cleanup

Yakama Nation also noted that USACE, the lead agency at the Bradford Island site, has been either unable or unwilling to plan, manage, or execute a cleanup of Bradford Island that is protective of human health and the environment. Yakama Nation asserted that it is imperative that a thorough and fully protective cleanup be performed in accordance with the statutory requirements of CERCLA and the NCP and in full consultation with Yakama Nation, whose enrolled members are exposed to significant risk associated with ceremonial and subsistence fishing in the area.

Columbia Riverkeeper stated that a new approach is needed to address the severe and long-running pollution problems at the Site and the history of cleanup investigations, lack of funding, and the delays in developing plans for active cleanup. Columbia Riverkeeper et al., stated that the history of contamination, failed cleanup, and insufficient cleanup to date demonstrate the need for NPL listing.

Ms. Amber Wong stated that current cleanup authorities are clearly not working at this Site and no additional cleanup work has been done since 2007. She stated that considering that both Washington and Oregon support the listing and that the states have exhausted their options for addressing the Site, NPL listing is the best choice for this Site. She stated, "[f]urther, in light of our federal trust responsibility to tribes, the fact that the Yakama tribe supports NPL listing carries significant weight."

Ms. Lori Cohen stated that NPL listing will provide the necessary oversight of the investigations and development of cleanup plans, and an enforceable schedule for action. She stated that USACE has been aware of the contamination for many years, and only one focused cleanup action, which was conducted in 2007, has been completed.

An anonymous commenter stated that the NPL will ensure that areas with high risk for contamination are being monitored. This increase in national attention towards the issues of pollution and contamination may help create preventative measures for hazardous leaks and other forms of contamination that put public health at risk.

Response: The EPA has added the Bradford Island site to the NPL. The EPA will examine the Site to determine what response, including potential interim actions, are appropriate. The EPA, working in conjunction with the States, the Tribes and USACE, will determine the need for remedial activities and

will include stakeholders as discussed in Section 3.2, Community Involvement—Coordination with States and Tribes, of this support document. Remedial action decisions will take into account further site investigation results, other response alternatives, and other factors as appropriate.

Once a federal facility is included on the NPL the lead agency begins the process of determining the nature and extent of contamination at the Site. The agency head enters into an interagency agreement called the Federal Facilities Agreement (FFA) with EPA and the States as appropriate that includes a review of alternative remedial actions and selection of the remedial action by head of the relevant department and EPA. Essentially, the FFA directs the comprehensive remediation of the site and must comply with the public participation requirements of CERCLA § 117.

Regarding concern for risk to health and the environment and future funding, EPA considers it appropriate and advisable to add the Site to the NPL, to facilitate protection of human health and the environment. The addition of the Bradford Island site to the NPL is fully consistent with EPA regulations and guidance. The formal regulatory process provided by NPL listing will help ensure that the threat posed by source areas and releases of hazardous substances, as defined in the HRS, to the Columbia River that are attributable to the Bradford Island site is addressed properly and promptly.

Regarding concern for effective cleanup, EPA acknowledges concerns for future remedial actions to be undertaken at the Bradford Island site. However, it would be inappropriate for EPA to opine upon future cleanup activities at the site at this time, in this context. At a later stage in the process, when finalizing remedial actions to protect human health and the environment, EPA and the lead agency will take these considerations into account. However, consideration of response actions is not a factor in the decision to list the site on the NPL. Listing of a site informs the public that EPA has determined the site poses sufficient threat to human health and the environment to warrant further investigation. The appropriate actions necessary to mitigate those threats, will be subject to continued EPA oversight after the site is listed on the NPL.

3.1.2 Support for Listing with Request for Further Action

Comment: Some of the commenters in support of NPL listing also provided comments related to the EPA's future actions for the Site.

Mr. Brian McCavitt asserted that USACE has been slow in cleaning up this Site. He added that the USACE should remove the upland landfill down to bedrock; deeper and more thorough dredging of the material is warranted until sampling and analysis shows all the contaminated sediments are 100% removed. Mr. McCavitt commented that cleanup will be expensive and must be prioritized, funded, and carried out. He asserted that listing the Site on the NPL may be the only way to get USACE to take positive action.

Ms. Zeoma Olszewski stated that the USACE has been aware of the contamination for many decades, but they have been unable to clean up the area to acceptable levels. Ms. Olszewski emphasized that it has been nearly 15 years since any cleanup has been attempted. Ms. Olszewski asserted that NPL listing will help with both funding and oversight in removing contamination to restore Bradford Island and the Columbia River.

Response: Considerations regarding approaches to remediation are not considered at the listing stage of the Superfund Process. Consistent with CERCLA, the EPA has in place an orderly procedure for identifying sites where releases of substances addressed under CERCLA have occurred or may occur, placing such sites on the NPL, evaluating the nature and extent of the threats at such sites, responding to those threats, and deleting sites from the NPL. The purpose of the initial two steps is to develop the NPL, which identifies for the States and the public those sites that appear to warrant remedial action (56 FR 35842, July 29, 1991). The evaluation or remedial investigation/feasibility study (RI/FS) phase involves on-site testing to assess the nature and extent of the public health and environmental risks associated with the site and to determine what remedial actions, if any, may be appropriate. After a period of public comment, the EPA responds to those threats by issuing a Record of Decision

which selects the most appropriate alternative. The selected remedy is implemented during the remedial design/remedial action phase. Finally, the site may be deleted from the NPL when the EPA determines that no further response is appropriate.

This process encourages and relies on the participation of the public, including potentially responsible parties. The public can comment during the comment period (typically 60 days) after a site is proposed for listing and during the time the EPA is evaluating and selecting a remedy (the EPA may also hold a public hearing during the latter decision-making period). If private parties conduct remedial action under a Consent Decree between the EPA and the parties, the decree is also subject to public comment. The EPA believes that the above process offers the public sufficient opportunity to present facts and opinions germane to its decision-making.

The EPA regrets that it cannot meet individually with every person seeking to submit or obtain information on a site proposed for listing. However, as explained above, any member of the public may submit written comments, and the public docket supporting the site listing as well as the Administrative Record supporting the remedy selection are available for public review. The basis for the EPA initial scoring is reflected in this public record. The EPA carefully considers every written comment, including late comments to the extent practicable, before adding a site to the NPL. The EPA responds to all site-specific comments in a "Support Document" such as this, which is available in the EPA Headquarters Superfund Docket in Washington, D.C., and the appropriate Regional Superfund Docket when the final rule is published in the Federal Register.

3.1.3 Support for Listing – Economic/Resource Impact of Contamination

Comment: Yakama Nation stated the damage to Columbia River and Bradford Island has impacted Tribal resources.

Yakama Nation stated Bradford Island is an "usual and accustomed treaty fishing area," and its members are currently prohibited from building traditional fishing platforms in the area of the Bradford Island facility. It asserted that the "damage to biologic resources both in the Columbia River and on the upland portion of Bradford Island directly impacts Tribal resources harvested under the Treaty of 1855." According to Yakama Nation, Tribal members' right to perform traditional treaty fishing activities in the Bonneville Pool and elsewhere "is reserved under federal law in numerous Supreme Court and U.S. District Court decisions, most recently from 1969-1989 in *United States v. Oregon* (D. Or. 3:68-cv-00513-MO)." Yakama Nation noted it co-manages the Columbia River Zone 6 fishery along with states via the 2018-2027 Management Agreement (a court order in *U.S. v. Oregon* that also includes the United States as a signatory).

Response: The Bradford Island site has been added the NPL. Among the benefits are increased health and environmental protection as a result of increased public awareness of potential hazards. As a result of the additional CERCLA remedies, there may be lower human exposure to high-risk chemicals, and access to higher quality surface water, groundwater, soil, and air. Therefore, it is possible that any negative impacts to resources that may have resulted from contamination may also be countered by positive effects when a CERCLA investigation and any necessary cleanup are completed.

3.2 Community Involvement – Coordination with States and Tribes

Comment: Commenters submitted several comments related to participation of the community and coordination between the various tribe, state, and federal organizations involved.

Yakama Nation, Oregon, and Washington also commented that they are confident that the EPA will consider their concerns when listing the Bradford Island site on the NPL in 2021. They added that NPL listing and "direct EPA engagement at the Site are both warranted and necessary for successful communication, agency and public involvement, and ultimately, remediation of the legacy contaminants now threatening the Columbia River, its valuable resources, and people."

Yakama Nation, ODEQ, and WDOE stated that for the past three years they have been attempting to obtain an interagency Memorandum of Understanding (MOU) with the USACE to govern the Bradford Island cleanup process, with the stated purpose of the MOU being 'to provide a framework for coordination and cooperation to assist the USACE, as the lead agency, in ensuring the protection of human health and the environment.' They noted that this agreement would facilitate interagency relationships and provide guidance for site managers and staff regarding appropriate protocols for communications, technical coordination, and dispute resolution. They also stated that the proposed MOU was an attempt to address ongoing concerns, including site characterization and transparently resolving agency comments. According to Yakama Nation, ODEQ, and WDOE, at the time of the NPL request in 2019, the USACE was still indicating to them that it supported signing the MOU, but they recently learned that the USACE is no longer interested in signing any such agreement.

WDOE commented that the USACE, as the lead agency, has been responsible for implementing CERCLA. WDOE stated that a number of interim actions to address contamination were completed beginning in 1998. They added that in early 2000s, Yakama Nation, ODEQ, and WDOE joined with other members to create a Technical Advisory Group (TAG) to work with the USACE to assist with furthering cleanup. WDOE noted, however, that contaminant levels in fish continue to rise since the last cleanup activity in 2007. WDOE commented that if the Site is listed, it expects to participate in drafting the federal facility agreement with the EPA, USACE, ODEQ, and potentially other parties. WDOE expressed that it looks forward to continued participation in cleanup for the Site with the EPA, USACE, Yakama Nation, and ODEQ.

USACE stated it has "sought EPA's participation for several years while coordinating with the States of Oregon and Washington, Indian Tribes," and the public and community groups. USACE stated that it "anticipates continuing these actions to achieve the requirements of CERCLA and requests that the EPA recognize the progress already made as our agencies work cooperatively to ensure all necessary response actions are completed."

USACE stated that public engagement and outreach are important components of CERCLA and commented it has and will continue to inform the public throughout the process.

Yakama Nation stated that based on its "experience working with the TAG and USACE's failure to follow through on previous commitments," it is doubtful that additional TAG meetings proposed by USACE will result in meaningful or timely consultation for future work. Yakama Nation added that "[t]he recently enacted changes further emphasize the need" to list the Bradford Island site on the NPL "to ensure the cleanup process maintains property [sic] public accountability and is performed in full consultation with the Yakama Nation."

ODEQ stated that it looks forward to a cooperative relationship with EPA and USACE as the Bradford Island site investigation and cleanup is continued. ODEQ stated that it anticipates participating in drafting a federal facility agreement with the EPA, USACE, and other parties.

Response: The Superfund program offers numerous opportunities for public participation at NPL sites, in addition to commenting on proposed sites, as the EPA has done at the Bradford Island site. A Community Relations Plan (CRP) must be developed and finalized before remedial investigation and feasibility study (RI/FS) field work is concluded. The CRP is the "work plan" for community relations activities that will be conducted during the entire cleanup process. In developing a CRP, State and local officials and interested citizens are interviewed to learn about citizen concerns, site conditions, and local history. This information is used to formulate a schedule of activities designed to keep citizens apprised of community concerns. Typical community relations activities include:

- Public meetings at which technical information regarding the site is presented and citizens can ask questions or comment.
- Small, informal public sessions.
- Development and distribution of fact sheets to keep citizens up-to-date on site activities.

For each site, an "information repository" is established, usually in a library or town hall, and/or an EPA Web site containing reports, studies, fact sheets, and other documents containing information about the site. The repository is continually updated.

Once a federal facility is included on the NPL the lead agency begins the process of determining the nature and extent of contamination at the Site. The agency head enters into an interagency agreement called the Federal Facilities Agreement (FFA) with EPA and the States as appropriate that includes a review of alternative remedial actions and selection of the remedial action by head of the relevant department and EPA. Essentially the FFA directs the comprehensive remediation of the site and must comply with the public participation requirements of CERCLA § 117.

3.3 Risk to Human Health and the Environment

Comment: USACE stated that risk assessments and draft feasibility studies have been prepared for this Site and in some cases, the contaminants listed in this document do not exceed effects thresholds or are not predicted to cause unacceptable risk to human health or the environment.

USACE stated that there has not been a federal adjudication of usual and accustomed cultural, subsistence, and commercial fishing areas on Bradford Island. USACE stated while this has been asserted by interested parties, no authoritative federal determination of this assertion has been made, and they requested these statements in the listing package should be corrected to differentiate between assertions and authoritative adjudications.

USACE commented that, as stated in the Baseline Ecological Risk Assessment (USACE 2016) as well as the RI Management Plan (USACE 2007) and Biological Assessment (USACE 2007), the migratory nature of salmon make it a poor candidate to evaluate risk. They explained that adult salmon, which are the primary age group related to fish consumption, are not feeding during their upstream migration, and their residence time is limited to days to months and would not result in meaningful exposure. They additionally stated, "[t]he HRS also notes that adult salmonid use of the site is primarily as a migratory corridor."

USACE commented that the discussion of butyltins in Source 1, Source 2, and Source 3 in the HRS documentation record at proposal is an inaccurate presentation of sources presenting unacceptable risk and requiring response actions.

Response: The EPA has added the Bradford Island site to the NPL. The HRS documentation record at proposal and HRS site score at or above 28.50 establishes that the Site poses a sufficient relative risk to human health or the environment as compared to other candidate sites evaluated using the HRS to warrant inclusion on the NPL. However, the actual determinations of site-specific risk that these pose to human health or the environment for Superfund purposes are determined at a later stage following listing. The HRS is not a site-specific risk assessment, but rather is a numerically based screening tool that the EPA uses to assess the relative degree of risk to human health and the environment posed by a site compared to other sites subject to review. The HRS score is used to determine whether a site is eligible for placement on the NPL. The NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of public health and environmental risks associated with a release of hazardous substances, pollutants or contaminants. Once a federal facility is included on the NPL the lead agency begins the process of determining the nature and extent of contamination at the site. The agency head enters into an interagency agreement called the Federal Facilities Agreement (FFA) with EPA and the States as appropriate that includes a review of alternative remedial actions and selection of the remedial action by head of the relevant department and EPA. Essentially the FFA directs the comprehensive remediation of the site and must comply with the public participation requirements of CERCLA § 117.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.4 Liability

Comment: Several commenters submitted comments related to liability for Site cleanup costs.

Yakama Nation, ODEQ, and WDOE stated the USACE's past practices have resulted in contamination of the soil, groundwater, and surface water in the Columbia River, pointing to releases of petroleum hydrocarbons, PAHs, metals (e.g., lead and mercury), PCBs, pesticides/herbicides, and volatile organic compounds ("VOCs"). They stated that from approximately 1942 until 1982, USACE and its contractors disposed of hazardous waste in a landfill at the facility, including the disposal of electrical equipment debris and light bulbs into the river and onto a steep bank that ultimately eroded into the river. Yakama Nation, ODEQ, and WDOE noted that, the USACE conducted sandblasting and equipment painting operations until 1988 and used a pistol range for small arms target practice until the 1970s; sand blast grit was disposed on the land surface and is uncontained in areas. They explained other historical operations include electrical transformer disassembly and aboveground storage of hazardous waste.

Yakama Nation, ODEQ, and WDOE stated that USACE's approach to the site is "further highlighted by its letter to ODEQ Director, Richard Whitman, dated July 21, 2020" in which "the USACE Portland District withdrew from an agreement with ODEQ to reimburse ODEQ oversight costs related to the site." They stated that USACE "demanded recoupment from ODEQ of over $769,000 in previously reimbursed oversight costs from over two decades of work at the site."

Yakama Nation, ODEQ, and WDOE also stated that ODEQ's cleanup program is a "polluter pays" program and without payment of oversight costs by USACE, ODEQ would be unable to participate in the cleanup in the long term. They asserted that USACE's approach to payment of ODEQ costs resulted in litigation by the State of Oregon in the U.S. District Court to recover ODEQ's recent and future response costs pursuant to CERCLA Section 107(a) and related state law, and to prevent the USACE from taking threatened action to recover response costs already paid to the State of Oregon.

USACE stated that it takes its responsibility to clean up Bradford Island seriously and will remain committed to accomplishing that goal under CERCLA and the NCP, working with Yakama Nation and other agencies and Tribes, ODEQ, WDOE, and public engagement and outreach. They added that "the Army will proceed to carry out response actions in accordance with the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601 et seq. (CERCLA)."

USACE also commented that the funding for Bradford Island cleanup is an equal combination of federal appropriations and Bonneville Power Administration funding. USACE stated it will continue to advocate for funding of this important project and be prepared to execute work as funding becomes available.

Response: The NPL listing process serves primarily as an informational tool for use by the EPA in identifying those sites that appear to present a significant risk to public health or the environment. Listing a site on the NPL does not reflect a judgment on the activities of the owner(s) or operator(s) of a site. It does not require those persons to undertake any action, nor does it assign any liability to any person. This position, stated in the legislative history of CERCLA, has been explained more fully in the Federal Register (48 FR 40674, September 8, 1983, and 53 FR 23988, June 24, 1988). See *Kent County v. EPA*, 963 F.2d 391 (D.C. Cir. 1992). Once this federal facility is included on the NPL the lead agency head enters into an interagency agreement called the Federal Facilities Agreement (FFA) with EPA and the States as appropriate that includes a review of alternative remedial actions and selection of the remedial action by head of the relevant department and EPA.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.5 Non-Scoring Comments

Comment: Yakama Nation, ODEQ, WDOE, and USACE submitted comments related to the request for listing the Site. Yakama Nation, ODEQ, WDOE expressed concerns with USACE's handing of the Bradford Island cleanup. USACE expressed concerns for an accurate record for the Site.

Yakama Nation, ODEQ, and WDOE commented that since their 2019 joint letter requesting NPL listing was submitted to the EPA, the situation at the Site has not improved, noting that recent developments imply that USACE will "continue to be unable to advance any meaningful progress to remediate the contamination." Yakama Nation, ODEQ, and WDOE submitted comments on the USACE's handling of the Bradford Island site.

USACE submitted comments seeking a "complete and accurate record for the proposal and any final EPA decision." According to USACE, its comment document describes USACE's effort to address source control before further removal actions, emphasizes USACE's considerations of TAG member recommendations, and addresses inaccuracies relating to tribal fisher access and use. USACE also contested specific statements made by Yakama Nation, ODEQ, and WDOE in their October 10, 2019, letter to the EPA requesting the Site be listed on the NPL.

Response: The Bradford Island site has been added to the NPL. EPA has reviewed all of the commenters' associated statements, and none of these comments affect the HRS score or the listing decision. The EPA will examine the Site to determine what response actions are appropriate. Regarding USACE's comments on the HRS package for the Site, these comments are addressed in sections 3.6 to 3.12 of this support document.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.6 Concentrations Below Screening Levels

Comment: USACE commented that concentrations of butyltin in the HRS documentation record at proposal are below soil screening levels and Regional Sediment Evaluation Team (RSET) values.

USACE commented that pages 45, 55 and 68 of the HRS documentation record at proposal discuss butyltin toxicity for Source 1, Source 2, and Source 3, respectively, but concentrations in these sources at the Site are below soil screening levels for butyltin. USACE stated it is unclear why those sections of the HRS documentation record at proposal focus on butyltin toxicity, noting the concentration units for butyltin in the HRS documentation record at proposal tables are µg/kg and the units for the screening levels are in mg/kg. Therefore, detected butyltins are orders of magnitude lower than the screening values. USACE recommended that if discussion of the toxicity of butyltins is retained, a statement that the values observed were below these screening levels should be added to the HRS documentation record.

USACE also commented that the RSET values are based on aquatic toxicity data, are developed for sediment, and are not appropriate for direct comparison to soil values at the Site. USACE suggested reference to RSET values be removed from the HRS documentation record.

Response: Concentrations of butyltins in Sources 1, 2, and 3 are appropriately associated with these sources at the Site. The fact that source concentrations are below soil screening levels or below RSET values does not affect their HRS evaluation as substances—such screening levels are not used by the HRS as criteria in associating a substance with a source. The soil screening and RSET values were not used as a criterion for associating hazardous substances with the sources, but rather, only mentioned as part of the general discussion of the adverse effects and concerns associated with butyltin compounds.

According to HRS Section 2.2.2, *Identify hazardous substances associated with a source*, the HRS states, "[f]or each of the three migration pathways, consider those hazardous substances documented in a source (for example,

by sampling, labels, manifests, oral or written statements) to be associated with that source when evaluating each pathway." There is no requirement for substances to be above soil screening levels or RSET values.

Further, as the EPA explained regarding observed releases specifically, on July 16, 1982, when responding to public comments on the proposed (original) HRS (47 FR 31188), and again on September 8, 1983 (48 FR 40665), the EPA rejected the idea that releases within regulatory limits should not be considered "observed releases" under the HRS. As the EPA noted in 1982:

> [E]mission or effluent limits do not necessarily represent levels which cause no harm to public health or the environment. These limitations are frequently established on the basis of economic impacts or achievability.

By contrast, an observed release represents a 100 percent likelihood that substances can migrate from the site (47 FR 31188, July 16, 1982). A regulatory limit is set to achieve a particular goal, e.g., protection of human health or the environment. Similarly, cleanup levels or screening levels are set with particular goals in mind (e.g., identifying a reasonable protective cleanup level, identify levels that present a certain risk, etc.). On the other hand, the observed release factor alone is not intended to reflect the hazard presented by the particular release, its purpose is just to identify that an observed release has occurred for HRS purposes—substances have migrated from the site to environmental media—consistent with HRS Table 2-3 observed release criteria.

Analogously, the purpose of the HRS Section 2.2.2 process is simply to identify hazardous substances associated with a source—it does not limit those substances identified to only those present above a regulatory or risk-based criterion. The concentration data for butyltin compounds presented in the HRS documentation record confirm these substances to be documented in the source, consistent with HRS requirements.

Note that in this case, the butyltin compounds are not CERCLA "hazardous substances," but are rather identified as CERCLA pollutants or contaminants. For HRS purposes, a "hazardous substance" is defined in HRS Section 1.1, *Definitions*, as "CERCLA hazardous substances, pollutants, and contaminants as defined in CERCLA sections 101(14) and 101(33)…". CERCLA 101(33) explains that:

> the term "pollutant or contaminant" shall include, but not be 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; except that the term "pollutant or contaminant" shall not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

Related to Source 1, page 45 of the HRS documentation record at proposal explains that the butyltin compounds are pollutant or contaminant substances for the site, and describes general adverse effects and concerns associated with butyltin compounds. Soil screening and RSET values mentioned were not used as a criterion for associating hazardous substances with the sources, but instead only noted as part of this general discussion:

> Butyltins are pollutants/contaminants found at this site (see Table 2 of this HRS documentation record). Butyltins are a class of compounds that bioaccumulate in sediment and fish tissue and are known to have effects on human health and wildlife (Ref. 35, p. 63). One study found that rats whose mothers were exposed to tributyltin during pregnancy showed altered performance in some neurological tests conducted when they were young adults (Ref. 36, p. 27). Another study, also with tributyltin, found that exposure during gestation, lactation, and post-lactation affected some developmental landmarks in female rats (Ref. 36, p. 27). Dibutyltin, and tributyltin, when

> administered during pregnancy, have induced developmental and reproductive effects in rodents (Ref. 36, p. 33).
>
> The EPA has developed risk-based residential soil regional screening levels (RSLs) for dibutyltin compounds (i.e., 19 mg/kg) and for tri-n-butyltin (i.e., 23 mg/kg) (Ref. 33, pp. 2, 7, and 15). The Regional Sediment Evaluation Team (RSET) has determined that tributyltin is a bioaccumulative chemical of concern in Oregon, including the Columbia River where it borders Oregon and Washington (Ref. 34, p. 142). RSET has proposed freshwater benthic screening levels for dibutyltin, monobutyltin, and tributyltin (Ref. 34, p. 190) and water quality-based screening levels for tributyltin (Ref. 34, p. 195).

(Pages 55 and 68 of the HRS documentation record at proposal provide similar explanations relevant to Sources 2 and 3.)

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.7 Source Containment

Comment: USACE noted that page 94 of the HRS documentation record at proposal suggests Source 2 as a possible source of butyltin compounds to the Columbia River from sandblast grit. However, USACE asserted that it is unlikely that butyltins in Source 2 at sample locations SBB-18 and SBB-17 (listed in Table 6 of the HRS documentation record at proposal) would travel overland to the river because those locations are in the upland forest. USACE suggested that butyltins be removed from the statement on page 94 of the HRS documentation record at proposal.

Response: Source 2, Spent Sandblast Grit Disposal Area, was found to be uncontained, consistent with HRS Section 2.2.3, *Identify hazardous substances available to a pathway*, and HRS Table 4-2, *Containment Factor Values for Surface Water Migration Pathway*, allowing hazardous substances associated with this source to be available for migration to the surface water migration pathway for HRS purposes. That butyltins were discussed in the attribution section of the HRS documentation record at proposal as being associated with Source 2 is consistent with the HRS. That is, for the HRS evaluation of this site, source containment information is provided to demonstrate that the source areas are eligible for consideration as part of the Site. Any containment value greater than zero, indicating incomplete containment, would satisfy this requirement. There is no requirement in the HRS that every hazardous substance associated with a source be evaluated for its likelihood of release from the source to the pathway being evaluated—only that source containment for the pathway being evaluated be greater than zero.

HRS Section 2.2.3, *Identify hazardous substances available to a pathway*, directs the scorer to consider all hazardous substances associated with a source with a containment factor value of greater than zero to be available to migrate from the source to the pathway. It states:

> In evaluating each migration pathway consider the following hazardous substances available to migrate from the sources at the site to the pathway:
>
> ...
>
> - Surface water migration – overland/flood component:
> - Hazardous substances that meet the criteria for an observed release in the watershed being evaluated.
> - **All hazardous substances associated with a source with a surface water containment factor value greater than 0 for the watershed (see sections** 4.1.2.1.2.1.1 and 4.1.2.1.2.2.1).... [Emphasis added]

Additionally, as directed in HRS Section 4.1.2.1.2.1.1, *Containment,* for the surface water overland flow component, conditions at each source were compared to containment criteria in HRS Table 4-2, *Containment*

Factor Values for Surface Water Migration Pathway, for the surface water overland flow component of the surface water migration pathway.

Table 4-2 of the HRS provides the requirements to assign sources a containment value based on their source type. For HRS purposes, Source 1 is considered a landfill, and Sources 2 and 3 are both considered contaminated soil, as described on pages 17, 47, and 57 of the HRS documentation record at proposal. In HRS Table 4-2, these source types are evaluated in the "All Sources (Except Surface Impoundments, Land Treatment, Containers, and Tanks)" category (HRS documentation record at proposal pages 17, 19, 47, 48, 57).

HRS Table 4-2 states in relevant part:

TABLE 4-2 – CONTAINMENT FACTOR VALUES FOR SURFACE WATER MIGRATION PATHWAY	
Sources	Assigned value
All Sources (Except Surface Impoundments, Land Treatment, Containers, and Tanks)	
Evidence of hazardous substance migration from source areas (i.e., source area includes source and any associated containment structures).....	10
No evidence of hazardous substance migration from source area and:	
(a) Neither of the following present (1) maintained engineer cover, or (2) functioning and maintained run-on control system and runoff management system	10
(b) Any one of the two items in (a) present	9
(c) Any two the following present (1) maintained engineer cover, or (2) functioning and maintained run-on control system and runoff management system, or (3) liner with functioning leachate collection and removal system immediately above liner.	7
(d) All items in (c) present	5
(e) (All items in (c) present, plus no bulk or non-containerized liquids nor materials containing free liquids deposited in source area.	3
No evidence of hazardous substance migration from source area, double liner with functioning leachate collection and removal system above and between liners, *and*:	
(f) Only one of the following deficiencies in containment: (1) bulk or noncontainerized liquids or materials containing free liquids deposited in source areas, or (2) no or nonfunctioning or nonmaintained run-on control system and runoff management system, or (3) no or nonmaintained engineered cover.	3
(g) None of the deficiencies in (f) present	0
Source area inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate is generated, liquids or materials containing free liquids not deposited in source area, and functioning and maintain run-on control present.	

Page 48 of the HRS documentation record at proposal states the following in support of the Source 2 containment:

> Containment
> Release to Surface Water via Overland Migration and/or Flood: A surface water containment factor value of 10 (Ref. 1, Table 4-2) is assigned because the Spent Sandblast Grit Disposal Area

> is unlined and uncovered (i.e., the source has no maintained engineered cover, or functioning and maintained run-on control system and runoff management system) (Ref. 4, p. 40).
>
> Containment Factor Value: 10

Further, in describing probable points of entry for surface runoff to the Columbia River for Source 2, including the overland segment of the migration path for HRS purposes, page 81 of the HRS documentation record at proposal explains how Source 2 substances may migrate from the source to the river:

> **Source 2 – Spent Sandblast Grit Disposal Area:** This source is within the Sandblast Area AOPC (Ref. 4, p. 49). A portion of stormwater runoff from impervious surfaces (asphalt) within this AOPC drains to four catch basins (designated as #1, #2, #3, and #4) (Ref. 4, pp. 49 and 50). These catch basins discharge to the Columbia River via two outfalls (designated as Outfalls #1 [PPE 2] and #2 [PPE 6]) (Ref. 4, pp. 49 and 50, and pp. 301 [Figure 3-4] and 303 [Figure 4-1]; Ref. 15, p. 6 [Figure 3]). Catch basin #4 is immediately adjacent to the Spent Sandblast Grit Disposal Area and is the furthest of the four catch basins from the Columbia River (Ref. 4, p. 301 [Figure 3-4]). The overland distance from this catch basin to its discharge point at Outfall #1 (PPE 2) on the Columbia River is approximately 225 feet (Ref. 4, p. 301 [Figure 3-4]; and see Figure 5 of this HRS Documentation Record). The disposal of spent sandblast grit in the area immediately east of the former sandblast building (i.e., the Spent Sandblast Girt Disposal Area) has resulted in the release of metallic and organometallic constituents into the surface and subsurface soil (Ref. 4, p. 50). This material has subsequently been transported across the site by surface water runoff into the stormwater drainage features (Ref. 4, p. 50 and p. 301 [Figure 3-4]), and ultimately to the Columbia River (Ref. 4, p. 301 [Figure 3-4]; Ref. 15, p. 6 [Figure 3]). Although in October 2001, the USACE cleaned the sediment from the stormwater system, replaced the filter fabric socks that line each catch basin, and has replaced the socks on a periodic basis, these liners would not prevent hazardous substances from migrating to the Columbia River (Ref. 4, p. 50).

(See further discussion of overland migration paths in section 3.8, Hazardous Substance Migration Path for Overland/Flood Component, of this support document.)

Hence, Source 2, the Spent sandblast grit disposal area, was found to be uncontained, does not prevent migration of substances from this source for HRS purposes, and the butyltins associated with sample locations within this source are available to be evaluated for the surface water migration pathway and are aptly discussed in the HRS documentation record at proposal. Similarly, Sources 1, 3, 4 and 5 were also documented to be uncontained to prevent migration of hazardous substances to surface water and were also assigned a source containment factor value greater than zero, 10 (pages 19, 57, 70, and 76 of the HRS documentation record at proposal), and overland migration paths from those sources to the river was discussed on pages 81-82 of the HRS documentation record at proposal.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.8 Hazardous Substance Migration Path for Overland/Flood Component

Comment: USACE commented on drainage features associated with the Sources 2 and 3 overland segments of the HRS hazardous substance migration paths, noting a lack of contamination and features that might inhibit contaminant transport to the river.

Commenting on stormwater runoff related to Sources 2 and 3, as discussed on page 81 of the HRS documentation record at proposal, USACE stated that stormwater lines were cleaned out in 2018 and stormwater and catch basin solids were sampled for chemical analysis before and after the 2018 clean out. USACE asserted that the

stormwater did not show contamination that would impact the Columbia River and the data have been provided to the EPA.

USACE stated that a fifth catch basin, located just above Outfall 2, was identified in 2018. USACE added the overgrown brush and roots in this catch basin were removed and the catch basin is now functional.

With specific regard to Source 2, USACE stated that it is unlikely that butyltin associated with samples SBB-17 and SBB-18 would travel overland to the Columbia because those locations are in the upland forest.

Response: The hazardous substance migration paths for Sources 2 and 3 were evaluated consistent with HRS Section 4.1.1.1, *Definition of hazardous substance migration path for overland/flood migration component*. Consistent with the HRS, the hazardous substance migration path includes both the overland segment and the in-water segment. The EPA does not have to show contaminants along the overland flow path. At this Site an observed release of butyltins to surface water was not evaluated. However, the EPA found the sources were not contained to prevent migration to surface water. See section 3.7, Source Containment, of this support document for discussion on source containment for sources evaluated in the surface water migration pathway.

HRS 4.1.1.1, *Definition of hazardous substance migration path for overland/flood migration component*, states:

> The **hazardous substance migration path includes both the overland segment and the in-water segment that hazardous-substances would take as they migrate away from sources** at the site:
> - **Begin the overland segment at a source and proceed downgradient to the probable point of entry to surface water**.
> - Begin the in-water segment at this probable point of entry.
>   - For rivers, continue the in-water segment in the direction of flow (including any tidal flows) for the distance established by the target distance, limit (see section 4.1.1.2).
>
> ... [Emphasis added].

Page 81 of the HRS documentation record explains the overland pathway hazardous substances would take from Source 2 and 3 to the probable point of entry to surface water, the Columbia River. It states:

> **4.1.1.1 Definition of Hazardous Substance Migration Path for Overland/Flood Component**
>
> Bradford Island site is located on Bradford Island within the Columbia River (Ref. 4, p. 20). Probable points of entry (PPEs) for surface water runoff from each source area to the Columbia River are as follows:
>
> ...
>
> **Source 2 – Spent Sandblast Grit Disposal Area:** This source is within the Sandblast Area AOPC (Ref. 4, p. 49). A portion of stormwater runoff from impervious surfaces (asphalt) within this AOPC drains to four catch basins (designated as #1, #2, #3, and #4) (Ref. 4, pp. 49 and 50). These catch basins discharge to the Columbia River via two outfalls (designated as Outfalls #1 [PPE 2] and #2 [PPE 6]) (Ref. 4, pp. 49 and 50, and pp. 301 [Figure 3-4] and 303 [Figure 4-1]; Ref. 15, p. 6 [Figure 3]). Catch basin #4 is immediately adjacent to the Spent Sandblast Grit Disposal Area and is the furthest of the four catch basins from the Columbia River (Ref. 4, p. 301 [Figure 3-4]). The overland distance from this catch basin to its discharge point at Outfall #1 (PPE 2) on the Columbia River is approximately 225 feet (Ref. 4, p. 301 [Figure 3-4]; and see Figure 5 of this HRS Documentation Record). The disposal of spent sandblast grit in the area immediately east of the former sandblast building (i.e., the Spent Sandblast Girt Disposal Area) has resulted in the release of metallic and organometallic constituents into the surface and

subsurface soil (Ref. 4, p. 50). This material has subsequently been transported across the site by surface water runoff into the stormwater drainage features (Ref. 4, p. 50 and p. 301 [Figure 3-4]), and ultimately to the Columbia River (Ref. 4, p. 301 [Figure 3-4]; Ref. 15, p. 6 [Figure 3]). Although in October 2001, the USACE cleaned the sediment from the stormwater system, replaced the filter fabric socks that line each catch basin, and has replaced the socks on a periodic basis, these liners would not prevent hazardous substances from migrating to the Columbia River (Ref. 4, p. 50).

Source 3 – Equipment Laydown Area: This source is within the Sandblast Area AOPC (Ref. 4, p.49). In 2009, evidence of runoff was observed along the Landfill access road and the adjacent Equipment Laydown Area (Ref. 4, p. 50). Portions of the Equipment Laydown Area are adjacent to the Columbia River (Ref. 4, p. 301 [Figure 3-4]). Other portions of the Equipment Laydown Area drain to catch basin #1 which is connected to Outfall #1 (PPE 2) which discharges to the Columbia River (Ref. 4, pp. 301 [Figure 3-4] and 303 [Figure 4-1]; Ref. 15, p. 6 [Figure 3]). The overland distance from this catch basin to the Columbia River is less than 200 feet (Ref. 4, p. 301 [Figure 34]; and Figure 5 of this HRS Documentation Record). Although in October 2001, the USACE cleaned the sediment from the stormwater system, replaced the filter fabric socks that line each catch basin, and has replaced the socks on a periodic basis, these liners would not prevent hazardous substances from migrating to the Columbia River (Ref. 4, p. 50).

The HRS documentation record at proposal explains that the overland distance from Source 2 to surface water is 225 feet at PPE 2. Similarly, it also explains the overland distance from Source 3 to surface water is less than 200 feet at PPE 2 and that some portions of Source 2 are adjacent to the Columbia River. It also explains that the catch basins fabric socks liners are not designed to prevent migration to surface water. This information is supported by Reference 4, the 2012 *Bradford Island, Cascade Locks, Oregon, Upland and River Operable Units, Investigation Repor*t, prepared for the USACE. The HRS does not require sampling along the overland flow path to surface water.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.9 Surface Water Pathway Target Distance Limit

Comment: USACE commented that the surface water pathway 15-mile target distance limit (TDL), as discussed on page 10 and in Section 4.1.3.3.2.3 of the HRS documentation record at proposal, does not consider that surface water and sediment concentrations downstream of the Bonneville Dam in the Columbia River are not elevated when compared to background concentrations.

USACE stated that PCBs (Aroclors) were not detected in downstream sediments (at detection limits of 14-18 µg/kg). USACE stated that average total PCBs (as congeners) in background locations was 0.483 µg/kg and downstream sediment concentrations ranged from 0.208 µg/kg to 0.915 µg/kg. USACE recommended that these downstream sediment concentrations be summarized as stated in its comment following the first sentence of the 8th paragraph on page 10 of the HRS documentation record at proposal.

Response: The 15-mile surface water pathway TDL was evaluated consistent with HRS Section 4.1.1.2, *Target distance limit*. That samples meeting observed release in the HRS documentation record at proposal do not extend beyond the Bonneville Dam does not obviate that section of the surface water pathway as part of the TDL. Consistent with the HRS, that section of the surface water pathway would be considered subject to potential contamination. Inasmuch as this comment may qualify as a comment on the TDL component of the HRS itself, such a comment is outside the scope of this rulemaking, which is limited to the placement of the Bradford Island site on the NPL.

HRS 4.1.1.2, *Target distance limit,* states:

> The target distance limit defines the maximum distance over which targets are considered in evaluating the site. Determine a separate target distance limit for each watershed.as follows:
>
> - If there is no observed release to surface water in the watershed or if there is an observed release only by direct observation (see section 4.1.2.1.1), begin measuring the target distance limit for the watershed at the probable point of entry to surface water and extend it for 15 miles along the surface water from that point.
> - **If there is an observed release from the site to the surface water in the watershed that is based on sampling, begin measuring the target distance limit for the watershed at the probable point of entry; extend the target distance limit either for 15 miles along the surface water or to the most distant sample point that meets the criteria for an observed release to that watershed, whichever is greater**.
>
> In evaluating the site, include only surface water targets (for example, intakes, fisheries, sensitive environments) that are within or contiguous to the hazardous substance migration path and located, partially or wholly, at or between the probable point of entry and the target distance limit applicable to the watershed:
>
> ...
>
> - Determine whether targets within or contiguous to the hazardous substance migration path are subject to actual or potential contamination as follows:
>   - If a target is located, partially or wholly, either at or between the probable point of entry and any sampling point that meets the criteria for an observed release to the watershed or at a point that meets the criteria for an observed release by direct observation, evaluate that target as subject to actual contamination, except as otherwise specified for fisheries in section 4.1.3.3 and for wetlands in section 4.1.4.3.1.1. If the actual contamination is based on direct observation, assign Level II to the actual contamination. However, if the actual contamination is based on samples, determine whether the actual contamination is at Level I or Level II concentrations as specified in sections 4.1.2.3, 4.1.3.3, and 4.1.4.3.1.
>   - **If a target is located, partially or wholly, within the target distance limit for the watershed, but not at or between the probable point of entry and any sampling point that meets the criteria for an observed release to the watershed, nor at a point that meets the criteria for an observed release by direct observation, evaluate it as subject to potential contamination**. [Emphasis added]

Page 82 of the HRS documentation record at proposal explains the distance considered for the target distance limit at this Site. It states:

> **4.1.1.2 Target Distance Limit**
>
> The total annual precipitation for Cascade Locks, Oregon in 2019 was 48.09 inches (Ref. 8, p. 4). From the various PPEs described in section 4.1.1.1 of this HRS documentation record, The 15-mile Target Distance Limit (TDL) begins at Source 5, Debris Pile #1, continues downstream approximately 2.5 miles to Outfall #2, then extends from Outfall #2 for 15 miles downstream within the Columbia River (see Figure 6 of this HRS Documentation Record).

Consistent with the HRS, the target distance limit at the site includes the distance starting at the most upstream PPE (the most upstream PPE is PPE#4 at Source 5, Debris Pile #1) and is terminated at the distance of 15 miles downstream of the most downstream PPE (the most downstream PPE is PPE#6 at Outfall #2) (See Figures 5 and

6 of the HRS documentation record at proposal). The distance downstream of the Bonneville Dam was not evaluated as actually contaminated; no observed release samples were presented in the HRS documentation record at proposal for this section of the surface water pathway. The EPA concurs with USACE that PCBs (Aroclors) were not evaluated in sediments downstream of the Bonneville Dam. However, the segment of the surface water pathway downstream of the Bonneville Dam is included in the portion of the surface water pathway evaluated for HRS purposes because the HRS directs that it be considered as within the 15-mile target distance limit. Inasmuch as this comment may qualify as a comment on the TDL component of the HRS itself, such a comment is outside the scope of this rulemaking, which is limited to the placement of the Site on the NPL. The HRS and the process used in placing a site on the NPL were promulgated on December 14, 1990 (55 FR 51569), and comments directed at the HRS are not relevant to the proposal to place the Site on the NPL, nor do such comments affect the Site score.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.10 Likelihood of Release

Comment: Related to hazardous substance concentrations used in the HRS documentation record at proposal, USACE submitted several comments on the topics of lower downstream contaminant concentrations and lower contaminant concentrations found in recent sampling.

Response: An observed release attributable to the Site has been documented in the HRS documentation record at proposal. Specific comments and responses are provided below in the following subsections:

- 3.10.1 Observed Release
- 3.10.2 Attribution

3.10.1 Observed Release

Comment: USACE stated that surface water and sediment concentrations downstream of the Bonneville Dam in the Columbia River are not elevated when compared to background concentrations. It also stated that smallmouth bass and clam tissue PCB concentrations in 2020 were lower than in previous years. USACE stated that PCBs (Aroclors) were not detected in downstream sediments (at detection limits of 14-18 µg/kg). It also commented that average total PCBs (as congeners) in background locations was 0.483 µg/kg and downstream sediment concentrations ranged from 0.208 µg/kg to 0.915 µg/kg. USACE recommends that these downstream sediment concentrations be summarized as stated in this comment following the first sentence of the 8th paragraph on page 10 of the HRS documentation record at proposal.

Commenting on Table 14 of the HRS documentation record at proposal, which contains clam tissue PCB concentrations establishing an observed release for HRS purposes, USACE stated:

> Concentrations of total PCB congeners in clams were lower in 2020 throughout the forebay (1.25 to 597 µg/kg total PCB), relative to the previous data sets (24.5 to 2,029 µg/kg total PCB). Despite the sampled locations being focused on the more contaminated areas of north shore of Bradford Island in 2020, the maximum, median and average concentrations of total PCBs in clams were lower in 2020 than for the combined 2008/2011 dataset.

Response: An observed release has been documented consistent with HRS Sections 2.3, *Likelihood of release*, 4.1.2.1.1, *Observed release*, and HRS Table 2-3. The fact that lower concentrations were recorded in 2020 does not obviate that an observed release was established. The HRS requirements for establishing an observed release only require that the concentration of hazardous substance(s) has increased significantly above the background concentration for a site and that some of the significant increase is attributable to the site; there is not a requirement for the observed release criteria to be met continuously over time.

In establishing an observed release to the surface water migration pathway, the HRS does not require that a release of hazardous substance is ongoing, it only requires that a "site has released a hazardous substance." HRS Section 2.3, *Likelihood of release*, states that the "[l]ikelihood of release is a measure of the likelihood that a waste **has been** or will be released to the environment." [Emphasis added]. Similarly, HRS Section 4.1.2.1.1, *Observed release*, in the surface water migration pathway states:

> Establish an observed release to surface water for a watershed by **demonstrating that the site has released a hazardous substance to the surface water in the watershed**. Base this demonstration on either:
>
> - Direct observation ...
> - Chemical analysis ...
>   - Analysis of surface water, benthic, or sediment samples indicates that the **concentration of hazardous substance(s) has increased significantly above the background concentration for the site for that type of sample** (see section 2.3).
>   - ...
>   - **Some portion of the significant increase must be attributable to the site** to establish the observed release .... [Emphasis added]

First, the HRS documentation record at proposal documented Aroclor 1254 in Sources 1, 3 and 5 and bis(2-ethylhexyl)phthalate in Sources 1 and 3 at this Site. These sources were not contained to prevent migration of hazardous substances to surface water (i.e., the containment factor values established were greater than zero). More specifically, Source 1 contained a range of concentration of bis(2-ethylhexyl)phthalate and Aroclor 1254, including a bis(2-ethylhexyl)phthalate at concentration of 21,000 ug/kg and Aroclor 1254 at (499 µg/kg) (pages 23 and 27 of the HRS documentation record at proposal). Source 1 was assigned a source containment factor value of 10 (page 19 of the HRS documentation record at proposal). Similarly, Source 3 contained bis(2-ethylhexyl)phthalate at concentration of 9,200 µg/kg and Aroclor 1254 at a concentration of 700 µg/kg, among other concentrations documented in samples in this source (pages 61 and 62 of the HRS documentation record at proposal). Source 3 was assigned a source containment factor value of 10 (page 57 of the HRS documentation record at proposal). Source 5 also contained Aroclor 1254 at a concentration of 1,900 mg/kg, among other concentrations documented in samples in this source (page 77 of the HRS documentation record at proposal). Source 5 was assigned a source containment factor value of 10 (page 76 of the HRS documentation record at proposal).

Second, an observed release was documented by direct observation and by chemical analysis in the HRS documentation record at proposal. Page 83 of the HRS documentation record at proposal states the following regarding the observed release by direct observation documented at the Site:

> **Basis for Direct Observation:**
> In October and November 2000, underwater dive surveys were conducted along the north shore of Bradford Island and numerous pieces of electrical equipment and other solid waste in three distinct piles (Piles #1, #2, and #3) were discovered in the Columbia River adjacent to the Landfill AOPC (Ref. 4, pp. 29, 53, and 70). The electrical equipment debris included PCB-containing light ballasts, electrical insulators, lighting arresters, electrical switches, rocker switches, a breaker box, and electrical capacitors (Ref. 4, pp. 48 and 53)....

Pages 83- 84 of the HRS documentation record at proposal states the following regarding the observed release by chemical analysis documented at the Site:

Basis for Chemical Analysis:
Samples collected by the EPA from within the surface water migration pathway TDL during two sampling events will be used to document an observed release by chemical analysis as presented below.

...

Analytical results from the 2008 RI indicate the presence of Aroclor-1254 and bis(2-ethylhexyl)phthalate at elevated concentrations in sediment samples collected from the Forebay Area with respect to background concentrations based on the highest concentrations of these analytes in the background sediment samples; regardless of grain size (see Table 13 for reference citations). Additionally, analytical results indicate the presence of Aroclor-1254 at elevated concentrations in the clam tissue samples collected from the Forebay Area with respect to background concentrations based on the highest concentration of this analyte in the background clam tissue samples (see Table 14 for reference citations). ...

In 2011, URS collected sediment, clam (*Corbicula fluminea;* also known as Asian clam) tissue, and smallmouth bass (*Micropterus dolomieu*) tissue samples from the Forebay Area and smallmouth bass from the Reference Area in support of a 2013 pre-feasibility study on behalf the USACE (Ref. 15, pp. 1, 80 through 86). In total seven sediment samples (P112 through P118) were collected and co-located clam tissue samples were collected and analyzed at locations P112 through P115 and at location P118 (Ref. 15, pp. 6 [Figure 3], 12 [Table 3], and 13 [Table 4]; Ref. 7, p. 212 [Figure 1-5B]). Regarding smallmouth bass, nineteen locations were sampled in the Forebay Area (62 through 65, 67 through 74, 76, 78, 79, and 81 through 84) and 19 locations were sampled in the Reference Area (39, 41 through 50, 52, and 55 through 61)(Ref. 15, pp. 4 [Figure 1], 5 [Figure 2], 8 and 9 [Table 1], and 10 and 11 [Table 2]). All samples were collected in accordance with a QAPP (Ref. 15, p. 29). Samples were analyzed for PCBs using EPA SW846 Method 8082, metals using EPA SW-846 6000/7000 series, total mercury using EPA SW-846 7471A, SVOCs using EPA SW-846 8270C/8270D-SIM, pesticides using EPA SW-846 Method 8081, butyltins using CAS SOP, and grain size (sediments only) using PSEP, among other analyses (Ref. 15, pp. 30 and 43 through 46). Data results were reviewed in accordance with EPA's *Contract Laboratory Program National Functional Guidelines for Organic Data Review* and EPA's *National Functional Guidelines for Inorganic Superfund Data Review* (Ref. 15, pp. 30 and 31). All samples were maintained under proper COC (Ref. 15, pp. 31). Since reference sediment and clam tissue samples were not collected during this investigation, the reference samples from the 2008 RI sampling are used for comparison to the 2011 pre-feasibility study results and these sample results have been included in Tables 13 and 14 below.

Analytical results from the 2011 pre-feasibility sampling event indicate the presence of Aroclor-1254 at elevated concentrations in sediment samples collected from the Forebay Area with respect to background concentrations based on the highest concentrations of these analytes in the background sediment samples; regardless of grain size (see Table 13 for reference citations). Additionally, analytical results indicate the presence of Aroclor-1254 at elevated concentrations in the clam tissue samples collected from the Forebay Area with respect to background concentrations based on the highest concentration of this analyte in the background clam tissue samples (see Table 14 for reference citations).

Table 13 on pages 85-90 of the HRS documentation record at proposal established sediment background levels for Aroclor 1254 and bis(2- ethylhexyl)phthalate, as well as documenting sediment observed release concentrations meeting HRS observed release criteria. Similarly, Table 14 on pages 90-93 of the HRS documentation record at proposal established clam tissue background levels for Aroclor 1254, as well as documenting clam tissue observed release concentrations meeting HRS observed release criteria. The commenter did not challenge that these samples met HRS observed release requirements.

Additionally, Table 17 on page 102 of the HRS documentation record at proposal presents the 2011 smallmouth bass tissue samples documenting Aroclor 1254 contamination in fish tissue collected from the Columbia River within the zone of actual contamination at the Site. Concentrations of Aroclor 1254 documented in smallmouth bass tissue are 13,000 µg/kg, 29,000 µg/kg, and 65,000 µg/kg. These data were sufficient to document Level I fishery contamination at the Site in the Columbia River. See section 3.11.2 of this support document for a discussion of Level I human food chain contamination.

The Attribution section on pages 93-95 of the HRS documentation record explained why the significant increases identified in observed release samples are attributable to the Site. (See section 3.10.2, Attribution, of this support document, for further discussion of the Attribution section of the HRS documentation record at proposal.)

In summary, the HRS documentation record at proposal has shown observed releases attributable to the Site were documented in the Columbia River. These data were sufficient for HRS purposes and the decision to place the Site on the NPL. Lower concentrations at different times and lower concentrations in downstream areas not scored as establishing an observed release do not negate the observed release scored in the HRS documentation record at proposal. USACE's 2020 sampling data will be considered as EPA reviews the site, but it does not negate the observed release of Aroclor 1254 and bis(2-ethylhexyl)phthalate used to evaluate the Site at listing. See Section 3.11.1 of this support document for a discussion of Level I human food chain contamination documented with the Smallmouth bass tissue samples.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.10.2 Attribution

Comment: Commenting on the attribution discussion on page 93 of the HRS documentation record at proposal, USACE reiterated that PCB concentrations in smallmouth bass from Bradford Island, Goose Island, and the Bonneville forebay in 2020 were lower than those collected from the same area during the same season in 2008 and 2011.

Response: An observed release attributable to the Site has been documented consistent with HRS Sections 2.3, *Likelihood of release*, 4.1.2.1.1, *Observed release*, and HRS Table 2-3. The HRS documentation record at proposal discussion on page 93, affirming that elevated concentrations of Aroclor 1254 were documented in sediment, clam issue, and smallmouth bass is appropriate. See section 3.10.1, Observed Release, of this support document for a discussion on observed release documentation. Lower concentrations of PCBs recorded in 2020 do not obviate that an observed release attributable to the Site was established in the HRS documentation record at proposal.

HRS Section 4.1.2.1.1, *Observed release*, in the surface water migration pathway states:

> Establish an observed release to surface water for a watershed by **demonstrating that the site has released a hazardous substance to the surface water in the watershed**. Base this demonstration on either:
>
> - Direct observation ...
> - Chemical analysis ...
>
> - ...
> - ...
> - **Some portion of the significant increase must be attributable to the site** to establish the observed release .... [Emphasis added]

Page 93 of the HRS documentation record at proposal states:

> **Attribution:**
>
> Sediment, clam tissue, and smallmouth bass tissue samples contain elevated concentrations of Aroclor 1254 with respect to background concentrations (see Sections 4.1.2.1.1 and 4.1.3.3.1). Sediment and clam tissue samples also contain elevated concentrations of bis(2-ethylhexyl)phthalate with respect to background concentrations (see Section 4.1.2.1.1). Of these hazardous substances, Aroclor 1254 was detected in Sources 1, 3, and 5; and bis(2-ethylhexyl)phthalate was detected in Sources 1 and 3 (see Section 2.2). Each of these sources are not fully contained (see Section 2.2 of this HRS Documentation Record for each of these sources) and have overland routes for surface water runoff from them to the Columbia River (see Section 4.1.1.1 of this HRS Documentation Record).

The association Aroclor 1254 and bis(2-ethylhexyl)phthalate with site sources was provided in the source characterization sections of the HRS documentation record via samples collected from these sources (pages 17-78 of the HRS documentation record). These sources were waste management units, contaminated soil, waste deposited at the site, and in once instance waste deposited directly into surface water as is the case of Source 5, which is debris placed into the Columbia River. None of these sources were contained to prevent migration to surface water. (See section 3.7, Source Containment, of this support document.) This is sufficient evidence to support that at least some portion of the significant increase in contamination documented in the observed release samples is attributable to the Site. (See section 3.10.1 of this support document for a detailed discussion of observed release.)

The HRS requirements for establishing an observed release only require that the concentration of hazardous substance(s) has increased significantly above the background concentration for the site, and that some portion of the release must be attributable to the site; there is not a requirement for the observed release criteria to be met continuously over time. Hence, lower concentrations of PCBs recorded in 2020 do not negate that an observed release attributable to the Site was established in the HRS documentation record at proposal.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.11 HRS Eligible Targets

Comment: USACE submitted several comments related to the human food chain fishery, including discussing federal designations related to fishing, current tissue contaminant levels, residence time for salmonids at the Site, sport catch estimates for salmonids in the 15-mile TDL and the resulting potential for human exposure to contaminated fish from Bradford Island, and the presence of threatened and endangered species at the site.

Response: All targets evaluated in the HRS documentation record at proposal are eligible for HRS evaluation. Specific comments and responses are provided below in the following subsections:

- 3.11.1 Human Food Chain Fishery
- 3.11.2 Level I Human Food Chain Contamination
- 3.11.3 Potential Human Food Chain Contamination
- 3.11.4 Sensitive Environments

3.11.1 Human Food Chain Fishery

Comment: USACE commented that there has not been a federal adjudication of usual and accustomed cultural, subsistence, and commercial fishing areas on Bradford Island. USACE contended that this assertion has been made by interested parties; however, no authoritative federal determination of this assertion has been made.

USACE requested statements in the listing package be corrected to differentiate between assertions and authoritative adjudications.

USACE stated that current fish consumption advisories do not show high concentrations of contaminants in migratory fish species, such as salmon or steelhead. It recommended that the EPA revise the site narrative to state "high concentrations of contaminants in [residential] fish tissue."

Response: Sufficient evidence has been provided to document a human food chain fishery used for human consumption at the Site for HRS purposes—that is, the HRS documentation record at proposal showed the availability of human food chain organisms and documentation they are caught for human consumption. Reference 17 of the HRS documentation record at proposal supports fishing for human consumption by the Yakama Nation. A federal adjudication is not required for fishery documentation for HRS purposes. Additionally, while fishing advisories were discussed in the HRS documentation record at proposal, they were used to reflect the conditions of the water body; documentation of a fishery is based on the HRS and on evidence of fishing for human consumption.

HRS Section 4.1.3.3, *Human food chain threat targets*, states:

> Evaluate two target factors for each watershed: food chain individual and population. For both factors, determine whether the target fisheries are subject to actual or potential human food chain contamination.
>
> Consider a fishery (or portion of a fishery) within the target distance limit of the watershed to be subject to actual human food chain contamination if any of the following apply:
>
> - A hazardous substance having a bioaccumulation potential factor value of 500 or greater is present either in an observed release by direct observation to the watershed or in a surface water or sediment sample from the watershed at a level that meets the criteria for an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release (that is, it is located either at the point of direct observation or at or between the probable point of entry and the most distant sampling point establishing the observed release).

As discussed in section 3.10.1, Observed Release, of this support document, an observed release of Aroclor 1254 and bis(2-ethylhexyl)phthalate have been documented in the surface water at this Site.

Table 15 on pages 97-98 of the HRS documentation record at proposal presents Aroclor 1254 and bis(2-ethylhexhy)phthalate as having a bioaccumulation factor value of 50,000 (which meets the criteria of 500 or greater as cited from HRS Section 4.1.3.3 above):

Table 15
Human Food Chain Threat Waste Characteristics Factor Values

Hazardous Substance	Source	Toxicity Factor Value [a]	Persistence Factor Value [b]	Bioaccumulation Factor Value [c]	Toxicity/Persistence/Bioaccumulation Value (Ref. 1, Table 4-16)	Reference
Aroclor-1248[e]	5	10,000	1	50,000	5×10^8	Ref. 2, p. 41
Aroclor-1254[e]	1, 3, 5	10,000	1	50,000	5×10^8	Ref. 2, p. 41
Aroclor-1260[e]	1, 2, 3, 4	10,000	1	50,000	5×10^8	Ref. 2, p. 41

Table 15 Human Food Chain Threat Waste Characteristics Factor Values						
Hazardous Substance	**Source**	**Toxicity Factor Value [a]**	**Persis-tence Factor Value [b]**	**Bioaccumu-lation Factor Value [c]**	**Toxicity/Per-sistence/Bioaccu-mulation Value (Ref. 1, Table 4-16)**	**Referenc e**
Aroclor-1268[c]	5	10,000	1	50,000	5×10^8	Ref. 2, p. 41

...

Bis(2-ethylhexyl)phthalate	1, 3	100	1	50,000	5×10^6	Ref. 2, p. 12

...

Page 101 of the HRS documentation record at proposal states:

> Consumption of shellfish from the Bonneville Dam Forebay Area is not known to occur, particularly for subsistence fishers (Ref. 4, p. 187). **Smallmouth bass is a resident species that is known to occur in the River OU (Ref. 7, p. 26).** It has a small home range and high fidelity to its range and, therefore, has the potential to spend its entire lifetime in the River OU (Ref. 7, p. 26). It is a trophic level 3/4 species feeding on smaller fish such as sculpin, peamouth, and juvenile fish, as well as crayfish and insect larvae (Ref. 7, p. 26). All these characteristics make it likely that the smallmouth bass is a fish species that may represent reasonable maximum exposure to contaminants of potential concern (Ref. 7, p. 26). **It is also extremely popular with sport fishers, nontribal high consumption anglers, and also, to some extent, tribal fishermen (Ref. 7, p. 26; Ref. 17, pp. 1, 2, and 9).**
>
> **In 2011, URS collected smallmouth bass (*Micropterus dolomieu*) tissue samples from the Forebay Area** and smallmouth bass from a Reference Area in support of a 2013 pre-feasibility study **on behalf the USACE** (Ref. 15, pp. 1, and 8 through 11). Smallmouth bass were collected from 19 locations in the Forebay Area (62 through 65, 67 through 74, 76, 78, 79, and 81 through 84) and from 19 locations in the Reference Area (39 through 52, and 55 through 61) (Ref. 15, pp. 4 [Figure 1], 5 [Figure 2], 8 and 9 [Table 1], and 10 and 11 [Table 2]). ...
>
> **Table 17 provides tissue sample results for three smallmouth bass samples obtained from the Zone of Actual Contamination demonstrating the presence of Aroclor-1254 in these samples** (see Figure 6 of this HRS Documentation Record). Notably, the concentrations of Aroclor-1254 in these samples (i.e., ranging from 13,000 ug/kg to 65,000 ug/kg) were more than 59 times the highest concentration of Aroclor-1254 detected in the smallmouth bass tissue samples collected from the reference locations (i.e., ranging from not detected at 9.80 ug/kg to detected at 220 ug/kg) (Ref. 15, pp. 8 and 9; Ref. 29, p. 3). [Emphasis added]

Page 102 of the HRS documentation record at proposal states:

> The Bradford Island area is within the homelands of the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation) (Ref. 17, p. 1). **This Island and this vicinity remain as an important usual and accustomed (U&A) area for cultural, subsistence, and commercial fishing (Ref. 17, p. 1).** Yakamas historically consumed multiple migratory and resident fish species, as well as shellfish, from Bradford Island (Ref. 17, p. 1). Today, within the areas of impacted sediments and resident fish, Tribal fish consumption rates by fish/shellfish species are

> difficult to quantify (Ref. 17, p. 1). **Yakamas have always and will continue to fish from the Bonneville Pool (Ref. 17, p. 1**). Because smallmouth bass is not formally managed by any tribes in this area (it is a non-native, non-treaty game fish managed by the state agencies) and is not Endangered Species Act (ESA)-listed, the tribal commercial or subsistence catch is not recorded or accounted for through the *U.S. v. Oregon* Management Agreement (Ref. 17, p. 2). Some fishers have stated that they previously sold sturgeon from the Bonneville Pool but no longer do because of concerns about Bradford Island contamination (Ref. 17, p. 2). [Emphasis added]

While there is no definition of "human food chain fishery" in the HRS, given that the threat under which fisheries are evaluated is the "human food chain threat," the emphasis of this threat is on the transfer of contamination to humans by the consumption of aquatic organisms, e.g., a fishery, resulting in humans being exposed to released hazardous substances that have been accumulated in aquatic food chain organisms and posing a threat to human health. To establish a fishery, the HRS documentation record at proposal documents that human food chain organisms are present and that people fish in the surface water body. As noted in quoted HRS documentation record text above, Reference 17 is cited (a letter from the manager of the Yakama Nation Fisheries). Pages 1-2 of Reference 17 of the HRS documentation record at proposal state:

> The Bradford Island area is within the homelands of the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation). **This Island and this vicinity remain as an important usual and accustomed (U&A) area for cultural, subsistence and commercial fishing. The consumption of resident fish** and the resulting exposure to Bradford Island contamination is highly concerning.
>
> ...
>
> Yakamas have always and **will continue to fish from the Bonneville Pool**.
>
> ...
>
> Tribal members fish from platforms on the western tip of Goose Island and along the Oregon and Washington shorelines**. The lower Bonneville pool tribal treaty harvests are continuing despite fish advisory warnings, and that includes smallmouth bass being harvested as non-target by-catch in tribal commercial, ceremonial, and subsistence fisheries at Fort Rains Treaty Fishing Access Site and other nearby sites**. Because smallmouth bass is not formally managed by any tribes in this area (it is a non-native non-treaty game fish managed by the state agencies) and is not ESA-listed, the tribal commercial or subsistence catch is not recorded or accounted for through the *U.S. v. Oregon* Management Agreement. [Emphasis added]

The above excerpts from the HRS documentation record at proposal and Reference 17 of the HRS documentation record at proposal document that a fishery exists in the watershed. See section 3.10.1, Observed release, of this support document for a discussion of the documentation of an observed release to surface water. See sections 3.11.2, Level I Human Food Chain Contamination, and 3.11.3, Potential Human Food Chain Contamination, of this support document for discussions on level of contamination within segments of the fishery that are in the target distance limit for this Site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.11.2 Level I Human Food Chain Contamination

Comment: USACE submitted comments related to tissue concentrations and residence time for the smallmouth bass, the species used for establishing Level I concentrations.

Commenting on Table 17 of the HRS documentation record at proposal, which contains smallmouth bass tissue

PCB concentrations establishing Level I concentrations for HRS purposes, USACE stated that PCB concentrations in smallmouth bass from Bradford Island, Goose Island, and the Bonneville forebay in 2020 were lower than those collected from the same area during the same season in 2008 and 2011. USACE said:

> The average total PCB concentration in fish collected in 2020 was 17 times lower than those collected in 2008/2011, over an order of magnitude. Similarly, the maximum total PCB concentration observed in 2020 was 16 times lower than the maximum observed in 2008/2011. In 2020, three fish had tissue concentrations between 4,789 µg/kg and 11,490 µg/kg total PCBs. All other fish were below 2,600 µg/kg. Data are available in the USACE report, "*Smallmouth Bass, Crayfish, and Clam Data Report*" USACE 2021.

USACE also commented that text in the Food Chain Individual section on page 101 of the HRS documentation record at proposal implies there is meaningful exposure of adult salmonids to contaminants at Bradford Island. It stated that the Columbia River is used primarily as the migratory route for adult salmonids and the residence time at Bradford Island is not expected to be meaningful in terms of contaminant exposure. USACE commented that the RI notes that the limited exposure of salmonids to the Bradford Island site contaminants is reflected in the Oregon Health Authority fish advisory which is limited to resident fish, such as bass, and does not include salmonids. USACE stated:

> As stated in the RI Management Plan (USACE 2007a) based on a BA conducted in 2007 (USACE 2007b) and in the baseline ecological risk assessment, salmonids are considered transient in the Bradford Island area. The primary adult species are spring Chinook, steelhead, sockeye, summer Chinook, fall Chinook and coho. These adults generally aren't feeding as they move through the forebay and tagging studies conducted to evaluate movement of adult salmon through the Bonneville dam have found the residence time to be on the order of days (Bjornn et al 1999; Reischel and Bjornn 2003).
>
> Tagging studies for juvenile salmon are regularly conducted at Bonneville Dam and include measures of fish residence time in the Bonneville forebay. Residence times for juveniles is on the order of hours to a day. While some species of out-migrating juveniles may feed, it is unlikely that they have a high residence time at North Bradford due to the velocities when the spillway is open.
>
> The RI also notes that the limited exposure of salmonids to Bradford Island site contaminants is reflected in the OHA fish advisory which is limited to resident fish, such as bass, and does not include salmonids.

Response: Level I human food chain contamination has been documented, consistent with HRS Section 4.1.3.3, *Human food chain threat targets,* a fact not contested by USACE. That lower concentrations of fish tissue were recorded in 2020 does not obviate that Level I concentrations were documented. The HRS only requires that tissue sample concentrations exceed the relevant benchmarks; there is no need for tissue concentrations to consistently exceed benchmarks over time. Note that smallmouth bass tissue samples were used for the purpose of establishing Level I concentrations—adult salmonids were not used.

The HRS documentation record at proposal used 2011 smallmouth bass tissue sample concentrations exceeding the relevant benchmarks to establish Level I concentrations for the human food chain threat. Tissue samples at other points in time that exhibit lower concentrations do not negate these Level I concentrations, as the HRS does not require that tissue concentrations continuously exceed the relevant benchmarks over time. HRS Section 4.1.3.3, *Human food chain threat targets*, states:

- Determine the level of actual contamination from samples (including tissue samples from essentially sessile, benthic organisms) that meet the criteria for actual food chain contamination by comparing the exposure concentrations (see section 4.1.2.3) from these samples (or comparable samples) to the health-based benchmarks from Table 4-17, as

described in section 2.5.1 and 2.5.2. Use only the exposure concentrations for those hazardous substances in the sample (or comparable samples) that meet the criteria for actual contamination of the fishery.

- In addition, determine the level of actual contamination **from other tissue samples by comparing the concentrations of hazardous substances in the tissue samples (or comparable tissue samples) to the health-based benchmarks from Table 4-17,** as described in sections 2.5.1 and 2.5.2. Use only those additional tissue samples and only those hazardous substances in the tissue samples that meet all the following criteria:
  - **The tissue sample is from a location that is within the boundaries of the actual food chain contamination for the site** (that is, either at the point of direct observation or at or between the probable point of entry and the most distant sample point meeting the criteria for actual food chain contamination).
  - **The tissue sample is from a species of aquatic human food chain organism that spends extended periods of time within the boundaries of the actual food chain contamination for the site** and that is not an essentially sessile, benthic organism.
  - The hazardous substance is a substance that is also present in a surface water, benthic, or sediment sample from within the target distance limit for the watershed and, for such a sample, meets the criteria for actual food chain contamination.

TABLE 4-17 – HEALTH-BASED BENCHMARKS FOR HAZARDOUS SUBSTANCES IN HUMAN FOOD CHAIN
• Concentration corresponding to Food and Drug Administration Action Level (FDAAL) for fish or shellfish. • **Screening concentration for cancer** corresponding to that concentration that corresponds to the 10^{-6} cancer risk for oral exposures. • Screening concentration for noncancer toxicological responses corresponding to the Reference Dose (RfD) for oral exposures. [Emphasis added]

Page 101 of the HRS documentation record at proposal provides the following discussion of smallmouth bass tissue used to document Level I contamination at the Site:

> Hydraulic modeling of the waters near Bradford Island was conducted by the USACE (Ref. 4, p. 41). This modeling indicates that a large eddy forms behind the dam and creates a reverse current flow next to Bradford Island (Ref. 4, p. 41). This reverse flow appears to attract adult salmonids exiting the fish ladder on their way upstream and may result in the fish being swept back over the dam (Ref. 4, p. 41). Introduced fish species may be present in the Dam's Forebay for prolonged periods throughout the year and are popular recreational species with a recognized societal value (Ref. 4, p. 41).
>
> ...
>
> **Smallmouth bass is a resident species that is known to occur in the River OU (Ref. 7, p. 26). It has a small home range and high fidelity to its range and, therefore, has the potential to spend its entire lifetime in the River OU (Ref. 7, p. 26). It is a trophic level 3/4 species feeding on smaller fish such as sculpin, peamouth, and juvenile fish, as well as crayfish and insect larvae (Ref. 7, p. 26). All these characteristics make it likely that the smallmouth bass is a fish species that may represent reasonable maximum exposure to contaminants of potential concern (Ref. 7, p. 26). It is also extremely popular with sport fishers, nontribal**

high consumption anglers, and also, to some extent, tribal fishermen (Ref. 7, p. 26; Ref. 17, pp. 1, 2, and 9). [Emphasis added]

Table 17 on page 102 of the HRS documentation record at proposal provides the concentrations of Aroclor 1254 above the cancer risk screening concentration in smallmouth bass collected at the Site. Sample locations are shown on Figure 5 of the HRS documentation record at proposal. This is sufficient evidence to document Level I contamination of human food chain organisms at the Site. Page 102 of the HRS documentation record at proposal states:

Table 17
Analytical Results –USACE Pre-Feasibility Study 2011 Sampling Event
Columbia River Smallmouth Bass Tissue Samples

Sample ID and Date Collected	Hazardous Substance	Hazardous Substance Concentration	Units (wet weight)	MRL[a]	Units (wet weight)	Benchmark Cancer Risk	Reference
Columbia River Contaminated Tissue Samples							
62 R0903201 1SB62 9/3/2011	Aroclor 1254	13,000	ug/kg	NK	NA	2.08 ug/kg	Ref. 15, p. 10; Ref. 29, p. 3
63 R0903201 1SB63 9/3/2011	Aroclor 1254	29,000	ug/kg	NK	NA	2.08 ug/kg	Ref. 15, p. 10; Ref. 29, p. 3
68 R0903201 1SB68 9/3/2011	Aroclor 1254	65,000	ug/kg	NK	NA	2.08 ug/kg	Ref. 15, p. 10; Ref. 29, p. 3

Key:
ID = Identification.
MDL = Method detection limit.
NA = Not applicable.
NK = Not known.
ug/kg = micrograms per kilogram.

The HRS documentation record at proposal provides discussion that the quantity of smallmouth bass caught for consumption is unknown but greater than zero, and it is this quantity that is used to determine the fish caught for consumption within the zone of actual contamination at the Site. Note that smallmouth bass tissue samples were used for the purpose of establishing Level I concentrations - adult salmonids were not used. Page 104 of the HRS documentation record at proposal states:

Smallmouth bass tissue samples obtained from the Zone of Actual Contamination contain PCBs at concentrations that exceed the human food chain cancer risk benchmark (see Table 17 and Figure 6 of this HRS Documentation Record). Smallmouth bass is a resident species (Ref. 7, p. 26). It has a small home range and high fidelity to its range and, therefore, has the potential to spend its entire lifetime in the River OU (Ref. 7, p. 26). The Zone of Actual Contamination is within the Yakama Nation's U&A fishing grounds (Ref. 17, p. 1). Although a U&A treaty fishing area, enrolled Yakama members are currently prohibited (by tribal regulation)

> from building fishing platforms on Bradford Island (Ref. 17, p. 2). This decision to issue tribal regulations prohibiting fishing platforms on Bradford Island is a direct result of contamination issues and safety concerns (Ref. 17, p. 2). Some fishers have stated that they previously sold sturgeon from the Bonneville Pool but no longer do because of concerns about Bradford Island contamination (Ref. 17, p. 2).
>
> The lower Bonneville pool tribal treaty harvests are continuing despite fish advisory warnings, and that includes smallmouth bass being harvested as non-target by-catch in tribal commercial, ceremonial, and subsistence fisheries at Fort Rains Treaty Fishing Access Site and other nearby sites (Ref. 17, pp. 1 and 2). Because smallmouth bass is not formally managed by any tribes in this area (it is a non-native, non-treaty game fish managed by the state agencies) and is not Endangered Species Act-listed, the tribal commercial or subsistence catch is not recorded or accounted for through the *U.S. v. Oregon* Management Agreement (Ref. 17, p. 2). **The amount of harvest is unknown but greater than zero pounds per year (Ref. 17, p. 2).**
>
> A Level I concentrations value of 0.3 is calculated (i.e., a human food chain value of 0.03 x 10 for Level I concentrations) (Ref. 1, Section 4.1.3.3.2.1 [Table 4-18]). A value of 0.3 is assigned to Level I concentrations. [Emphasis added]

The above excerpts from the HRS documentation record at proposal support that Level I human food chain has been documented at the Site. USACE's 2020 sampling fish tissue data will be considered as EPA reviews the site, but it does not negate that Level I human food chain contamination has been documented at the Site. Further, the 2020 smallmouth bass PCB concentrations of 4,789 µg/kg and 11,490 µg/kg mentioned by USACE would be above the cancer risk screening concentration of 2.08 µg/kg, and therefore would also support Level I human food chain contamination. Although text on page 101 of the HRS documentation record at proposal makes reference to adult salmonids at the Bonneville dam, this information was not used to establish Level I concentrations for the human food chain threat at the Site. Hence the residence time of adult salmonids is not relevant to the Level I human food chain scoring.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.11.3 Potential Human Food Chain Contamination

Comment: USACE stated that using sport catch estimates for salmonids in the 15-mile TDL overestimates the potential for human exposure to contaminated fish from Bradford Island.

Commenting specifically on text in Section 4.1.3.3.2.3, Potential human food chain contamination, on page 105 of the HRS documentation record at proposal, USACE stated that the migratory nature of salmon makes it a poor candidate to evaluate risk. It stated this information is in the Baseline Ecological Risk Assessment (USACE 2016) as well as the RI Management Plan (USACE 2007) and Biological Assessment (USACE 2007). It commented that "[a]dult salmon, which are the primary age group related to fish consumption, are not feeding during their upstream migration and their residence time is limited to days to months and would not result in meaningful exposure." It added that the HRS documentation record at proposal also notes that adult salmonid use of the Site is primarily as a migratory corridor.

USACE suggested that catch estimates for resident fish be used for predicting human exposure to Bradford Island contaminants through the human food chain component of the HRS.

Response: The potential human food chain contamination was evaluated consistent with the HRS Sections 4.1.3.3, *Human food chain threat-targets*, 4.1.3.3.2, *Population*, and 4.1.3.3.2.3, *Potential human food chain contamination*. Human food chain organisms are caught for consumption within the surface water pathway target distance limit, and the HRS allows the data to be used in the determination of the fishery production when evaluating that factor in HRS scoring. The residence time of a human food chain species within the potentially

contaminated zone of the surface water pathway is not a factor considered when determining that segments' eligibility for consideration in the fishery production calculation. Additionally, as explained in section 3.3, Risk to Human Health and the Environment, of this support document, the HRS is a screening tool and not meant to represent an evaluation of actual risk.

HRS Section 4.1.3.3, *Human food chain threat targets*, describes the general determination of which portions of fisheries within the target distance limit are subject to Level I, Level II, or potential contamination. Note that while Level I and Level II designations involve concentration data, fisheries scored as subject to potential contamination do not. That is, residence time and any resulting absorption of site contaminants is not a consideration for fisheries scored as subject to potential contamination. HRS Section 4.1.3.3, *Human food chain threat targets*, states:

> Evaluate two target factors for each watershed: food chain individual and population. For both factors, **determine whether the target fisheries are subject to actual or potential human food chain contamination**.
>
> Consider a fishery (or portion of a fishery) within the target distance limit of the watershed to be subject to actual human food chain contamination if any of the following apply:
>
> - A hazardous substance having a bioaccumulation potential factor value of 500 or greater is present either in an observed release by direct observation to the watershed or in a surface water or sediment sample from the watershed at a level that meets the criteria for an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release (that is, it is located either at the point of direct observation or at or between the probable point of entry and the most distant sampling· point establishing the observed release).
> - The fishery is closed, and a hazardous substance for which the fishery has been closed has been documented in an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release.
> - A hazardous substance is present in a tissue sample from an essentially sessile, benthic, human food chain organism from the watershed at a level that meets the criteria for an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release.
>
> **For a fishery that meets any of these three criteria, but that is not wholly within the boundaries of the observed release, consider only the portion of the fishery that is within the boundaries of the observed release to be subject to actual human food chain contamination. Consider the remainder of the fishery within the target distance limit to be subject to potential food chain contamination**. [Emphasis added]
>
> ...
>
> **When a fishery (or portion of a fishery) is subject to actual food chain contamination**, determine the part of the fishery subject to Level I concentrations and the part subject to Level II concentrations. If the actual food chain contamination is based on direct observation, evaluate it using Level II concentrations. However, if the actual food chain contamination is based on samples from the watershed, use these samples and, if available, additional tissue samples from aquatic human food chain organisms **as specified below, to determine the part subject to Level I concentrations and the part subject to Level II concentrations**:
>
> - **Determine the level of actual contamination from samples** (including tissue samples from essentially sessile, benthic organisms) that meet the criteria for actual food chain

contamination by comparing the exposure concentrations (see section 4.1.2.3) from these samples (or comparable samples) to the health-based benchmarks from Table 4-17, as described in section 2.5.1 and 2.5.2. Use only the exposure concentrations for those hazardous substances in the sample (or comparable samples) that meet the criteria for actual contamination of the fishery.

- In addition, **determine the level of actual contamination from other tissue samples** by comparing the concentrations of hazardous substances in the tissue samples (or comparable tissue samples) to the health-based benchmarks from Table 4-17, as described in sections 2.5.1 and 2.5.2. Use only those additional tissue samples and only those hazardous substances in the tissue samples that meet all the following criteria:
  - The tissue sample is from a location that is within the boundaries of the actual food chain contamination for the site (that is, either at the point of direct observation or at or between the probable point of entry and the most distant sample point meeting the criteria for actual food chain contamination).
  - The **tissue sample is from a species of aquatic human food chain organism that spends extended periods of time within the boundaries of the actual food chain contamination** for the site and that is not an essentially sessile, benthic organism.
  - The hazardous substance is a substance that is also present in a surface water, benthic, or sediment sample from within the target distance limit for the watershed and, for such a sample, meets the criteria for actual food chain contamination. [Emphasis added]

HRS Section 4.1.3.3.2, *Population*, states: "Evaluate the population factor for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential human food chain contamination. Determine which factor applies for a fishery (or portion of a fishery) as specified in section 4.1.3.3."

HRS Section 4.1.3.3.2.3, *Potential human food chain contamination*, states:

> Determine those fisheries (or portions of fisheries) within the watershed that are subject to potential human food chain contamination. Do not include those fisheries (or portion of fisheries) already counted under the Level I or Level II concentrations factors.
>
> Calculate the value for the potential human food chain contamination factor (PF) for the watershed as follows:
>
> …

The HRS documentation record at proposal, section 4.1.3.3.2.3, Potential Human Food Chain Contamination, states the following on pages 105-107:

> Sport fishing is known to occur within the 15-mile TDL. The latest sport fish catch data from the Oregon Department of Fish and Wildlife is for 2018 (Ref. 19; Ref. 20; Ref. 21; Ref. 22; and Ref. 23). The 15-mile TDL is within the approximate 39-mile catch area reported for the portion of the Columbia River from the Bonneville Dam to the Interstate 5 (I-5) bridge (Ref. 19, p. 6; Ref. 20, p. 7; Ref. 21, p. 7; Ref. 22, p. 7; Ref. 23, p. 7; Ref. 24, p. 1; Ref. 28, p. 50). The 15-mile TDL represents approximately 38 percent of this 39-mile catch area (i.e., [15 miles / 39 miles] x 100; rounded to the nearest integer) (Ref. 24, p. 1).
>
> The latest sport fish catch report from the Washington State Department of Fish and Wildlife is for 2017 (Ref. 26, p. 1). The 15-mile TDL is within the approximate 118-mile salmon catch area reported for the portion of the Columbia River from the Bonneville Dam to a line drawn between Tongue Point, Oregon and Rocky Point, Washington (Ref. 27, p. 1; Ref. 28, p. 53). The 15-mile TDL represents approximately 13 percent of this 118-mile catch area (i.e., [15 miles / 118 miles]

x 100; rounded to the nearest integer) (Ref. 27, p. 1). The 15-mile TDL is also within the approximate 39-mile steelhead catch area reported for the portion of the Columbia River from the Bonneville Dam to the Interstate 5 (I-5) bridge (Ref. 24, p. 1; Ref. 28, p. 53). The 15-mile TDL represents approximately 38 percent of this 39-mile catch area (i.e., [15 miles / 39 miles] x 100; rounded to the nearest integer) (Ref. 24, p. 1).

Estimated potential human food chain fish harvest numbers for catch within the 15-mile TDL is provided in Table 18 below.

Table 18
Fish Harvest

Species	Total Fish Catch (a)	Percent within TDL (b)	Total Catch within TDL (c = a x b)[1]	Average Weight of Fish (d)	Pounds Harvested within the TDL (c x d)[1]	Reference
Oregon						
Sport Catch Spring Chinook Salmon	869	38%	330	22	7,260	Ref. 19, pp. 1 and 6; Ref. 25, pp. 19 and 20
Sport Catch Fall Chinook Salmon	2,666	38%	1,013	22	22,286	Ref. 20, pp. 1 and 7; Ref 25, p. 20
Sport Catch Summer Steelhead	576	38%	219	7.5[a]	1,643	Ref. 21, pp. 1 and 7; Ref. 25, p. 11
Sport Catch Winter Steelhead	13	38%	5	7.5[a]	38	Ref. 22, pp. 1 and 7; Ref. 25, p. 11
Sport Catch Coho Salmon	84	38%	32	10[b]	320	Ref. 23, pp. 1 and 7; Ref. 25, p. 7
Total Harvest for Oregon					**31,547**	
Washington						
Sport Catch Chinook Salmon	21,081	13%	2,741	22	60,302	Ref. 25, pp. 19 and 20; Ref. 26, p. 39
Sport Catch Coho	1,370	13%	178	10[b]	1,780	Ref. 25, p. 7; Ref. 26, p. 39
Sport Catch Sockeye	139	13%	18	5.75[c]	104	Ref. 25, p. 16; Ref. 26, p. 39
Sport Catch Jackchin	1,107	13%	144	NK	>0	Ref. 26, p. 39
Sport Catch Jackcoho	38	13%	5	NK	>0	Ref. 26, p. 39
Sport Catch Steelhead	148	38%	56	7.5[a]	420	Ref. 25, p. 11; Ref. 26, p. 65
Total Harvest for Washington					**>62,606**	

Notes:

Table 18
Fish Harvest

Species	Total Fish Catch (a)	Percent within TDL (b)	Total Catch within TDL (c = a x b)[1]	Average Weight of Fish (d)	Pounds Harvested within the TDL (c x d)[1]	Reference

1 – Result rounded to the nearest integer.

a – Steelhead weight between 5 and 10 pounds (Ref. 25, p. 11). An average of 7.5 pounds was used to estimate fish weight.
b – Coho weigh between 8 and 12 pounds (Ref. 25, p. 7). An average of 10 pounds was used to estimate fish weight.
c – Sockeye weigh between 3.5 and 8 pounds (Ref. 25, p. 16). An average of 5.75 pounds was used to estimate fish weight.

Key:

NK = Not known.

Table 19 below indicates the calculation for Potential Human Food Chain Contamination Factor Value.

Table 19
Potential Human Food Chain Contamination Factor Value Calculation

Pounds Harvested	Human Food Chain Population Value	Dilution Weight	Dilution Weighted Target Value	Reference
>94,153	31	0.00001	0.00031	Ref. 1, Table 4-13 and Table 4-18; Ref. 12, p. 1; Ref. 13, p. 1. For Pounds Harvested see Table 18.
Total dilution weighted target value			0.00031/ 10 = 0.000031	

The HRS documentation record at proposal evaluated human food chain organisms caught downstream of the Bonneville dam and within the TDL for the potential human food chain contamination factor at the Site. The food chain organisms used in this evaluation are Chinook, steelhead, coho, sockeye, jackchin and jackcoho from data for Oregon and Washington harvests (See Table 18 of the HRS documentation record at proposal cited above). While the HRS is specific in stating that species of aquatic human food chain organism that spends extended periods of time within the boundaries of the zone of actual human food chain contamination for the site be considered in documenting Level I actual contamination of a fishery, the HRS does not have this requirement for a fishery scored as subject to potential contamination or the associated fishery production data. Rather, the HRS only requires that the fishery subject to potential contamination exists within the target distance limit, and that fishery production data be based on species used for human consumption. Hence, residence time of salmonids subject to potential contamination is not relevant to the fishery subject to potential contamination scored at the Site. Further, the HRS evaluation of the fishery subject to potential contamination in the Columbia River at this site does not impact the site score because it only contributes 0.000031 points to the surface water migration pathway evaluation. The HRS evaluation of the actually contaminated fishery alone is sufficient to calculate a site score above the criteria for listing. (For example, [550 (for observed release) x 320 (for waste characteristics) x 50.3 (for food chain individual and Level I concentrations)] ÷ 82,500 = 107.30, which is above the maximum of 100 allowed for the surface water migration pathway. A surface water migration pathway score of 100 yields a

site score of 50.00, which is above the minimum NPL listing criteria of 28.50.) (See pages 2, 3 and 4 of the HRS documentation record at proposal).

Finally, insomuch as the comments regarding fish residence times and quantitating fish exposure to contaminants involve details associated with more complex risk assessment procedures, as explained in section 3.3, Risk to Human Health and the Environment, of this support document, the HRS is a screening tool and not meant to represent an evaluation of actual risk.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.11.4 Sensitive Environments

Comment: USACE commented that the RI did not find species listed as threatened and endangered (T&E) under the federal Endangered Species Act on Bradford Island. It elaborated that there are migratory salmon that are T&E species, but they are not resident species. It requested that statements in the Narrative Summary be revised to remove reference to "threatened and endangered."

Commenting on sensitive environments discussion in Section 4.1.4.3.1.2, Level II concentrations, on page 113 of the HRS documentation record at proposal, USACE stated that the HRS documentation record at proposal refers to a shelf along the North Shore of Bradford Island that may be "critical habitat" for salmonids. USACE stated that surveys conducted subsequent to the RI show "this rock bench is not vegetated and does not have substantial structure and is likely too deep to be desirable foraging habitat." USACE added this bench is in an area with lower concentrations of contaminants.

Regarding salmonids, USACE commented that the Columbia River near Bradford Island is used mainly as a migratory route between the Pacific Ocean and upstream spawning area; USACE contended that the residence time of salmonids at Bradford Island is limited in terms of exposure to site contaminants. USACE stated the primary adult species are spring Chinook, steelhead, sockeye, summer Chinook, fall Chinook and coho, and commented that these adult species "generally aren't feeding as they move through the forebay." USACE referred to a 2007 USACE RI Management Plan, a 2007 USACE BA, and a 2016 USACE baseline ecological risk assessment (USACE 2016).

USACE stated that the 2007 USACE BA evaluated the threatened or endangered species that may be present in the Bradford Island area and found 10 of 12 evolutionarily significant units (ESUs) of salmon in the Columbia River basin have the potential to be at the Site, but none of these are expected to spend significant amounts of time in the North Bradford area. USACE stated:

- *Snake River Chinook Salmon ESU* [evolutionary significant unit]*:* adults and juveniles may pass Bonneville Dam from April to mid-September and may move past Bradford Island on upstream and downstream migrations. These ocean-type fish rear in backwater and shallow-water areas as they migrate downstream and could potentially occur in the action area for some period of time however, the habitat along the north shore of Bradford Island is not considered suitable for foraging.
- *Lower Columbia River Chinook Salmon ESU:* adults and juveniles would migrate more rapidly downstream and it is unlikely that they would spend much time in the nearshore areas of Bradford Island, as they usually prefer deeper, open channels.
- *Upper Columbia River spring Chinook Salmon ESU:* adults and juveniles may pass Bonneville Dam from March through May and may move past Bradford Island on upstream and downstream migrations. These stream-type fish would migrate more rapidly downstream and it is unlikely that they would spend much time in the nearshore areas of Bradford Island, as they usually prefer deeper, open channels.

- *Upper Willamette River Chinook Salmon ESU:* would not be expected to occur in the action area.
- *Snake River Steelhead Trout ESU:* adults and juveniles may pass Bonneville Dam from mid-May to late June and may move past Bradford Island on upstream and downstream migrations. These stream-type fish would migrate more rapidly downstream and it is unlikely that they would spend much time in the nearshore areas of Bradford Island, as they usually prefer deeper, open channels.
- *Lower Columbia River Steelhead Trout ESU:* juveniles and adults could pass Bonneville Dam at almost any time of the year. These stream-type fish would migrate more rapidly downstream and it is unlikely that they would spend much time in the nearshore areas of Bradford Island, as they usually prefer deeper, open channels.
- *Middle Columbia River Steelhead Trout ESU:* adults and juveniles could pass Bonneville Dam during most of the year. These stream-type fish would migrate more rapidly downstream and it is unlikely that they would spend much time in the nearshore areas of Bradford Island, as they usually prefer deeper, open channels.
- *Upper Columbia River Steelhead Trout ESU:* adults and juveniles may pass Bonneville Dam from mid-May to late June and may move past Bradford Island on upstream and downstream migrations. These stream-type fish would migrate more rapidly downstream and would unlikely spend much time in the nearshore areas of Bradford Island, as they usually prefer deeper, open channels.
- *Upper Willamette River Steelhead Trout ESU:* Fish from this ESU would not be expected to occur in the action area.
- *Lower Columbia River Coho Salmon ESU:* Fish from this ESU are likely to be present in the Bradford Island vicinity in May and from August to September, but individual fish are unlikely to stay for any length of time because their spawning and rearing habitat is generally low gradient tributaries and side channels of river systems.

USACE commented that, according to its discussions with the US Fish and Wildlife Service, the Bonneville pool section of the Columbia River does not contain spawning or rearing habitat for bull trout; individual bull trout that might move into the forebay to overwinter would not remain for a significant amount of time, as the area does not provide usable rearing or foraging habitat.

USACE commented radio-telemetry studies of adult salmonids in the vicinity of Bonneville Dam show their residence time of 0.03 to 8.01 days but had a median travel time of 0.08 days (just under 2 hours).

USACE commented that tagging studies for juvenile salmon at Bonneville Dam show residence times for juveniles is on the order of hours to a day. USACE added that while some species of out-migrating juveniles may feed, it is unlikely that they have a high residence time at North Bradford due to the velocities when the spillway is open. Further, USACE commented that the North Shore of Bradford Island is predominately rock with a small amount of coarse-grained sediment collected between the rocks. As a result, USACE commentated that these areas would not be expected to support epibenthic communities that juvenile salmonids would prefer as food. USACE recommended revising text that currently expresses or implies longer-term presence of ESA-listed species to reflect its comments.

Response: The HRS documentation record at proposal evaluated the Lower Columbia River ESU as a *critical habitat* for the federal designated threatened Chinook salmon, chum salmon, steelhead salmon, and bull trout. These designations were evaluated consistent with HRS Table 4-23 and are supported by their federal designation as discussed and documented in References 30, 31, 38, and 39 of the HRS documentation record at proposal. No additional review of specific critical habitat locations in the TDL is needed because the Columbia River ESU for those species are under federal designation. Even if those species may spend limited time at specific locations, those locations, once within the federal designation, are still part of the critical habitat protected under the federal or state designation for the survival of the species. The Lower Columbia River ESU was also evaluated as a *habitat* for the federal threatened and state endangered coho salmon. For the evaluation of the Lower Columbia River as habitat for the federal threatened and state endangered coho salmon, a fisheries biologist affirmed the

Coho salmon at the site. Additionally, the HRS itself and the HRS documentation record at proposal is not a site-specific risk; rather the HRS documentation record at proposal establishes that the Site poses sufficient relative risk to human health or the environment as compared to other candidate sites evaluated using the HRS to warrant inclusion on the NPL.

HRS Table 4-23, *Sensitive Environments Rating Values*, lists the sensitive environments scores for HRS purposes. In relevant part it states:

TABLE 4-23 – SENSITIVE ENVIRONMENTS RATING VALUES	
Sensitive environment	Assigned value
Critical habitat[a] for Federal designated endangered or threatened species..... ...	100
...	
Habitat known to be used by State designated endangered or threatened species..... ...	75

[a]Critical habitat as defined in 50 CFR 424.02.

Pages 113-114 of the HRS documentation record at proposal describes the sensitive environment targets scored for the Site, stating:

> Sensitive Environments
>
> Based on historic photographs and USACE hydroacoustic sounding data, a submerged shelf appears to be adjacent to the north side of Bradford Island at a depth of about 30 feet below pool level (Ref. 4, p. 41). This shelf appears to be about 50 feet wide, parallel to the north shore of the island (Ref. 4, p. 41). The shelf could be critical habitat for ESA-listed salmonids (Ref. 4, p. 41). Shallow water (20 feet deep or less) also occupies a band approximately 50 feet wide along the south shoreline of Bradford Island (Ref. 4, p. 41).
>
> The Yakama Nation has stated that anadromous and resident fish species use the Bradford Island area of the Columbia River for foraging, migration, rearing, spawning, and overwintering habitat (Ref. 17, p. 3). All fish species, adult and juvenile, would be expected to swim in, adjacent to or near the Zone of Actual Contamination (Ref. 17, p. 3). They also stated that several ESA-listed species are found in the waters surrounding Bradford Island, including their designated critical habitat and essential fish habitat (Ref. 17, p. 3).
>
> A Zone of Actual Contamination subject to Level II concentrations is present along the north shore of Bradford Island (see section 4.1.2.1.1 and Figure 5). This Zone of Actual Contamination contains critical habitat for a several federal threatened species, as well as other sensitive environments as indicated in Table 22. A critical migratory pathway for Bull trout, Sockeye salmon, summer Chinook, and fall Chum is expected to exist within the Zone of Actual Contamination as these species migrate to and/or from critical spawning habitats (Ref. 30, p. 1).

Table 22 Sensitive Environments Subject to Level II Concentrations			
Sensitive Environment	**Distance from Nearest PPE to Sensitive Environment**	**Sensitive Environment Value (Ref. 1, Table 4-23)**	**References**
Critical Habitat for the Federal Threatened Chinook salmon (*Oncorhynchus tshawytscha*) – Lower Columbia River ESU	0 feet	100	Ref. 30, p. 3; Ref. 31, pp. 27, 28, 32 and 33
Critical Habitat for the Federal Threatened Chum salmon *(Oncorhynchus keta)* – Columbia River ESU	0 feet	100	Figure 5 of this HRS Documentation Record; Ref. 3, p. 1; Ref. 30, p. 2; Ref. 31, pp. 70, 71, 73, and 74
Critical Habitat for the Federal Threatened Steelhead salmon (*Oncorhynchus mykiss*) – Lower Columbia River ESU	0 feet	100	Ref. 30, p. 2; Ref. 31, pp. 160, 167, 176, 177, 185, and 186
Critical Habitat for the Federal Threatened Bull trout (*Salvelinus confluentus*) – Lower Columbia River Basin	0 feet	100	Ref. 30, pp. 2, 58, and 59; Ref. 38, pp. 45 and 75; Ref. 39, pp. 4, 5, and 6
Federal Threatened and State Endangered Coho salmon *(Oncorhynchus kisutch)* – Lower Columbia River ESU	0 feet	75	Ref. 30, p. 2; Ref. 31, p. 2
Sum of Values			**475**

Critical habitats designated by the Endangered Species Act (50 CFR 424.02) are eligible sensitive environments targets for HRS evaluation per HRS Table 4-23. References 30[1], 31[2], 38[3], and 39[4] of the HRS documentation record at proposal (cited above) support the Lower Columbia River as a *critical habitat* for federally threatened Chinook salmon, chum salmon, steelhead salmon, and bull trout. No further assessment of the Lower Columbia River critical habitat designation is needed as this is a federal designation under the Endangered Species Act. The residence time or amount of time spent during migration in the Lower Columbia River in the zone of contamination does not impact the evaluation of the Lower Columbia River as a critical habitat for the Chinook

[1] Reference 30 of the HRS documentation record at proposal: White, Kathryn, Fisheries Biologist, Ecology and Environment, Inc., Member of WSP, *November 12, 2020 memorandum with attached figures and references, to Linda Ader, STARTIV Team Leader, Ecology and Environment, Inc., Member of WSP, regarding Bradford Island Landfill Sensitive Environments, Cascade Locks, Oregon*, 66 pages.

[2] Reference 31 of the HRS documentation record at proposal: Electronic Code of Federal Regulations, March 20, 2020, Critical habitat for 15 District Populations Segments (DPSs) of salmon and steelhead (Oncorhynchus spp.) in Washington , Oregon and Idaho, Title 50 (Wildlife and Fisheries), Chapter II, Subchapter C, Part 226 (Designated Critical Habitat), 303 pages.

[3] Reference 38 of the HRS documentation record at proposal of the HRS documentation record at proposal: Department of the Interior, Fish and Wildlife Service, October 6, 2004, 50 CFR Part 17, *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Klamath River and Columbia River Populations of Bull Trout; Final Rule*, Federal Register, Volume 69, No. 193, pp. 59996-60076, 82 pages.

[4] Reference 39 of the HRS documentation record at proposal: Department of the Interior, Fish and Wildlife Service, October 18, 2010, 50 CFR Part 17, *Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for Bull Trout in the Coterminous United States; Final Rule*, Federal Register, Volume 75, No. 200.Available online at: https://www.govinfo.gov/content/pkg/FR-2010-10-18/pdf/2010-25028.pdf. 6pages, excerpt.

salmon, chum salmon, steelhead salmon, and bull trout. Additionally, that there are areas of the Lower Columbia River that are compromised (e.g., impacted by contamination) does not negate the federal designation of that segment as a critical habitat.

References 30 and 31 of the HRS documentation record at proposal support the Lower Columbia River as a *habitat* for the federal designated threatened and state (Oregon) designated endangered coho salmon. Their presence and use of the zone of actual contamination in the Columbia River is confirmed by a fisheries biologist.

Page 1 of Reference 30 of the HRS documentation record at proposal states:

> Five fish species, Bull trout (*Salvelinus confluentus),* Chum salmon (*Oncorhynchus keta),* Steelhead salmon (*Oncorhynchus mykiss),* Coho salmon (*Oncorhynchus kisutch),* and Chinook salmon (*Oncorhynchus tshawytscha)* are federally listed under Endangered Species Act (ESA) as threatened and occur within the 15-mile Target Distance Limit (TDL) on the Columbia River (NMFS 2016). Two fish species, White sturgeon (*Acipenser transmontanus*) and Sockeye salmon (*Oncorhynchus nerka)* are federally listed under ESA as endangered and occur within the 15-mile TDL. The Columbia River within the 15-mile TDL is a major migratory pathway and contains critical spawning habitat required for population maintenance for summer and spring Steelhead salmon, fall and spring Chinook salmon, and Coho salmon. A critical migratory pathway for Bull trout, Sockeye salmon, summer Chinook, and fall Chum is expected to exist within the Zone of Actual Contamination as these species migrate to and/or from critical spawning habitats. White Sturgeon and Rainbow trout (a life stage of Steelhead salmon) are both resident fish species and have multiple uses within the Zone of Actual Contamination.

Table 1 on page 2 of Reference 30 also confirms the presence of the coho salmon in both the zone of actual contamination, and in the target distance limit in general.

Additionally, consistent with descriptions by USACE in its comments, the Columbia River at the site is a migratory pathway for these species to and from critical spawning habitats, which thus confirms their presence and use of areas at the Site. As stated in section 3.3 of this support document, site-specific risk posed to the endangered and threatened species evaluated in the scoring of this site will be considered at a separate stage of the listing process. Once a federal facility is included on the NPL, the lead agency will begin the process of determining the nature and extent of contamination at the site. Further, as stated in section 3.11.3 of this support document, the HRS evaluation of the actually contaminated fishery alone is sufficient to calculate a site score above the criteria for listing; that is, even if the sensitive environments were not included in the site score, this would not impact the overall site score or the listing decision.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.12 HRS Package Clarifications

Comment: USACE requested that the EPA consider their comments and make corrections to the HRS package as the EPA evaluates whether to finalize listing Bradford Island on the NPL.

Site Narrative and Site Summary

USACE stated that overall the "hazard ranking system (HRS) process appears to review data presented in the remedial investigation, but is limited to the presence of a source, a pathway, and a receptor. The document does not evaluate the potential effects or risk related to the contamination present. While USACE understands that certain elements are not part of EPA's scoring process, it is important to understand that risk assessments and draft feasibility studies have been prepared for this site and in some cases, the contaminants listed in this document do not exceed effects thresholds or are not predicted to cause unacceptable risk to human health or the environment."

USACE requested that in the site narrative be revised to state that there are four areas of "potential" concern, rather than four areas of concern.

USACE stated that the Remedial Investigation (RI) did not find species listed as threatened and endangered (T&E) under the federal Endangered Species Act on Bradford Island. It added that there are migratory salmon that are T&E species, but they are not resident. USACE requested that reference to "threatened and endangered" be removed from the site Narrative Summary.

USACE stated that the site Narrative Summary references "high concentrations of contaminants in fish tissue…" USACE recommended changing that statement to "high concentrations of contaminants in [residential] fish tissue." USACE explained that investigations to date and current fish consumptions advisories do not show high concentrations in migratory fish species, such as salmon or steelhead.

USACE stated on page 9 of the HRS documentation record at proposal in the site summary, the following statement is confusing: "The RI report documents the investigation activities that have taken place over the past 10 years since the report was written (i.e., approximately the period from 2002 to 2012)." USACE suggested rewriting it to state instead that "The RI report documents the investigation activities that have taken place during the 10 years prior to the report (i.e., approximately the period from 2002 to 2012)."

USACE recommended that on page 10 of the HRS documentation record at proposal in the site summary a statement regarding the surface water migration pathway 15-mile target distance limit be revised to include a statement that surface water and sediment concentrations downriver of the Bonneville Dam are not elevated relative to the reference area. USACE recommended that the downstream sediment concentrations be summarized and a statement be included stating that, "PCB aroclors were not detected in downstream sediments (detection limits of 14-18 ug/kg) and concentrations of total PCBs as congeners ranged from 0.208 µg/kg to 0.915 µg/kg. The average total PCBs (as congeners) at the reference area was 0.483 µg/kg."

Butyltin Compounds

Commenting on pages 45, 55, 68 of the HRS documentation record at proposal, USACE requested that if the discussion of the toxicity of butyltins is selectively retained, it should include a statement that the values observed were below soil screening levels (SSLs). USACE also requested that reference to RSET values be removed because they are based on aquatic toxicity data, are developed for sediment, and are not appropriate for direct comparison to soil values.

With specific regard to Source 2, USACE stated that it is unlikely that butyltin associated with samples SBB-17 and SBB-18 would travel overland to the Columbia River because those locations are in the upland forest. USACE suggested that butyltins be removed from the attribution statement on page 94 of the HRS documentation record at proposal.

Fish Advisory

USACE stated that EPA incorrectly states that the Oregon Health Advisory "Middle Columbia River fish advisory applies 'from the Bonneville Dam to the McNary Dam.'" It explained that the September 2013 fish Advisory, included as Reference 18 of the HRS documentation record at proposal, expressly applies from Ruckel Creek upstream to the McNary Dam and referenced https://www.oregon.gov/oha/PH/HealthyEnvironments/Recreation/Documents/Mid-Columbia/MiddleColumbiaFactSheet.pdf. USACE stated that the confluence of Ruckel Creek and the Columbia River is located upstream of Bradford Island and the Bonneville lock and dam. USACE recommended that EPA update text, accordingly, on pages 102 and 103 of the HRS documentation record at proposal.

Subsistence Fishing

USACE stated that "there has not been a Federal adjudication of usual and accustomed cultural, subsistence, and commercial fishing areas on Bradford Island." It stated that this has been asserted by interested parties; however, no authoritative Federal determination of this assertion has been made, and it requested the "listing package should be corrected to differentiate between assertions and authoritative adjudications."

Potential Fishery Contamination

Commenting on the potential human food chain contamination, USACE stated that the use of sport catch estimates for salmonids in 15-mile TDL overestimates the potential for human exposure to contaminated fish from Bradford Island and suggested that the estimates for resident fish be used for predicting human exposure to Bradford Island contaminants.

Sensitive Environments

Commenting on the sensitive environments evaluated on page 113 of the HRS documentation record at proposal, USACE stated that these species would not be expected to spend significant amounts of time in the North Bradford area. USACE recommends revising text that implies longer-term presence of ESA-listed species at the Site.

Response: The EPA has reviewed USACE's comments and recommended revisions and none of these comments and suggested revisions affect the HRS scoring of the Bradford Island site.

Regarding the site narrative and site summary, the HRS documentation record at proposal establishes that the Site poses a sufficient relative risk to human health or the environment as compared to other candidate sites evaluated using the HRS to warrant inclusion on the NPL. Once a facility is included on the NPL the lead agency begins the process of determining the nature and extent of contamination at the site. See sections 3.3, Risk to Human Health and the Environment, and 3.9, Surface Water Pathway Target Distance Limit, of this support document for additional discussion.

Regarding butyltin compounds at the site, these substances were associated with sources that were inadequately contained to prevent migration to surface water. Additionally, compounds below screening levels can be included in an HRS evaluation. See section 3.3, Risk to Human Health and the Environment, 3.6, Concentrations Below Screening Levels, 3.7, Source Containment, and 3.8, Hazardous Substance Migration Path for Overland/Flood Component, of this support document.

Regarding the fishing advisory included as Reference 18 of the HRS documentation record at proposal, and discussed on pages 102 and 103, EPA concurs that this Oregon Health Authority fishing advisory applies to the area upgradient of the site extending from Ruckel Creek to McNary Dam. The Oregon Health Authority fishing advisory that applies to the area that includes the Bonneville Dam can be found at: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/FISHCONSUMPTION/Pages/Bonneville.aspx. USACE's comment is noted but does not affect the evaluation of the fishery at the site. See section 3.11.1, Human Food Chain Fishery, of this support document for a discussion of the documentation of the fishery at the site.

Regarding a "Federal adjudication of usual and accustomed cultural, subsistence, and commercial fishing areas on Bradford Island," documentation of a fishery at the site is consistent with the HRS. See section 3.11.1, Human Food Chain Fishery, of this support document for a discussion of the documentation of the fishery at the site.

Regarding potential fishery contamination using sport catch data, the residence time of a human food chain species within the potentially contaminated zone of the surface water pathway is not a factor considered when determining that segment's eligibility for consideration in the fishery production calculation. See section 3.11.3, Potential Human Food Chain Contamination, of this support document for additional discussion.

Regarding sensitive environments evaluated in the site scoring, the Lower Columbia River was evaluated as a *critical habitat* for the federal designated threatened Chinook salmon, chum salmon, steelhead salmon, and bull trout and this critical habitat is a federal designation under the Endangered Species Act. The Lower Columbia River was also evaluated as habitat for coho salmon, a federal designated threatened and state designated endangered species, and the presence of and use of this species in the zone of contamination was confirmed by a fisheries biologist. See section 3.11.4, Sensitive Environments, of this support document for additional discussion.

These comment result in no revision to the HRS documentation record or Site Narrative document, and results in no change to the HRS score and no change in the decision to place the Site on the NPL.

4.0 Conclusion

The original HRS score for this site was 50.00. Based on the above responses to public comments, the score remains unchanged. The final scores for the Bradford Island site are:

Ground Water:	NS
Surface Water:	100
Soil Exposure and Subsurface Intrusion:	NS
Air Pathway:	NS
HRS Score:	50.00