PART III: RESPONSIVENESS SUMMARY

1.0 Introduction

This responsiveness summary was prepared in accordance with the requirements of Section 117(b) of CERCLA, as amended. The purpose of this responsiveness summary is to summarize and respond to significant public comments, criticisms, and new information submitted during the public comment period on the Proposed Plan for Remediation of the 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 Operable Units on the Hanford Site.

2.0 Community Involvement

A formal public comment period on the Proposed Plan, originally scheduled to run from June 9, 2014, through July 9, 2014, was extended in response to requests from stakeholders. The public comment period ran from June 9, 2011 through August 11, 2014. Notice of the comment period and public meeting on the Proposed Plan was published in the *Tri-City Herald* on June 9, 2014. A fact sheet was mailed to the Hanford mailing list and sent electronically to those on the Hanford Listserv on June 9, 2014, which provided information on how to access the Proposed Plan as well as links to key technical documents, and information on the public meeting to be held in Hood River, OR, along with the associated webinar. A second notice was published in the *Tri-City Herald* and sent electronically to those on the Hanford Listserv on June 16, 2014 to inform the public about the new date for the public meeting.

Individuals sent written comments through the mail or electronically. Written and verbal comments were also received at the public meeting held on July 23, 2014, in Hood River, OR. A live webinar of the public meeting was also broadcast on the internet for those who could not attend the public meeting in person, and comments could be submitted as part of that webinar.

3.0 Comments and Responses

Comments were received from both individuals and groups covering a range of topics and varying perspectives. The public comments were separated and grouped into the following categories:

- Alternative Selection
- Institutional Control (ICs)
- Strontium-90 Remediation
- Land Use and Cleanup Levels
- Tribal Issues
- Endangered Species
- Public Involvement
- Supports Proposed Plan
- Supports No Action
- General Comments

Appendix A provides all the public comments received on the Proposed Plan and identifies which categories each of the comments was placed in. A summary of significant public comments received and agency responses is provided below by category.

Comment 1. Alternative Selection – Some comments questioned the range of alternatives considered for soil and groundwater. Numerous comments received on the Proposed Plan expressed concern over the proposed Alternative GW-2, including the length of monitored natural attenuation (MNA) and the efficacy of groundwater cleanup. The concerns were largely based on a desire for a more active and expedited remedy and generally preferred Alternative GW-4, suggesting that the methods that result in

shorter estimated time periods of groundwater cleanup for some of the plumes are well worth the extra cost. Additional comments received were related to the balancing criteria used in the Proposed Plan, specifically on the comparisons on cost, short-term effectiveness, and long-term effectiveness and permanence.

Response: The range of alternatives considered in the proposed plan was a result of the screening of various technologies in the Feasibility Study. The screening was done in accordance with CERCLA regulations which require that technologies be evaluated based on the criteria of effectiveness, implementability, and cost. The evaluation focused on the effectiveness criteria to ensure the most effective technologies were carried forward in the analysis. Those technologies that were most effective were included in the alternatives evaluated. For soil, RTD has been demonstrated to be effective for the interim actions while other soil technologies were determined to be not as effective for the waste sites. In addition to no action, three groundwater alternatives varying in the type and degrees of treatments were evaluated.

The selected remedy for groundwater (Alternative GW-2) uses MNA processes including biodegradation and abiotic degradation, radioactive decay, dispersion, volatilization, and sorption to effectively reduce groundwater COCs to concentrations less than the cleanup levels for the 100-FR-3 OU. Alternatives GW-2, GW-3, and GW-4 are each protective of human health and the environment. Currently, 100-FR-3 groundwater is not used as drinking water, and ICs implemented as part of this ROD will prevent use as drinking water until cleanup levels are met. Although Alternatives GW-3 and GW-4 include pump-and-treat technology to achieve cleanup levels sooner for Cr(VI), nitrate, and TCE, the time frames for each of these three groundwater alternatives to achieve the cleanup level for strontium-90 is 150 years, meaning ICs on groundwater use are required for the same amount of time in all groundwater alternatives. Pump and treat is not effective for remediating strontium-90 contaminated groundwater because most of the strontium-90 binds to the soil, so it is not effectively removed by extracting groundwater (See response to Comment 3 for more information). Alternatives GW-2, GW-3, and GW-4 are also equal in long term effectiveness and permanence once cleanup levels are achieved, since at the end of the remedial time frame, the COC concentrations under each of the alternatives will be reduced to levels that are protective of human health and the environment. Alternative GW-2 has a lower potential for adverse impact to the community, workers, or the environment because there is less construction-related activity in comparison to Alternatives GW-3 and GW-4 and has the lowest cost.

The selected groundwater remedy, Alternative GW-2, will achieve protective cleanup levels. While MNA is expected to take as long as 150 years for strontium-90, ICs will ensure that humans are not exposed to contaminants in the groundwater until protective cleanup levels are achieved. Based on recent monitoring and modeled groundwater concentrations into the future, contaminated groundwater will not pose an unacceptable risk to human health or ecological receptors in the river. MNA provides a reliable mechanism to restore groundwater to cleanup levels and when combined with ICs meets the groundwater remedial action objectives (RAOs). The selected remedy includes the installation of new wells with regular sampling required to assess natural attenuation and to ensure that RAOs and remedy cleanup requirements are met.

CERCLA requires that the selected remedy be reviewed no less often than every five years to ensure that human health and the environment are being protected by the remedial action. If a remedy is found to be not protective, then additional evaluations and changes to the remedy would be considered.

Comment 2. Institutional Controls – Comments were received stating that ICs will not be sufficient or effective enough to prevent future human exposure to contaminants. Many of the commenters are in favor of the use of excavation/remove-treat-dispose (RTD) approach for the sites where long-term ICs will be applied, or a new soil cleanup alternative for removal of contaminants (such as strontium-90) as a means

of cleaning up soil and ground water. Comments also stated that the remedy should not rely on government long-term stewardship of groundwater controls.

Response:

The Tri-Party agencies understand there is some public concern over the ability to maintain control of the Hanford Site far into the future. We acknowledge that there is uncertainty associated with the future of society beyond hundreds of years into the future. However, after cleanup decisions are made, CERCLA requires those decisions be reviewed no less often than every five years to ensure that human health and the environment are being protected by the remedial action. If a remedy is found to be not protective, then additional evaluations and changes to the remedy would be considered.

The residential scenarios used to establish the cleanup levels for radiological and nonradiological analytes include potential exposure to the top 4.6 m (15 ft) of soil as part of the reasonable maximum exposure scenario. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of residential site development activities (e.g. residential basement excavation). Direct human contact with deep soils is not expected, but ICs are included as a conservative measure to control the potential but unexpected circumstances where excavation or drilling might bring these contaminants to the surface. ICs are required to be maintained as long as necessary for the selected remedy to be protective. As cleanup levels are achieved at each soil or groundwater IC location, the IC will be removed. ICs for contaminated soil below 4.6 m (15 ft) will be maintained until all soil contamination is below the cleanup levels selected for the top 4.6 m (15 ft).

DOE has established a Hanford site-wide long-term stewardship program to implement, maintain, enforce, and monitor ICs that requires EPA approval and will be compliant with the requirements of the ROD. Although the DOE may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Federal Government shall retain ultimate responsibility for remedy integrity. In the event that land is transferred out of federal ownership, deed restrictions or other controls (e.g. proprietary controls such as easements and covenants) are required that are legally enforceable against subsequent property owners. DOE anticipates that the Hanford Site will remain under federal ownership for the foreseeable future.

Comment 3. Strontium-90 Remediation – Numerous comments were received concerning the levels of strontium-90 in the soil and groundwater at the proposed areas of cleanup. Most of these comments state that 150 years for MNA to meet state and federal cleanup standards for strontium-90 is too long. Some commenters expressed concern that the strontium-90 plume has the potential to reach the Columbia River in fewer than 150 years, and recommend using technologies, such as Permeable Reactive Barriers (PRBs), to prevent contaminant migration.

Response: While the strontium-90 contamination in the OUs that are the subject of this ROD exceed levels protective of human health they do not pose a risk to the environment. Although there is a localized area within the plume where higher strontium-90 concentrations occur (maximum of 180 pCi/L in 2013), this occurrence does not pose a threat to the environment. Strontium-90 has low mobility in the current subsurface environment due to its natural sorption properties in soil and the low horizontal groundwater-flow gradient in the 100-F Area. This has been confirmed by near-shore monitoring well and aquifer tube groundwater sampling results that have shown only low and generally declining concentrations of strontium-90 in recent years. Monitoring results since 2007 have reported only one aquifer tube sample slightly exceeding the 8 pCi/L DWS, at 9.6 pCi/L. Computer modeling performed in the RI/FS report that simulates the future fate and transport of the strontium-90 plume does not show significant migration from its current position, nor does it show concentrations above 8 pCi/L reaching the river shoreline in the future. The 8 pCi/L DWS is well below the levels of ecological concern. Toxicity thresholds using biota concentration guides for strontium-90 are 278 pCi/L for riparian animals

and 53,900 pCi/L for aquatic animals including fish. The strontium-90 plume does not pose a threat to the environment that would require an alternative other than MNA- and ICs-based Alternative GW- 2 to be protective. Additionally, the expected timeframes for strontium-90 plume attenuation for Alternative GW-2 is reasonable when compared to the other alternatives and is within a timeframe where ICs can be used to prevent exposure.

An apatite PRB enhances the subsurface soil's existing natural sorption properties by emplacing apatite to increase the soil's sorption capacity where it can further slow and reduce strontium-90 plume migration. However, the PRB technology does not destroy or eliminate the strontium-90, it only further immobilizes what strontium-90 might be present in groundwater as it migrates through the barrier. In areas with significantly higher concentrations of strontium-90, this is an effective technology. For example, the PRB is effectively being applied at the 100-NR-2 OU where there is significantly higher contamination levels than those observed at the 100-FR-3 OU. However, with the relatively lower levels of strontium-90 at 100-FR-3 OU, this is not an effective technology since the soil has already sorbed with the strontium-90 contamination. In 2013 the highest level at 100-FR-3 OU was 180 pCi/L versus 14,000 pCi/L at 100-NR-2. PRB technologies were retained for evaluation in the FS, however due to the factors described above the PRB was not included in any of the final alternatives evaluated.

Comment 4. Land Use and Cleanup Levels – Many comments indicated that MNA and ICs were not sufficient enough to prepare the 100-F and 100-IU Areas for unrestricted uses. Commenters suggested that the public might use the land for future recreation, residential, and/or tribal development, and fear the soil and groundwater will still contain contamination at elevated levels. Commenters are concerned that public and private groundwater wells will be used, because additional new sources of withdrawal of water from the Columbia River are not allowed. Commenters also recommended using more stringent groundwater cleanup levels.

Response: The DOE's reasonably anticipated future land use for this area is conservation and preservation. The EPA believes that other uses, including residential use, are reasonably anticipated future land use for these areas. The DOE and EPA have opted to use the more protective residential land use scenario for the 100-F/IU area.

The cleanup levels in this ROD are protective of residential uses evaluated in the risk assessments done for the 100-F/IU area and the Hanford River Corridor. The risk assessments used a broad basis for toxicological information in accordance with EPA risk assessment guidance. The cleanup levels in this ROD also satisfy ARARs in accord with CERCLA and the "National Oil and Hazardous Substances Pollution Contingency Plan" (commonly known as the "National Contingency Plan," or NCP) (40 CFR 300.430[f][2]). DOE and EPA believe the cleanup levels are protective of reasonably anticipated future land uses.

The residential scenario for exposure to chemicals used Washington State's MTCA cleanup levels (WAC 173-340) for assessing risks from chemicals in soil. The MTCA (WAC 173-340-740, "Unrestricted Land Use Soil Cleanup Standards") levels were used. MTCA provides chemical-specific standards that define acceptable risk levels based on reasonable residential maximum exposure scenarios. For direct contact, these MTCA-based cleanup levels are based on a six-year exposure of a child through incidental soil ingestion, but do not include consumption of site-derived food. For the inhalation pathway, the MTCA (WAC 173-340) Standard Method B air cleanup levels are based on exposure of adults and children from inhalation of vapors and dust in ambient air. These scenarios described above are based on exposure to the top 4.6 m (15 ft) of soil.

The cleanup levels for radionuclides are based on a 30-year residential scenario in which the receptor lives on the waste site, being exposed to the top 4.6 m (15 ft) of soil, and derives their food from the waste site and their water from impacted groundwater below the waste site. The direct-contact cleanup

rules for radionuclides were set at the lower of the risk-based level of 10^{-4} cancer risk or 15 mrem/year radiation dose.

In some areas of the 100-FR-3 OU, groundwater remains contaminated above cleanup levels, and withdrawal for uses other than research purposes and monitoring is currently prohibited by DOE site controls. The selected remedy for the 100-FR-3 OU requires restrictions on use of groundwater until the cleanup levels are met, expected to be as long as 150 years. These restrictions prevent the installation of public and private groundwater wells. Protective cleanup levels will be met through MNA, and long-term monitoring will be ongoing to assess and ensure the performance of the selected MNA remedy. When cleanup levels are met, the selected MNA remedy would restore groundwater to its highest beneficial use as a potential future drinking water source.

Institutional controls are a necessary part of this remedy because some contamination will remain in place that will not allow for unlimited use of the land and unrestricted exposure. For the selected remedy, the ICs only apply to the following specific areas: (1) areas with deep soil contamination that would exceed acceptable exposure levels if brought to the surface; (2) the area with deep soil contamination that may contribute to surface water contamination if irrigated; or (3) areas with groundwater contamination that exceed cleanup levels. ICs are required to be maintained as long as necessary for the selected remedy to be protective.

As contamination will remain above levels that allow for UU/UE, CERCLA requires that the selected remedy be reviewed no less often than every five years to ensure that human health and the environment are being protected by the remedial action. If a remedy is found to be not protective, then additional evaluations and changes to the remedy would be considered.

Comment 5. Tribal Issues – Comments indicated that there is an obligation to protect treaty rights while also meeting cleanup thresholds. The decision must be protective of the health of tribal members for all exposure scenarios and tribal uses, provide environmental justice, and not cause disproportionate impacts. Some comments stated that tribal treaties, which reserves specific rights and resources, should be acknowledged as an ARAR.

Response: Cleanup levels are established based on the risk assessment and ARARs. The RI/FS risk assessment included two tribal-authored scenarios, however, the residential land use scenario was used as the reasonable maximum exposure for the 100-F/IU areas risk assessment and for cleanup decisions, including the establishment of cleanup levels. The cleanup levels for chemical contaminants in soil were derived using the state's MTCA Method B cleanup levels (WAC 173-340-740, "Unrestricted Land Use Soil Cleanup Standards"). The soil cleanup levels for radionuclides are based on a residential scenario in which the receptor lives off the land at a waste site. The receptor lives on the waste site, derives their food from the waste site and derives their water from groundwater below the waste site that is impacted by mobile contaminants that leach from the waste site into the groundwater as enhanced by irrigation. DOE and EPA believe the cleanup levels are protective of reasonably anticipated future land uses. The information in the risk assessment is available to tribal nations and their members to review.

Under CERCLA, ARARs are applicable or relevant and appropriate requirements under federal environmental, state environmental, or facility siting laws that address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site. Treaties do not meet the definition of an ARAR and thus cannot be waived as ARARs under CERCLA. The Treaties reserve specific rights and resources in the unique legal relationship between the Federal Government and Indian tribal governments. Consultation with the tribes allow for discussion on how to address these specific rights and resources. While Treaties are not ARARS, there are several ARARS that provide protection for cultural and natural resources such as the "Protection of Historic Properties" (36 Code of Federal Regulations (CFR) 800); "National Historic Landmarks Program" (36 CFR 65); "Native American

Graves Protection and Repatriation Regulations" (43 CFR 10)(25 USC §§ 3001 et seq.); National Historic Preservation Act (16 USC 470, et seq.); and the "Archeological and Historic Preservation Act" (16 USC 469a 1 through 469a 2(d)).

Comment 6. Endangered Species – Comments were received that Endangered Species Act consultation with resource agencies should be conducted to determine how the proposed actions may affect any threatened or endangered species. Many commenters are concerned about the potential impact of contaminated groundwater reaching the Columbia River and affecting salmon that live and spawn nearby.

Response: The Hanford Reach contains three species listed as threatened or endangered under the federal Endangered Species Act (ESA) (7 USC 136, 16 USC 1531). These include the upper Columbia River spring-run Chinook salmon, steelhead, and bull trout. The spring-run Chinook salmon do not spawn in the Hanford Reach but use it as a migration corridor. Steelhead spawning has been observed in the Hanford Reach. The bull trout is not considered a resident species and is rarely observed in the Hanford Reach.

The ESA, section 7, includes an administrative requirement that federal agencies consult with U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) before taking any action that may affect an endangered or threatened species. Administrative requirements are not part of the ARAR. The selected remedies identified in the ROD for the 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 Operable Units includes the ESA as an ARAR. Therefore, substantive ESA requirements to protect endangered species must be met. DOE and EPA determined there was no effect on fish species listed as threatened or endangered. This determination of no effect was discussed with the NMFS who did not disagree with the DOE and EPA determination.

The selected remedy will not jeopardize the continued existence of listed species or result in the destruction or adverse modification of habitat critical to them. This conclusion is based on two lines of evidence. First, the preferred remedy does not take an action in the Columbia River, so there will not be any direct physical effects on fish or their habitat. Secondly, there are no adverse effects of contaminants on listed species of fish before, during or after the remedial actions as discussed below.

The 100-F/IU RI/FS contains both human health and ecological risk assessments. The ecological risk assessment identified Cr(VI) and nitrate as ecological COCs from a Hanford source (Appendix L; DOE-RL-2010-98). The human health risk assessment identified Cr(VI), nitrate, TCE, and strontium-90 as COCs as posing risks for human health in groundwater. Because there were four contaminants identified as groundwater COCs (based on human health risk), the ESA evaluation is based on all four contaminants. The Columbia River rapidly dilutes groundwater contaminants to relatively low concentrations, so the primary concern for ecological risk to aquatic biota is from exposure to pore water in sediments. Larval fish are exposed to pore water while they are living in the sediments, which is when they have the highest sensitivity to contaminants. These four COCs in groundwater are discussed in more detail below.

The nitrate no observable effect concentration for steelhead as identified in Appendix H of the 100-F/IU RI/FS at the water hardness representative of the Columbia River is 199 mg/L. Nitrate concentrations in groundwater in the 100-F/IU area range from 0.91 to 139 mg/L. These are inland concentrations in the groundwater which are not currently upwelling in the Columbia River. Over time, the nitrate in groundwater will attenuate, but is expected to eventually reach the river. Concentrations that reach the river in the future will likely be much lower than currently observed in groundwater. Nitrate concentrations will have no effect on steelhead when the nitrate-contaminated groundwater reaches the Columbia River.

The maximum concentration detected of TCE in the most recent sampling of nearshore wells (2013) was 15 µg/L. No measurements were taken in porewater. The lowest chronic risk value for fish is 11,100 µg/L

for TCE (ORNL ES/ER/TM-96/R2, 1996, *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota*). Steelhead are not affected by TCE.

The maximum detected concentration of strontium-90 in the most recent sampling (2013) in nearshore groundwater wells was 26 pCi /L and the maximum in the aquifer tube samples was 5.8 pCi /L. Porewater concentrations for the 100-F/IU area were non-detect. The final water biota concentration guides (screening levels) recommended for strontium 90 are 278 pCi/L for riparian animals and 53,900 pCi/L for aquatic animals including fish. Predicted future concentrations are below both these biota concentration guides, and current concentrations do not exceed the lowest of the biota concentration guides throughout the plume. Hence, there is no evidence of adverse effects to steelhead from strontium-90.

Cr(VI) concentrations in the 100-F Area groundwater ranged from 2.2 to 93 µg/L. A salmonid (including steelhead) no observable effect concentration of 266 µg/L was presented in Appendix H of the 100-F/IU RI/FS. Cr(VI) in groundwater at 100-FR-3, throughout the current plume, is below no effect thresholds for steelhead. Cr(VI) has no effect on steelhead.

Comment 7. Public Involvement – One commenter was concerned that there was not enough of an effort to direct members of the public to the hearing in Hood River (i.e., appropriate and visible signage, as well as informed hotel staff). Others believed that the webinar format for the public hearing was ineffective and that if the webinar does not work or is not used, then more public meetings should be held. Another comment suggested that the comment period for very significant river-corridor issues should be extended to 90 days to allow ample time for interested parties to respond. One comment identified a lack of detail in the Fact Sheet for the duration of ICs in Alternative S-2.

Response: Public involvement is important to the DOE and EPA, and stakeholders and the public are expected to be included in the decision-making process at Hanford. The Hanford public involvement team engaged stakeholders and the public throughout the CERCLA process for selecting this remedy.

DOE and EPA appreciate the suggestion to have better signage at the meeting location and more informed hotel staff that can direct people to the meeting location. This is input that can be used to help improve our process for public meetings.

A webinar was held in conjunction with the public meeting in Hood River, OR, on July 23, 2014. The use of the webinar during the public meeting is a new approach being used to provide access to those not able to attend the meeting in person. The webinar was designed to allow for full participation, including allowing webinar participants to ask questions and provide comments for the record. DOE and EPA regret that some webinar participants reported difficulties hearing the entire public meeting, and we appreciate the feedback so we can continue to make improvements. The webinar is a technology that DOE and EPA would like to continue using, however, the opportunity to request a public meeting to be held during the public comment period will always be provided. Public meetings were held in all locations where a timely request was submitted. DOE and EPA did not receive additional requests for public meetings after the webinar and public meeting that was held in Hood River, OR.

The NCP requires a minimum of 30 days to comment on the information contained in the RI/FS Report and Proposed Plan. In addition, the public comment period must be extended by a minimum of 30 additional days, upon timely request. A formal public comment period on the Proposed Plan, originally scheduled to run from June 9, 2014, through July 9, 2014, was extended through August 11, 2014, in response to requests from stakeholders. DOE and EPA believed that the 60 day public comment period provided a reasonable opportunity for submission of written and oral comments on the Proposed Plan and the material contained in the Administrative Record file.

The fact sheet is a high level summary of the Proposed Plan, meant for a general audience, and is not intended to present all details of the proposed remedy. The lengths of ICs for the range of alternatives were provided in the Proposed Plan. The fact sheet directed readers to the proposed plan for a summary of the proposed remedy.

Comment 8. Supports Proposed Plan – Two commenters support the Proposed Plan for Remediation of the 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 Operable Units.

Response: The Tri-Party agencies would like to acknowledge those comments. The selected remedy is the preferred remedy from the proposed plan.

Comment 9. Supports No Action – One commenter suggested no action for soil and groundwater stating that the proposed plan is above and beyond the Vision 2015.

Response: CERCLA decisions are made based on risks to human health and the environment, not on DOE's 2015 Vision. The 100-F/IU RI/FS Report and risk assessments indicated that these OUs have contaminants at elevated levels that pose unacceptable risks to human health and the environment. Under the No Action alternatives, no active remedial action would be taken to address actual and potential threats to human health and the environment posed by the contaminants present in soil and groundwater, and all existing actions would cease, including ICs and monitoring. Although the No Action alternative would achieve cleanup levels through natural attenuation in groundwater, monitoring progress would not be assessed and ICs would not be used to prevent groundwater use before cleanup levels are achieved, which would potentially allow humans to be exposed to COCs at levels that pose significant risk to human health. Therefore, DOE and EPA determined remedial actions are needed.

Comment 10. General Comments – General comments that were not specific to a particular part of the Proposed Plan were also received. Some commenters expressed concern with increases in cancer risks in the 100-F/IU area due to groundwater plumes originating from the central part of Hanford. Additional comments were concerned with contamination threats to communities living down-river from the Hanford Site. Others suggested that the Isolated Unit (IU) areas and F Reactor (FR) areas be separated into two decisions, instead of combined into one, as well as avoiding the combination of other areas into one decision unit; commenters were concerned that the public would be confused about the large area, or put more of its focus on the FR area.

Response: Contaminated groundwater originating from Central Plateau source OUs, which would be the central part of the site, extends to the aquifer beneath the 100-IU-2 and 100-IU-6 OUs and includes iodine-129, nitrate, and tritium. These groundwater contaminant plumes will be addressed through the CERCLA process as part of the Central Plateau groundwater OUs (200-PO-1 and 200-BP-5).

Many communities downstream of the Hanford Site draw water from the Columbia River for all or part of their domestic water supply. The City of Richland's water uptake is the closest to the Hanford Site. No alternative water sources have been required for the City of Richland because of contamination resulting from Hanford operations. The selected remedy for groundwater in 100-FR-3 will effectively reduce groundwater COCs to concentrations less than the cleanup levels. When cleanup levels are met, the selected remedy would restore groundwater to its highest beneficial use as a potential future drinking water source and in the interim 100-FR-3 groundwater discharges to surface water will not cause unacceptable risk to human health or ecological receptors.

The 100-IU-2 and 100-IU-6 OUs, were initially associated with the Hanford and White Bluffs town sites, and were combined with the 100-FR-1, 100-FR-2, and 100-FR-3 OUs due to their proximity to the 100-F Area. Over time, as waste sites were discovered, the 100-IU-2 and 100-IU-6 OUs were expanded to include these waste sites. Although, when combined, these OUs cover a large area, the combination of

these OUs does not unduly complicate the review as similar waste sites are found in the 100-FR-1, 100-FR-2, 100-IU-2, and 100-IU-6 OUs.