

0082894



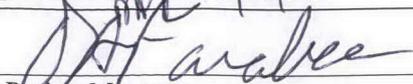
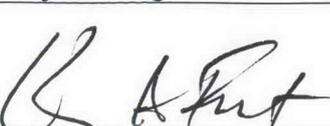
**Change Notice for Modifying Approved Documents/Workplans  
In Accordance with the Tri-Party Agreement Action Plan,  
Section 9.0, Documentation and Records**

Change Number	Document Submitted Under Tri-Party Agreement Milestone	Date:
TPA-CN-283	N/A	08/26/2009
<b>Document Number and Title:</b> <i>Removal Action Work Plan for the Northern Part of the BC Controlled Area (UPR-200-E-83) Located Within the 200-UR-1 Operable Unit (DOE/RL-2008-22, Rev. 0, June 2008).</i>		<b>Date Document Last Issued:</b> June 2008
<b>Originator:</b> O.A. Farabee, RL		<b>Phone:</b> 509-376-8089
<p><b>Description of Change:</b> Changes are made to the subject document regarding a new location for the queue/waste container storage area (queue/WCSA); references to the FS/Proposed Plan and the Health and Safety Plan (HASP);- the minimum detectable contamination (MDC) levels identified for the sodium iodide (NaI) detectors; post-removal action verification surveys and sample collection; and the schedule for excavation.</p> <p>O.A. Farabee, RL Federal Project Director and L.A. Fort, Washington State Department of Ecology Tri-Party Agreement Section <u>Manager</u>, agree that the proposed change modifies an approved work plan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, <i>Documentation and Records</i>, and not Chapter 12.0, <i>Changes to the Agreement</i>.</p> <p>Excavation is needed in the BC Controlled Area, northern section, to remove contamination caused by animal intrusion in the BC Cribs and Trenches Area.</p> <p>The following changes are made to <i>DOE/RL-2008-22 (Revision 0, June 2008)</i>:</p> <ol style="list-style-type: none"> <li>1. The queue/WCSA, as shown on page 4-5, is moved to a location north of the BC Cribs and Trenches area and east of the project field trailers per the attached plat.</li> <li>2. Reference to the FS/Proposed Plan for the 200-UR-1 OU is changed to reference the final ROD for this waste site (page 1-5), and the HASP reference is deleted (pages 3-2 and 6-1).</li> <li>3. Corrections are made in footnote "d" to Table 1-1 (page 1-6).</li> <li>4. The minimum detectable contamination levels for the sodium iodide detectors to be used are added to Table 1 (page 1-6).</li> <li>5. Field surveys are added to the post-removal action verification activities (page 5-4).</li> <li>6. Activity BC 0399 on the schedule in Appendix A is modified to show excavation activities will be conducted July, 2009 through December 31, 2010.</li> <li>7. These changes will be incorporated in DOE/RL-2008-22 at its next formal revision. Pending completion of that revision, this approved change notice will be used in conjunction with the existing revision of the record copy.</li> </ol> <p>Deleted text is shown in single line <del>strike-out</del>, and added text is shown in <b>shading</b> on the attached pages from the RAWP.</p>		
<p><b>Justification and Impacts of Change:</b></p> <ol style="list-style-type: none"> <li>1. The queue/WCSA location is relocated to an area adjacent to route 4 for ease of truck access and proximity to work area. The area is already cleared of vegetation.</li> <li>2. The reference is changed from the 200-UR-1 FS/Proposed Plan to the final ROD for this waste site because the final record of decision supersedes the FS/Proposed Plan as a decision document under the Comprehensive Environmental Response, Compensation and Liability Act. Reference to a specific HASP is deleted so that any needed changes may be made to the HASP without also causing the RAWP to be changed.</li> <li>3. Footnote "d" incorrectly referred to "remedial" action instead of "removal" action. Reference to individual isotopes is for clarification to the users. The reference to the 30 year decay period is necessary to link the derived concentration guide limits (DCGLs) to the 15 mrem close-out criteria.</li> <li>4. The minimum detectable contamination levels are added for the field detectors to show the ability of the detectors to meet the DCGLs.</li> <li>5. Field surveys are added for post-removal verification to clarify that this method may be used in lieu of sampling each location.</li> <li>6. The schedule for the cleanup activities is updated to show near term commencement of activities coincident with establishment of funding.</li> </ol> <p>These changes will be included in the next revision to <i>DOE/RL-2008-22 (Revision 0, June 2008)</i>. No impacts are identified to cost, scope or Tri-Party Agreement milestones. The RAWP schedule is updated to show excavation activities occurring from July, 2009 through December 2010.</p>		

**RECEIVED**  
AUG 26 2009

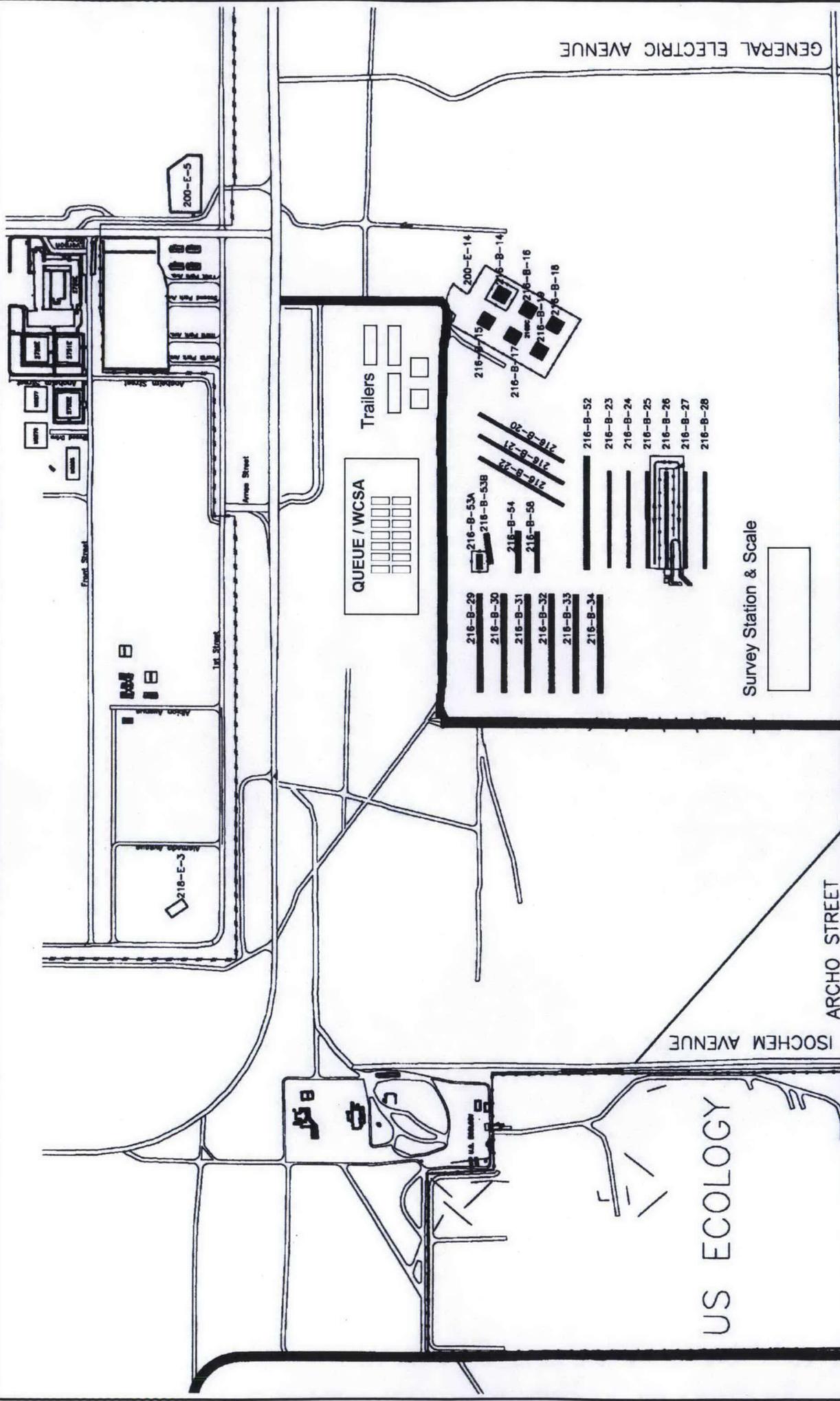
Approvals:

08/26/09

 RL Project Manager	8/26/09 Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<input type="checkbox"/> Disapproved	
 Ecology Project Manager	8/26/09 Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<input type="checkbox"/> Disapproved	

# BC Controlled Area Zone A

GENERAL ELECTRIC AVENUE



US ECOLOGY

ISOICHEM AVENUE

ARCHO STREET

Survey Station & Scale

QUEUE / WCSA

Trailers

218-E-3

200-E-5

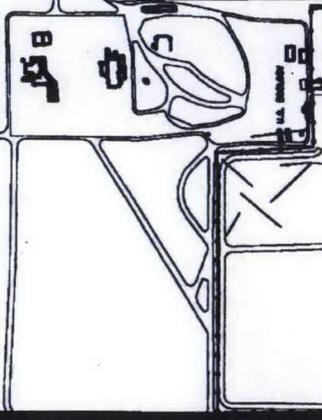
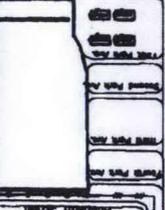
216-B-15  
216-B-17  
216-B-16  
216-B-18  
216-B-14

216-B-20  
216-B-21  
216-B-22  
216-B-19

216-B-29  
216-B-30  
216-B-31  
216-B-32  
216-B-33  
216-B-34

216-B-53A  
216-B-53B  
216-B-54  
216-B-55

216-B-52  
216-B-23  
216-B-24  
216-B-25  
216-B-26  
216-B-27  
216-B-28



## 1.4 OBJECTIVES

The removal action alternatives evaluated for the BC Controlled Area must meet the removal action objectives. The removal action objectives were developed in conjunction with the proposed remediation objectives for the 200-UR-1 OU, reasonable anticipated land use<sup>1</sup>, contaminants of concern, potential ARARs, and potential exposure pathways.

The following removal action objectives (RAO) were developed for this removal action:

- Removal Action Objective 1 – Provide conditions suitable for the reasonable anticipated future land use<sup>2</sup> and protect human health and ecological receptors, respectively, by
  - Preventing exposure to radiological constituents at levels that exceed the CERCLA risk exposure of  $10^{-4}$  to  $10^{-6}$ . As an operational guideline, the standard of 15 mrem/yr above background is in agreement with the EPA's radionuclide soil cleanup guidance, as described in OSWER Directive 9200.4-18, *Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination* (EPA 1997).
  - Protecting ecological receptors based on a dose rate limit of 0.1 rad/day for terrestrial wildlife populations [DOE-STD-1153-2002, *A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota*, which is a to-be-considered criteria].
- Removal Action Objective 2 – Prevent adverse impacts to cultural resources and threatened or endangered species, and minimize wildlife habitat disruption.

Waste sites in the 200-UR-1 OU currently are being evaluated via the CERCLA remedial investigation/feasibility study (RI/FS) process for final remedial decision and final remedial action goals are not yet established. Therefore, this removal action will use the 200-UR-1 OU radionuclide soil cleanup preliminary remediation goals (PRGs) identified in DOE/RL-2006-50. As an operational guideline, preventing exposure to below a dose rate limit of 15 mrem/yr above background is in agreement with the EPA's radionuclide soil cleanup guidance, as described in OSWER Directive 9200.4-18, *Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination* (EPA 1997). A dose rate limit of 15 mrem/yr above background generally controls risk to less than the EPA excess lifetime cancer risk threshold, which ranges from  $10^{-6}$  to  $10^{-4}$ .

Meeting the 200-UR-1 OU PRGs and the potential applicable or relevant and appropriate requirements (ARARs) and, by extension, achieving remedial action objectives, can be accomplished by reducing concentrations (or activities) of contaminants to remediation goal levels or by eliminating potential exposure pathways/routes. The PRGs for the removal action also serve as the soil removal action cleanup levels, to the extent practicable. If the removal action cleanup levels are not met once the removal action has been completed, this information will be documented and incorporated into the ~~FS/Proposed Plan for the 200-UR-1 OU final ROD for this waste site.~~ Sr-90 and Cs-137 are the primary radiological contaminants known to exist in the BC Controlled Area, based on recent sample data collected for the 200-UR-1 OU and the 200 Area Ecological characterization.

---

<sup>2</sup> While both industrial (inside the Core Zone) and conservation/mining (outside the Core Zone) land use scenarios apply to the northern part of the BC Controlled Area, final cleanup levels have not been established for the BC Controlled Area and the 200-UR-1 OU. Therefore, the preliminary removal goals (PRGs) for human health and environmental protection will be based on the 200-UR-1 OU PRGs, consistent with unrestricted land use, to preclude the need for additional cleanup in the future.

Table 1-1 identifies the Cs-137 and Sr-90 removal action cleanup levels at the BC Controlled Area waste site:

**Table 1-1. Summary of Radionuclide Soil Removal Action Cleanup Levels.<sup>a</sup>**

Constituent	Hanford Site Background <sup>b</sup> (pCi/g)	Required Detection Limit (RDL) <sup>c</sup> (pCi/g)	Field Detector Minimum Detectable Contamination (MDC) <sup>e</sup> (pCi/g)	Overall Removal Action Cleanup Levels <sup>d</sup> (pCi/g)
Cesium-137	1.05	0.1	0.75/1.1 <sup>e</sup>	12.4
Strontium-90	0.178	1	N/A	9.0

<sup>a</sup> The removal action cleanup levels are the same values specified in the 200-UR-1 SAP (DOE/RL-2006-50).

<sup>b</sup> Background values based on DOE/RL-96-12, Table 5-1, lognormal distribution 90%.

<sup>c</sup> The RDL is based on current approved laboratory contractor RDL. The RDL is consistent with the practical quantitation limits defined in WAC 173-340-200. The RDL is used because it is the contractual defined criteria.

<sup>d</sup> Listed values represent the most restrictive soil remedial removal action cleanup levels as identified in DOE/RL-2006-50 for individual isotopes. Values represented are for screening purposes and include a 30-year decay period. Site-specific evaluation and modeling will be performed to determine if removal action objectives have been attained.

<sup>e</sup> The 0.75 value is the field detection MDC for the 4x4x16 NaI detector. The 1.1 value applies to the 2x2 NaI detector.

The removal action closeout documentation will contain information on whether or not the removal action cleanup levels were attained. This information will be used in the 200-UR-1 OUF S final ROD for this waste site to determine if any additional remediation is needed.

## 1.5 FACILITY AND HAZARD DESCRIPTION

This section describes portions of the BC Controlled Area which are within the scope of this removal action and summarizes the unplanned release that resulted in hazards at these locations.

The *Historical Site Assessment of the Surface Radioactive Contamination of the BC Controlled Area* (WMP-18647) contains detailed information on the BC Controlled Area and the contamination sources. The BC Controlled Area is the result of unplanned spreads of contamination, primarily from the adjacent BC Cribs and Trenches. The BC Cribs and Trenches were constructed in 1955 and received radioactive discharges of liquid waste via underground pipeline from two general sources: the uranium recovery project and 300 Area wastes between 1956 and 1957 with the majority of the waste from the uranium recovery project. The 300 Area wastes were from the Plutonium Recycle Test Reactor (PRTR) and the laboratories. The primary radionuclides for the BC Cribs and Trenches were cesium-137 and strontium-90; others present in some abundance were plutonium-239/240, europium-155, cobalt-60, and americium-241.

During the 1950s and 1960s, animal intrusion (burrowing) into the trenches was noted to be taking place. The most likely mechanisms of contamination spread were uptake of contaminated salts by animals and resultant spread of fecal droppings and root uptake by tumbleweeds and resultant spread by breakup of those windblown weeds. In 1969, about 60,000 yd<sup>3</sup> of sand and gravel were used to cover and stabilize the BC Trenches, thus halting most of the uptake of contamination from these sources. When the BC Cribs and Trenches were covered, it was identified that an adjacent area of about 10.3 km<sup>2</sup> (4 mi<sup>2</sup>) was contaminated. Aerial surveys in 1973 and 1978 showed varying amounts of surface soil Cs-137 contamination, with the highest levels associated in areas immediately adjacent the BC Cribs and Trenches. Additional characterization activities occurred in the following years, outlined in WMP-18647 Rev. 0.

### 3.3.2 Health and Safety Plan and Activity Hazards Analysis

A HASP (D&D-34750) has been prepared that defines the chemical, radiological, and physical hazards and specifies the controls and requirements for work activities. Access and work activities are controlled in accordance with approved work packages, as required by established internal work requirements and processes. The HASP addresses the health and safety hazards of each phase of site operation and includes the requirements for hazardous waste operations and/or construction activities, as specified in 29 CFR 1910.120. As part of work package development, a job or activity hazards analysis will be written to identify the hazards associated with specific tasks already not covered under a HASP. The elements included in the HASP are as follows:

- General overview of the hazards associated with the area
- List of employee training assignments
- List of personal protective equipment (PPE) to be used at the work site
- Medical surveillance requirements
- Work site control measures
- Emergency response
- Confined space entry internal work requirements and processes
- Spill containment program.

In addition to the HASP, a radiological work permit (RWP) will be prepared, as needed, for work in areas with potential radiological hazards. The RWP extends the Radiological Protection Program (discussed in Section 3.3.3) to the specific work site or operation. All personnel assigned to the project and all work site visitors strictly must adhere to the provisions identified in the HASP and RWP.

Before work and before each activity begins, a pre-job briefing will be held with the involved workers. This briefing will include reviews of the hazards that could be encountered and the associated requirements. Throughout an activity, daily briefings also could be held, as well as special briefings before major evolutions.

- The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for implementing corrective measures as addressed in the plans and specifications
- Descriptions of the reporting requirements for quality assurance activities (including such items as daily summary reports, schedule of data submissions, inspection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation) and descriptions of the provisions for the final storage of all records consistent with overall requirements of the contractor's records management program.

## **5.5 POST-REMOVAL ACTION ACTIVITIES**

Post-removal action activities for the BC Controlled Area include field surveys, sample collection, demonstration of attainment of RAOs, and cleanup documentation, site closure as summarized in the following subsections.

### **5.5.1 Post-Removal Action ~~Sample Collection~~ Verification Surveys and Sample Collection**

Verification ~~samples~~ surveys and soil sampling of the residual soil from the excavated site will be ~~collected~~ performed in accordance with an approved sampling and analysis plan. Results ~~from~~ of the surveys and samples collected will be used to demonstrate attainment of the RAOs. Data packages will be submitted to the Administrative Record.

### **5.5.2 CERCLA Cleanup Documentation**

After completion of the removal action activities described in Section 1.3 of this RAWP, an On-Scene Coordinator Report will be completed for use in future remedial actions and to support the eventual deletion of the waste site from the NPL. The report will be placed in the administrative record.

At a minimum, the following documentation is required for the BC Controlled Area.

- Description of current waste site condition;
- Basis for reclassification; and
- Analytical data or data references (if applicable).

## 6.0 REFERENCES

- BHI-01319, 1999, *Data Assessment Report for the Sampling and Analysis Activities Conducted to Support Reopening the 200 B/C Contaminated Area*, Decisional Draft, Bechtel Hanford, Inc., Richland, Washington.
- D&D-24693, 2007, *Sampling and Analysis Instruction for BC Controlled Area Soil Characterization*, Rev. 1, Fluor Hanford, Inc., Richland, Washington.  
<http://www2.hanford.gov/arpir/?content=findpage&AKey=DA06717478>
- ~~D&D-34750, *Support Activities for the BC Controlled Area Removal Action Within the 200-UR-1 Operable Unit, and the BC Cribs and Trenches Within the 200-BC-1 Operable Unit, Health and Safety Plan*, Fluor Hanford, Inc., Richland, Washington.~~
- DOE/RL-91-50, *Environmental Monitoring Plan*, Rev. 3, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-94-02, *Hanford Emergency Response Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.  
<http://www2.hanford.gov/arpir/?content=findpage&AKey=D198147525>
- DOE/RL-96-12, *Hanford Site Background: Part 2, Soil Background for Radionuclides*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-2004-39, *200-UR-1 Unplanned Release Waste Group Operable Unit Remedial Investigation/ Feasibility Study Work Plan and Engineering Evaluation/Cost Analysis*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-2005-57, *Hanford Site End State Vision*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-2006-29, *Calculating Potential-to-Emit Radiological Releases and Doses*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-2006-50, *200-UR-1 Unplanned Release Waste Group Operable Unit Sampling and Analysis Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.  
<http://www2.hanford.gov/arpir/?content=findpage&AKey=DA05686525>
- DOE/RL-2007-51, *Engineering Evaluation/Cost Analysis for the Northern Part of the BC Controlled Area (UPR-200-E-83)*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-2008-21, *Action Memorandum for the Non-Time-Critical Removal Action for the Northern Part of the BC Controlled Area (UPR-200-E-83)*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE STD-1153-2002, *A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota*, U.S. Department of Energy, Washington, D.C.