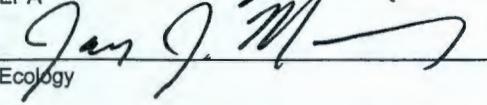
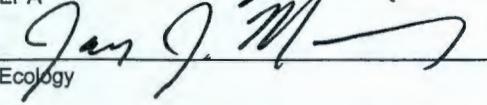
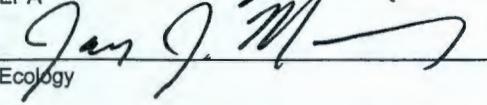


Change Number M-16-08-07	Federal Facility Agreement and Consent Order Change Control Form Do not use blue ink. Type or print using black ink.	Date August 4, 2009																																				
Originator B. L. Charboneau		Phone (509) 373-6137																																				
Class of Change <input checked="" type="checkbox"/> I - Signatories <input type="checkbox"/> II - Executive Manager <input type="checkbox"/> III - Project Manager																																						
Change Title New and Accelerated Groundwater and Columbia River Protection Hanford Federal Facility Agreement and Consent Order Milestones																																						
Description/Justification of Change <p>This change package defines new Hanford Federal Facility Agreement and Consent Order (HFFACO) interim milestones and cleanup target goals, towards meeting groundwater and soil requirements of the M-16-00 Milestone (Complete remedial actions for all non-tank farm operable units by 09/30/2024).</p> <p>The parties agree to implement selected groundwater and Columbia River protection activities, described herein. These activities are implemented with the intent of achieving remedial action goals recognizing that such actions may need to be revised or supplemented with additional actions to satisfy remedial action goals and ROD remedial action requirements.</p> <p>This change package is consistent with the Hanford Site Groundwater Strategy (DOE/RL-2002-59): to restore groundwater to its intended beneficial use to protect human health, the environment, and the Columbia River.</p> <p><i>Continued on page 2</i></p>																																						
Impact of Change Adds groundwater and soil remediation milestones to accelerate cleanup of contaminated groundwater and soil in the River Corridor and Central Plateau.																																						
Affected Documents The Hanford Federal Facility Agreement and Consent Order, as amended.																																						
Approvals <table border="0" style="width: 100%;"> <tr> <td style="width: 35%;"></td> <td style="width: 15%;">8/10/09</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 15%;">Approved</td> <td style="width: 10%;"><input type="checkbox"/></td> <td style="width: 15%;">Disapproved</td> </tr> <tr> <td>DOE</td> <td>Date</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>8/11/09</td> <td><input checked="" type="checkbox"/></td> <td>Approved</td> <td><input type="checkbox"/></td> <td>Disapproved</td> </tr> <tr> <td>EPA</td> <td>Date</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>8/11/09</td> <td><input checked="" type="checkbox"/></td> <td>Approved</td> <td><input type="checkbox"/></td> <td>Disapproved</td> </tr> <tr> <td>Ecology</td> <td>Date</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				8/10/09	<input checked="" type="checkbox"/>	Approved	<input type="checkbox"/>	Disapproved	DOE	Date						8/11/09	<input checked="" type="checkbox"/>	Approved	<input type="checkbox"/>	Disapproved	EPA	Date						8/11/09	<input checked="" type="checkbox"/>	Approved	<input type="checkbox"/>	Disapproved	Ecology	Date				
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Description/Justification of Change

Continued from page 1

The waste sites with deep vadose zone contamination are being addressed by each of the current operable units. Deep vadose zone contamination for the remainder of the source units in the Central Plateau is not addressed in this change package. The Parties intend to discuss addressing that contamination through development of a comprehensive strategy for deep vadose zone.

The change package includes new milestones that:

- Establish interim action target dates for the containment and remediation of contaminant plumes in the River Corridor area.
- Require interim actions to expand and enhance groundwater containment and remediation in the River Corridor and Central Plateau.
- Augment existing milestones to establish a comprehensive schedule for the submission of RI/FS work plans, RI/FS reports and proposed plans for operable units in the 100, 200, and 300 Areas.
- For the 100 Area Operable Units, groundwater and soils source term Feasibility Studies (FS) will be submitted concurrently with a combined groundwater and soil Proposed Plan (PP) by reactor area.

The Parties have agreed to a goal of issuing CERCLA Records of Decision (RODs) within six months of submittal of the FS and PP. The HFFACO Action Plan Section 11.6 requires submittal of Remedial Design/Remedial Action (RD/RA) Work Plans after a Record of Decision is issued. Approved RD/RA Work Plans contain enforceable schedules for construction of the remedy selection, including yearly measurable requirements. The Parties have agreed to the goal that DOE shall initiate construction six months after the RD/RA Work Plan is approved.

The Primary Document review and comment process prescribed in Section 9.2 of the HFFACO Action Plan will be followed. The Parties intend to utilize this process strictly to resolve issues quickly so that the schedules are not impacted.

All work will be conducted pursuant to approved work plans in accordance with the HFFACO. The schedule for completion of the construction of facilities will reflect the scope and complexity of the selected remedial or corrective action. The schedule for RA implementation will be established in approved RD/RA Work Plans and will be enforceable as a HFFACO requirement.

As per the HFFACO, Section 5.5, Ecology, the EPA, and DOE agree that past-practice authority may provide the most efficient means for addressing mixed-waste groundwater contamination plumes origination from a combination of TSD and past-practice units, subject to Ecology's reservation of corrective action authority in the Hanford Sitewide Permit, Condition II.Y.2.a.iii.

The change package includes substantial increases in pumping rates in the 200-West Area and in selected 100 Area operable units.

It is clear that the increased pumping will significantly affect the existing groundwater flow regime. Drastic (up to 180 degree) changes in flow direction are anticipated. It is likely that groundwater levels will also be drawn down below the bottom of many existing monitoring wells (i.e., some wells will go dry).

The Parties acknowledge that changes in flow direction and groundwater depth may impact DOE's ability to carry out detection and assessment monitoring for treatment, storage, and disposal (TSD) units within the capture zone of pump-and-treat systems. Ecology will consider these circumstances in establishing permit conditions ensuring

compliance with the requirements of (WAC) 173-303-645 through the permitting or permit modification process. DOE may submit permit modifications to propose replacing the requirements for groundwater monitoring for TSD units and corrective action with remedial response and monitoring requirements for the groundwater operable units.

Ecology commits to review and respond to any DOE-initiated, unit-specific permit modifications as provided under WAC 173-303-830 and WAC 173-303-840(10) (as applicable), and consistent with the public participation requirements of the Hanford Community Relations Plan.

Changes to the TPA are displayed by **Highlighting** to indicate addition of text and by **Strikeout** to indicate deletion of text.

M-015-00D	DOE shall complete the RI/FS process through the submittal of a Proposed Plan for all 100 and 300 area operable units.	12/31/2012
M-016-110-T01	DOE shall take actions necessary to contain or remediate hexavalent chromium groundwater plumes in each of the 100 Area NPL operable units such that ambient water quality standards for hexavalent chromium are achieved in the hyporheic zone and river water column.	12/31/2012
M-016-110-T02	DOE shall take actions necessary to remediate hexavalent chromium groundwater plumes such that hexavalent chromium will meet drinking water standards in each of the 100 Area NPL operable units.	12/31/2020
M-016-110-T03	DOE shall take actions necessary to contain the Strontium-90 groundwater plume at the 100-NR-2 Operable Unit such that the default ambient water quality standard (8 pCi/L) for strontium-90 is achieved in the hyporheic zone and river water column.	12/31/2016
M-016-110-T04	DOE shall implement remedial actions selected in all 100 Area Records of Decision for Groundwater Operable Units so that no contamination above drinking water standards or ambient water quality standards enters the Columbia River unless otherwise specified in a CERCLA decision.	12/31/2016
M-016-110-T05	DOE will have a remedy in place designed to meet Federal Drinking Water Standards for uranium throughout the groundwater plume in the 300-FR-5 Operable Unit unless otherwise specified in a CERCLA decision document.	12/31/2015
M-016-111A	Expand current pump-and-treat system at 100-KR-4 Operable Unit to be at a total 900 gpm capacity.	05/31/2009
M-016-111B	Expand current pump-and-treat system at 100-HR-3 Operable Unit utilizing ex situ treatment, in situ treatment or a combination of both to a total 500 gpm capacity or as specified in the work plan.	12/31/2010
M-016-111C	Expand current pump-and-treat system at 100-HR-3 Operable Unit utilizing ex situ treatment, in situ treatment or a combination of both to a total 800 gpm capacity or as specified in the work plan.	12/31/2011

M-016-112A	DOE shall complete demonstrations for biostimulation and electrocoagulation according to previously approved test plans ("Treatability Test Plan for Removing Chromium from Groundwater at 100-D Area Using Electrocoagulation," DOE/RL-2006-70, and "Treatability Test Plan for an In Situ Biostimulation Reducing Barrier," PNNL-16424).	12/31/2009
M-015-60	IF an amendment to the 100-NR-1/2 Record of Decision for Interim Action is issued, DOE shall submit an RD/RA work Plan.	Six months after the ROD amendment.
M-016-00	<p>Complete remedial actions for all non-tank farm operable units.</p> <p>Note: See operable unit LRA designation listing in Appendix C.</p> <p>It is assumed that the Record of Decision will be signed 6 months after the proposed plan is submitted. Per Action Plan Section 11.6 a day-for-day slip in the RD/RA Work Plan due date will be given for each day the remedy decision is not issued past the 6 month date. The document review, comment and approval process prescribed in the action plan of the HFFACO Section 9 will be followed.</p> <p>The schedule for completion of the construction of the remedy will reflect the scope and complexity of the selected remedial action. The schedule for remedial action implementation will be established upon regulatory agency approval of the RD/RA work plans and is enforceable as a HFFACO requirement.</p>	09/30/2024
M-015-61	Submit RI/FS Work Plan for the 100-NR-1 and 100-NR-2 Operable Units.	12/31/2009
M-015-62- E01	<p>Submit a Feasibility Study Report and Proposed Plan for the 100-NR-1 and 100-NR-2 Operable Units including groundwater and soil.</p> <p>The FS report and Proposed Plan will evaluate the permeable reactive barrier technology and other alternatives and will identify a preferred alternative in accordance with CERCLA requirements.</p>	12/31/2011
M-015-63	Submit CERCLA RI/FS Work Plan for the 100-FR-1/100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 Operable Units for groundwater and soil.	09/30/2009
M-015-64- E01	Submit CERCLA RI/FS Report and PF for the 100-FR-1/100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 Operable Units for groundwater and soil.	11/30/2011
M-015-65	Submit CERCLA RI/FS Work Plan for the 100-KR-1, 100-KR-2 and 100-KR-4 Operable Units for groundwater and soil.	05/31/2009

M-015-66- T01	Submit CERCLA RI/FS Report and PP for the 100-KR-1, 100-KR-2 and 100-KR-4 Operable Units for groundwater and soil.	07/31/2011
M-015-67	Submit CERCLA RI/FS Work Plan for the 100-BC-1, 100-BC-2 and 100-BC-5 Operable Units for groundwater and soil.	09/30/2009
M-015-68- T01	Submit CERCLA RI/FS Report and Proposed Plan for the 100-BC-1, 100-BC-2 and 100-BC-5 Operable Units for groundwater and soil.	11/30/2011
M-015-69	Submit RI/FS Work Plan for the 100-HR-1, 100-HR-2, 100-HR-3, 100-DR-1 and 100-DR-2 Operable Units for groundwater and soil.	05/31/2009
M-015-70- T01	Submit Feasibility Study Report and Proposed Plan for the 100-HR-1, 100-HR-2, 100-HR-3, 100-DR-1 and 100-DR-2 Operable Units for groundwater and soil.	07/30/2011
M-015-71	Submit CERCLA RI/FS Work Plan for the 300-FE-2 and 300-FE-5 Operable Units for groundwater and soil.	10/31/2009
M-015-72- T01	Submit CERCLA RI/FS Report and Proposed Plan for the 300-FE-2 and 300-FE-5 Operable Units for groundwater and soil.	12/31/2011
M-016-119- T01	DOE will have a remedy in place to contain existing groundwater plumes (except iodine, nitrate, and tritium) in the 200 NPL Area (Central Plateau).	12/31/2020
M-016-120	DOE will have a groundwater treatment system (not to exceed 50 gpm pump-and-treat capacity) for the Tc-99 plume at the S/SX Tank Farm within the 200-UP-01 Operable Unit. This milestone may be met by utilizing treatment capacity at another location such as the new 200 west pump and treatment system or the Effluent Treatment Facility.	12/31/2011
M-015-17A	SUBMIT A 200-UP-1 OU COMBINED REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT AS WELL AS A PROPOSED PLAN TO ECOLOGY.	11/30/2010 09/30/2010
M-015-82	Submit a treatability test plan as an amendment of 200-BP-5 RI/FS Work Plan for determining if a 50 gpm pump-and-treat system can be sustained in the shallow and discontinuous aquifer to contain and reduce the mass of the uranium and commingled Tc-99 plumes near the B, BX, and BY Tank Farms. The plan will include initial aquifer tests to determine sustained yield. If sufficient sustained yield can be demonstrated, treatability testing will follow in accordance with the approved treatability test plan. Initiate aquifer tests within six months of approval of the treatability test plan. Full-scale deployment of the treatment system will be made via the 200-BP-5 RD/RA Work Plan.	12/31/2010
M-015-21A	SUBMIT 200-BP-5 OU FEASIBILITY STUDY AND PROPOSED PLAN TO EPA.	10/31/2010 12/31/2010

M-016-122	Begin Phase I operation of the new 200 west pump and treat system per the Remedial Design Remedial Action Work Plan and the ZP-1 Record of Decision. This action will provide the initial portion of the overall pump-and-treat capacity expected to be required by the 200-ZP-1 and 200-UP-1 Records of Decision. This initial operation can provide treatment for the Tc-99 plume at the S/SX Tank Farm within the 200-UP-1 Operable Unit.	12/31/2011
M-016-123	Submit CERCLA RD/RA Work Plan for the 200-ZP-1 OU. DOE shall initiate construction six months after the RD/RA Work Plan is approved or as specified in the Work Plan schedule. This schedule will become enforceable under the HFFACO upon approval of the RD/RA Work Plan.	03/31/2009
M-015-73	Submit Feasibility Study Report and Proposed Plan for the 200-PO-1 Operable Unit.	12/31/2011