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Change Number	Federal Facility Agreement and Consent Order Change Control Form	Date
M-16-06-03	Do not use blue ink. Type or print using black ink.	September 11, 2006

Originator

Kevin Bazzell

Phone

(509) 373-0463

Class of Change

[ ] I - Signatories [X] II - Executive Manager [ ] III - Project Manager

Change Title

Extend Interim Milestone M-16-45 "Complete the Interim Remedial Action for the 100-B/C Area" from December 31, 2006 to June 30, 2007, and create new Interim Milestone M-16-94 "Complete Interim Remedial Action for the 100-B/C Area (not covered by M-16-45 waste sites)" by December 31, 2009.

Description/Justification of Change

Description: M-16-45 was developed in April 2002. Remedial actions have been ongoing in the 100-B/C Area to complete the milestone, and also to address remediation at other waste sites discovered in the 100-B/C Area since the development of M-16-45. Unanticipated large quantities of contaminated soil and anomalies encountered in several of the 100 B/C Area sites contribute to the need for the milestone's separate work scope, work distribution, and due date extension. Twenty-four recently identified remediation sites are being combined with 100-C-7 in the new Interim Milestone M-16-94. Remediation activities at 100-C-7 will initiate in FY07.(see continued description on next page)

Impact of Change

Revise the scope and extend M-16-45 from December 31, 2006 to June 30, 2007; six months in length.

- Move 100-C-7 waste site from M-16-45 to M-16-94.
- Provide a summary report of groundwater fate and transport modeling results at 100-C-7 to EPA by October 31, 2006.
- Perform re-vegetation of M-16-45 waste sites after the milestone date (June 30, 2007) in November to December 2007, to allow planting during optimal seasonal conditions.

Approve new milestone (M-16-94) for 100-B/C, "Complete interim remedial actions at 100-B/C Area (not covered by M-16-45)," by December 31, 2009

- Include all waste sites identified (not in M-16-45) and add 100-C-7
- ~~Requires moving funding from 100-IU-2/6, which may prohibit completing M-16-56, "Complete the Interim Remedial Actions for 100-IU-2 and 100-IU-6" by December 31, 2008. A separate change package will be developed for this milestone, if necessary.~~ NLR 9/14/06 KLC 9/18/06

Affected Documents

Hanford Federal Facility Agreement and Consent Order
Remedial Design Report/Remedial Action Work Plan for the 100 Area, DOE/RL-96-17, Rev. 5

Approvals

DOE	9/13/06 Date	✓ Approved	Disapproved
EPA	14 Sept 06 Date	✓ Approved	Disapproved
Ecology N/A	Date	Approved	Disapproved

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Description/Justification (continued)

When the 100 Area Remaining Sites Record of Decision was issued in 1999, and the 100 Area Burial Ground Record of Decision (ROD) was issued in 2000, there were a total of 29 remaining sites and 11 burial grounds for the 100-B/C Area in the respective RODs. In 2004, an Explanation of Significant Difference (ESD) to the 100 Area Remaining Sites ROD added an additional 6 waste sites to the 100-B/C Area. In 2005, another ESD was drafted and reviewed by the U.S. Environmental Protection Agency (EPA), but not issued, that added 17 additional remaining sites to the 100-B/C Area. Furthermore, one additional site (100-B-17) was inadvertently omitted from the 2005 ESD and needs to be included. Therefore, a total of 24 additional waste sites have been identified at the 100-B/C Area since development of M-16-45.

M-16-45 waste sites:

- Remaining Sites ROD: 116-B-7, 128-B-3, 132-B-6, 132-C-2, 100-B-3, 100-B-5, 100-B-10, 116-B-15, 120-B-1, 126-B-3, 128-B-2, 132-B-1, 132-B-3, 132-C-1, 132-B-4, 132-B-5, 1607-B2, 1607-B7, 100-B-1, 100-C-3, 100-C-7, 116-C-3, 116-C-6, 128-C-1, 132-C-3, 1607-B8, 1607-B9, 1607-B10, 1607-B11 (total of 29 remaining sites)
- Burial Ground ROD: 118-B-1, 118-B-2, 118-B-3, 118-B-4, 118-B-5, 118-B-6, 118-B-7, 118-B-10, 118-C-1, 118-C-2, 600-33 (total of 11 burial grounds)

Waste sites added since development of M-16-45 (not part of M-16-45):

- 2004 ESD: 100-B-11, 100-B-14, 100-B-16, 118-B-9, 100-C-9, 600-232 (total of 6 remaining sites)
- 2005 ESD: 100-B-18, 100-B-19, 100-B-20, 100-B-21, 100-B-22, 100-B-23, 100-B-24, 100-B-25, 100-B-26, 100-B-27, 100-B-28, 118-B-8:1, 118-C-3:3, 126-B-2, 600-230, 600-233, 1607-B5 (total of 17 remaining sites)
- Inadvertently omitted from 2005 ESD: 100-B-17 (total of 1 remaining site)

Aside from the addition of waste sites, other unanticipated events occurred at the 100-B/C Area and are:

- 200% to 300% increase in burial ground waste site volumes
- Discovery of spent nuclear fuel (SNF) at 118-B-1 (September 15, 2004)
- Discovery of SNF at 118-C-1 (September 27, 2004)
- 11-month shutdown on excavation of 118-B-1 and 118-C-1 pending revision of authorization documents to address SNF
- Extensive quantities of anomalous material that required special handling, characterization, and treatment (i.e., mercury amalgamation, cylinders, unknown bottles, high radiation dose items)
- Test pit and borehole characterization at 100-C-7 to determine contamination to groundwater (April to August 2005)

While most of these events above are self explanatory, some require further discussion.

1. During the 11-month shutdown on burial ground work due to the discovery of SNF, remediation activities shifted to other waste sites not associated with burial grounds in order to continue substantial and continuous remediation at the 100-B/C Area. Many of these cleanup activities focused on waste sites within the milestone as well as waste sites outside of the milestone.
2. Characterization of anomalous material has many critical elements such as: worker safety; how to obtain a sample safely; preparation of authorization basis' documents and associated site specific instructions; sample requirements; and what contaminants are detected once data results are received in order to have a technically sound proposal for closeout verification sampling of the waste site. The project did not develop closeout sampling approaches for waste sites until data was received from all the anomalous material. This aspect was deemed necessary to determine the full list of contaminants of concern prior to conducting verification sampling. Subsequent discussions with EPA have identified some possible streamlined

Approaches to proceed with verification sampling prior to anomalous material characterization.

3. Remediation of 100-C-7 began in December 2004, and by April 2005 the concentrations of hexavalent chromium in the deep zone were well above cleanup levels. Agreement was reached with the U.S. Department of Energy, Richland Operations Office (RL) and EPA to perform a test pit and to perform a borehole to groundwater. This agreement is documented in *Sampling and Analysis Instruction for Borehole Sampling at 100-C-7*, BHI-01778, Rev. 0. Results of the borehole data indicated hexavalent chromium concentrations at levels requiring excavation to groundwater. This scope of excavation and subsequent treatment was not within the original design. Discussions with RL and EPA began to determine a course of action and possible solutions. Meanwhile, no additional excavations have restarted until an agreed to approach with EPA and RL is obtained. In January 2006, meetings began between EPA and RL to discuss options on 100-C-7. A presentation of options was given to EPA in April 2006. EPA provided input, and requested additional modeling information at 100-C-7. Additional modeling was performed, but the scope of the modeling did not meet the expectations of EPA. Therefore, in July 2006, another agreement was reached with EPA to more clearly identify the modeling needs and expectations, and to provide a summary report to EPA by October 2006.

Development of M-16-94 is necessary to capture the additional 24 waste sites since development of M-16-45, including the movement of 100-C-7 from M-16-45. RL contends that due to these unforeseen and unanticipated events and circumstances, including the proposed extension to M-16-45, as well as early discussions with EPA, that good cause exists to develop M-16-94 as described in the *Hanford Federal Facility and Consent Order*, Article XL, and Section 12.3.2.

Hanford Federal Facility Agreement and Consent Order Interim Milestone is modified as shown below using ~~strikeout~~ to indicated text deletions and shading to indicate text additions:

Milestone Number	Milestone Description	Completion Date
M-16-45	Complete Interim Remedial Action for the100-B/C Area (not covered by M-16-94)	~~December 31, 2006~~ June 30, 2007
M-16-94	Complete Interim Remedial Actions at 100-B/C Area (not covered by M-16-45)	December 31, 2009