Department of Energy
Richland Operations Office
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0071297

SEP 28 2006

06-AMCP-0286

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Office of Environmental Cleanup
Hanford Project Office
U.S. Environmental Protection Agency
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Richland, Washington 99352

Ms. Jane Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99352

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Dear Addressees:

IMPLEMENTATION OF STRONTIUM-90 TREATABILITY TEST PLAN FOR 100-NR-02 GROUNDWATER OPERABLE UNIT AND HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (TRI-PARTY AGREEMENT) MILESTONES M-016-14(a) AND M-016-14(b)

This letter has two purposes: 1) to seek concurrence from the State of Washington, Department of Ecology (Ecology) and the Environmental Protection Agency (EPA) regarding acceptability of an approach to meet an existing Tri-Party Agreement milestone and 2) to request an extension for this same milestone. The U.S. Department of Energy, Richland Operations Office (RL) recommends that the agencies approve the attached RL signed change request, M-16-06-06 to extend the interim milestone due dates.

RL is requesting concurrence that the construction of the 300 foot test barrier at 100-NR-02 during the fall/winter groundwater conditions (versus during the spring with peak runoff conditions) is acceptable to meet Milestone M-016-14(a) of the Tri-Party Agreement. Consistent with the test plan and the change request that established the milestone, RL will enhance the barrier by additional injections during the spring of 2007. This course of action is based on a prudent decision to perform a second single-well injection test designed to modify injection chemistries and procedures to reduce the amount of strontium-90 temporarily desorbed during the injection process.

Milestone M-016-14(a) of the Tri-Party Agreement requires RL to "Complete construction of a 300 foot permeable reactive barrier utilizing apatite sequestration at 100-N as described in "Strontium-90 Treatability Test Plan for 100-NR-02 Groundwater Operable Unit; DOE-RL-2005-96, Draft A" by December 31, 2006. Milestone M-016-14(b) of the Tri-Party Agreement requires RL to "Submit a draft Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Proposed Plan. (PP) to either, amend the 1999 100-NR-01/NR-02 record of decision (ROD) for Interim Action, or to propose a new ROD [March 31, 2008]. The PP will evaluate the permeable reactive barrier technology as well as other alternatives and select a new alternative in accordance with CERCLA requirements."

Significant progress has been made towards the construction of the apatite barrier at 100-N. All of the wells have been drilled to support chemical injection for the barrier construction. The initial injection test has been performed to determine the effectiveness of the solution chemistries and the injection procedures that were developed from laboratory column tests. Multiple field conditions (including the highly dynamic river stage observed during the test period and the surprisingly rapid microbiological ingestion of the citrate) resulted in test results from the initial apatite injection that temporarily mobilized more Strontium-90 than expected on the basis of laboratory column tests. Overall, the initial test was very successful. The solution injections can be modified such that less Strontium-90 will be released from the sediments. With full discussion with Ecology technical experts, RL proposes that a second injection test, utilizing improved solution chemistries and injection procedures, is prudent before full-scale construction of the barrier proceeds. This cautious and prudent approach has precluded the injection of the apatite components during high groundwater conditions envisioned in the treatability test plan. Performing this second single-well injection test will result in construction of a 300 foot test barrier in that portion of the aquifer that is saturated under fall/winter conditions. The test barrier will be augmented in the spring of 2007 when the river levels are again in high stage conditions.

The first single-well injection test was designed based on literature and laboratory testing in sediment columns at Pacific Northwest National Laboratory using NR-2 sediments collected at the test site. Preliminary results from the first field scale pilot test indicated that more calcium occurred in the test zone than was observed during bench-scale testing. The cost of drilling to collect additional sediments samples and analyzing the sediments in advance to completely eliminate this risk was not determined not to be reasonable.

Assuming the second single-well injection test is successful as anticipated; RL believes Milestone M-016-14 (a) and (b) will be completed on the original schedule. However, since the results from this second single-well injection test will not be known until after entering into the Tri-Party Agreement Article VIII, "Resolution of Disputes," Paragraph F, ninety days or more in advance of when a milestone is due, RL feels it is necessary to request a change to the interim milestone due date in the event the second single-well injection test is not successful. Therefore, based on the discovery of the conditions as stated above, RL believes good cause justification exists to request an extension to Interim Milestone M-16-14(a) and (b). RL proposes a revised due date for the completion of construction of a permeable reactive barrier to be May 31, 2007 and a revised due date for submitting a new proposed plan to be August 31, 2008.

If you have any questions, please contact me or you may contact Mr. Briant Charboneau, of my staff, on 373-6137.

Sincerely,

Matthew S. McCormick, Assistant Manager
for the Central Plateau

AMCP:KMT

Attachment

cc w/attach:
G. Bohnee, NPT
S. J. Harris, CTUIR
R. Jim, YN
T. M. Martin, HAB
K. Niles, ODOE
Administrative Record
Environmental Portal

cc w/o attach
R. D. Morrison, FHI
R. E. Piippo, FHI

Change Number	Federal Facility Agreement and Consent Order	Date
M-16-06-06	*Change Control Form* Do not use blue ink. Type or print using black ink.	9/14/2006

Originator K. M. Thompson **Phone** (509) 373-0750

Class of Change

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

Change Title

Modification of Hanford Federal Facility Agreement and Consent Order (Agreement) interim milestone M-16-14a and M-16-14b due date extension for good cause.

Description/Justification of Change

Agency approval of this change package authorizes the extension of the due date for interim milestone M-16-14a, Complete construction of a 300 foot permeable reactive barrier utilizing apatite sequestration at 100-N as described in Strontium-90 Treatability Test Plan for 100-NR-02 Groundwater Operable Unit; DOE/RL-2005-96, Draft A and M-16-14 b, Submit a draft CERCLA Proposed Plan (PP) to either amend the 1999 100-NR-01/NR-02 ROD for Interim Action or to propose a new ROD. The PP will evaluate the permeable reactive barrier technology as well as other alternatives and select a new alternative in accordance with CERCLA requirements. The extension to the interim milestones is required because the requested second injection test and subsequent sampling will extend the construction of the 300 foot apatite barrier and draft PP.

Impact of Change

This change will not have any impact to the health and safety of workers or the environment.

Affected Documents

The Hanford Federal Facility Agreement and Consent Order, as amended and Hanford Site internal planning management, and budget documents (e. g., USDOE and USDOE contractor Baseline Change Control documents; Multi-Year Work Plan; Site Wide Systems Engineering Control Documents; Project Management Plans, and, if appropriate, LDR Report requirements).

Approvals

_____ _____ _____ Approved _____ Disapproved
Ecology Date

_____ 9/28/06 X Approved _____ Disapproved
DOE-RL Date

_____ _____ _____ Approved _____ Disapproved
EPA Date

Modifications to existing Tri-Party Agreement milestones are denoted with ~~strikeout~~; new milestone/text are denoted with shading.

M-016-14A	Complete construction of a 300 foot permeable reactive barrier utilizing apatite sequestration at 100-N as described in "Strontium-90 Treatability Test Plan for 100-NR-02 Groundwater Operable Unit; DOE/RL-2005-96, Draft A".	~~12/31/2006~~ 05/31/2007
M-016-14B	Submit a draft CERCLA Proposed Plan (PP) to either amend the 1999 100-NR-01/NR-02 ROD for Interim Action or to propose a new ROD. The PP will evaluate the permeable reactive barrier technology as well as other alternatives and select a new alternative in accordance with CERCLA requirements.	~~03/31/2008~~ 08/31/2008