

Change Number M-16-98-01	Federal Facility Agreement and Consent Order Change Control Form <small>Do not use blue ink. Type or print using black ink.</small>	Date March 24, 1998
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Class of Change <input type="checkbox"/> I - Signatories <input checked="" type="checkbox"/> II - Executive Manager <input type="checkbox"/> III - Project Manager		
Change Title Modification of Due Dates for Tri-Party Agreement Interim Milestone M-16-01E (Complete N Reactor/100N Area Deactivation) and associated Target Date M-16-01E-T2 (Initiate Removal of N Basin Water)		
Description/Justification of Change (Note: strikeout text indicates text to be removed, shading indicates text to be added)		
<u>Description</u>		<u>Due Date</u>
M-16-01E	Complete N Reactor/100N Area Deactivation pursuant to the work scope identified in the N Reactor Deactivation Program Plan, Rev. 4, WHC-SP-0615, Dec. 1993.	4/1/98 7/31/98
M-16-01E-T2	Initiate pre-treatment and removal of all N Reactor fuel storage basin waters pursuant to the N Reactor Deactivation Program Plan.	1/31/98 4/30/98
<u>Justification</u>		
<p>Concurrent with the June 1997 approval of the extension of interim milestone M-16-01E to April 1, 1998, radiation dose readings on the N Basin surfaces were discovered to be significantly higher than had been estimated. At a June 10, 1997, TPA negotiation meeting with Ecology, both "Reduction of dose readings by appropriate decontamination methodology" and "Determination of appropriate shielding as required" were identified as schedule risk factors associated with the water draindown activity. Until that point in time, it had not been possible to obtain reliable underwater dose rate surveys due to significant amounts of irradiated and radiologically contaminated hardware which had to first be removed. Once enough hardware/waste had been removed from the N Basin, the baseline decontamination method of 2500 psi water hydrolasing was tested but was unsuccessful in achieving low enough dose rates to be at compliant levels along the Columbia River shoreline. Follow-on efforts included performing higher pressure (~9,000 psi) water hydrolasing decontamination, which also failed to achieve sufficient dose reduction and proved not to be an economically viable method due to the extensive duration, increased worker exposure, as well as the excessive generation of radiologically contaminated water which would be time consuming and costly to transport and treat. These results invalidated the baseline assumption that a 2500 psi hydrolasing decontamination method would be utilized coupled with the application of a fixative to the basin surfaces as the basin draindown was occurring.</p>		
(Contd.)		
<u>Impact of Change</u>		
<p>A delay in the initiation of N Basin water removal activities to April 1998, coupled with an extended duration being required for the sediment solidification activity, has delayed the completion date for interim TPA Milestone M-16-01E from April 1, 1998, to July 31, 1998. The extended project duration increases the total project cost by an estimated \$5M, which increases the total N Area Deactivation Project baseline from \$111M to \$116M, an ~4% increase. The increased costs are due to the following work scope increases/changes: (1) increased waste volumes/removal duration (\$2.3M); (2) the need for extensive shielding for dose management (\$0.7M); (3) increased cost and extended processing duration for the sediment removal subcontract (\$1.1M); (4) off-site transfer of fuel (327 Bldg.) and an additional shipment required (\$0.5M); (5) cost and productivity impacts from retraining, delays, and loss of experience from the most recent HAMTC craft "bumping" (\$0.2M); and (6) a lower Effluent Treatment Facility (ETF) offloading rate/extended activity duration (0.2M). At the present stage in the N Reactor Deactivation activities, there remain significantly fewer project uncertainties which could further impact the schedule and impede timely completion of the interim milestone.</p>		
<u>Affected Documents</u>		
Hanford Federal Facility Agreement and Consent Order, as amended		
<u>Approvals</u>		
 DOE	3-24-98 X Date	Approved ___ Disapproved ___
 Ecology	3/25/98 X Date	Approved ___ Disapproved ___
N/A EPA	Date	Approved ___ Disapproved ___



Description/Justification of Change (Contd.)

Therefore, the project was required to evaluate several other possible options for reducing/containing dose rates and contamination from the basin floors and walls. The option that was determined to be the most expedient and cost effective option, with the least impact on the overall project schedule, was placement of 1 foot thick concrete panels over steel I-beams over the entire basin for shielding and airborne contamination control, as well as placement of 1/4" thick steel covers over the cubicles for added airborne control. The project promptly proceeded with the definitive design and the procurement required to support the shielding work scope. Because drain down of the entire N Basin cannot be initiated (Target date M-16-01E-T2) until installation of the shielding panels has been completed, in order to protect the workers, the public, and the environment from excessive dose rates, the duration of the schedule was impacted by required changes in the sequencing of activities as well as increases in some of the activity durations. Despite the significant scope changes, the project continued to make steady progress towards completing N Reactor Deactivation and every effort was made to preserve the April 1, 1998, interim milestone completion date. Although costs had been impacted, no TPA change request was generated at the beginning of FY98 because the schedule was tracking close to April 1, 1998, and the interim milestone completion date remained achievable.

Over the past several months, the schedule for performing sediment relocation had to be extended. The augmented sediment relocation activity required additional equipment (modified airlift, pumps, hoses, etc). Additionally, higher than anticipated amounts of debris/waste was found under the sediment layer in the cubicles during the final stages of the sediment relocation activity. The waste found under the sediment requires substantially more decontamination prior to removal, as well as additional airborne controls for the workers. The hydrolasing decontamination of the hardware/waste is time consuming and generates additional amounts of radiologically contaminated water that requires interim shipments of water to be made to the 200 Area Effluent Treatment Facility (ETF). Whereas prior removal of low dose rate hardware (< 1R) did not require workers to be in respirators, use of respirators is now customary during waste removal activities due to the higher levels of surface contamination on the waste found under the sediment.

Sediment relocation activities were also impacted by the efforts needed to support the testing, evaluations, and design work required to appropriately manage the radiological dose (after the water is removed) from the basin. The necessary revised work scope to install a shielding cover over the entire basin diverted resources, caused some resequencing of activities and was substantial additional work scope. The planned production rates for sediment relocation were not achieved due to the realization of several anticipated operational vulnerability factors such as extreme working conditions (heat stress), excessive use of respirators for sediment relocation, and craft HAMTC "bumping". Both cost and schedule impacts resulted from the loss of several experienced D&D workers (1/3 of the crew) during January. Therefore, as communicated in past correspondence, target date M-16-01E-T3, "Complete Characterization of N Reactor Fuel Storage Basin sludge and debris" was delayed, but characterization was recently completed in mid-February 1998. The project had been utilizing the preliminary results of the final sample analyses to proceed with the procurement process. Receipt of the final data enabled the designation of the sediment collected in the N Basin north cask pit to be completed and the necessary modifications to the sediment removal subcontract to be made. The results of the characterization of the final sediment sample revealed higher radionuclide concentrations than preliminary samples taken in 1997. This resulted in an increase in the duration of the sediment removal activity, however, the duration of the activity has been finalized, and supports the proposed revised completion date of July 31, 1998. The current schedule is based upon solidification being the approved disposal method for the sediment, as was agreed to in a March 23, 1998, meeting with RL, Ecology and EPA.

An additional impact which has extended the critical path schedule is the realization of a slightly lower offloading rate at the 200 Area Effluent Treatment Facility than was originally planned in the project baseline. In support of finalizing the details regarding the offloading support of the ETF facility during final draindown of the N Basin, a one day water transfer campaign was recently conducted on February 25, 1998, which resulted in 7 tankers being successfully loaded, transported and offloaded during a 20 hour period. Subsequent to that test and follow-up meetings held by the two facilities to discuss the lessons learned, the RL Waste Programs Division has committed to the Restoration Projects Division that they will support an offloading rate of 6 tankers per day during the N Basin draindown activity. (DOE Memo# 98-WPD-099) Successful accomplishment of that offloading rate will support achievement of the proposed July 31, 1998, interim TPA Milestone completion date. The basin draindown activity is forecast to be initiated in April 1998.