

Change Number M-50-93-01	Federal Facility Agreement and Consent Order Change Control Form Do not use blue ink. Type or print using black ink.	Date Jan. 25, 1994
Originator      W. C. Miller		Phone (509) 372-0255
Class of Change <input checked="" type="checkbox"/> I - Signatories <input type="checkbox"/> II - Project Manager <input type="checkbox"/> III - Unit Manager		
Change Title Establish milestones for tank waste pretreatment		
Description/Justification of Change New milestones for pretreating waste from Hanford tanks are being established to reflect the results of Tank Waste Remediation System rebaselining by the DOE, negotiations among the three parties to the Tri Party Agreement, and values received from the public, stakeholders and other affected parties. These changes will allow the limited development of advanced separations technology, if needed, while implementing simpler methods, such as cesium ion exchange, in the near term. The strategy is based on the need to provide suitable feed streams to the low level and high level waste treatment (vitrification) facilities. The following milestones and target dates are established for this activity:  M-50-00      Complete pretreatment processing of Hanford tank waste      December 2028  (Continued on next page)		
Impact of Change This change eliminates the M-02 and M-04 series of milestones for the pretreatment of double shell tank wastes and establishes a new series (M-50) for pretreatment of double-shell and single-shell tank waste		
Affected Documents Hanford Federal Facility Agreement and Consent Order Action Plan, Appendix D		
Approvals <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved  This change form approved by Amendment Four to the Hanford Federal Facility Agreement and Consent Order executed by the signatories on January 25, 1994.  <u>John Wagoner</u> <u>January 25, 1994</u> DOE      Date  <u>Gerald Emison</u> <u>January 25, 1994</u> EPA      Date  <u>Marv Riveland</u> <u>January 25, 1994</u> Ecology      Date		

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Description/Justification of Change, continued

M-50-01	Start construction of LLW pretreatment facility	November 1998
M-50-01-T01	Issue reports on cesium removal performance of Resorcinol and CS-100 resins on multiple feeds	December 1994
M-50-01-T02	Submit conceptual design and initiate definitive design of LLW pretreatment facility	December 1996
M-50-02	Start hot operations of LLW pretreatment facility to remove cesium and strontium	December 2004
M-50-02-T01	Complete construction of LLW pretreatment facility	December 2003
M-50-03	Complete evaluation of enhanced sludge washing to determine whether advanced sludge separation processes are required	March 1998

This milestone will report Hanford progress on laboratory testing with Resorcinol and CS-100 resins for cesium removal. Based on the laboratory results, WHC will prepare preliminary Cs ion exchange flowsheets on multiple waste streams, which will include DSSF and NCAW supernatants. These flowsheets will reflect the preliminary requirements of the low level waste pretreatment facility.

The performance of sludge washing and related tank waste sludge pretreatment methods will be evaluated to determine if these processes will be capable of satisfying criteria which will be established by the three parties prior to the milestone date. The criteria will include such items as volume of HLW resulting from pretreatment, compatibility with HLW and LLW treatment processes, and processing rates. For example, sludge washing and enhanced sludge washing must result in the production of a "reasonable" volume of HLW requiring repository disposal such that other established sludge treatment processes will not result in overall cost savings or schedule improvements. If the predicated performance does not meet the criteria, the need for more advanced sludge separations processes will be re-examined and changes to the HLW program will be proposed accordingly. Key elements of this evaluation include:

- Pretreatment process testing will use actual tank waste. These tanks will be chosen to represent the expected range of sludge composition. Candidate processes are those, such as water washing, caustic washing, and selective leaching, which do not require complex processing systems and which can be implemented within tanks or relatively simple facilities.
- Develop candidate tank treatment and blending sequences to minimize the volume of immobilized HLW.

- Model system performance to predict the volumes of immobilized HLW produced and processing rates for candidate pretreatment processes.
- Assess the uncertainties related to the HLW volume predictions.

M-50-03A Define Additional Milestones for waste pretreatment leading to the decision whether advanced sludge separation processes are required (M-50-03). September 1994

The decision of whether advanced sludge separation processes are required will need the development of information from several TWRS functions (Pretreatment, HLW Treatment, LLW Treatment, and Retrieval) to determine if enhanced sludge washing performs satisfactorily, or if advanced sludge separation processes are required. Some interim information to be included on this schedule may include the development of criteria defining what HLW glass volume is acceptable, the development of the decision-making method; and the schedule to evaluate the performance of enhanced sludge washing and the acceptance of the criteria and decision method by the interested parties. This milestone will be satisfied with the development of a schedule leading to the decision. Based on this schedule, additional milestones will be proposed to lead to the completion of milestone M-50-03.

M-50-03-T01 Issue report on current status of tank waste enhanced sludge washing October 1994

This milestone will report Hanford progress in enhanced sludge washing. Included in the scope of this milestone will be the issuance of a plan that will define the tests to be performed on Hanford tank sludges. In addition, the enhanced sludge washing laboratory test results on Hanford sludges completed through the third quarter of the fiscal year will be presented with expected impacts on High Level Waste Vitrification. These impacts will be illustrated in a summary of HLW glass volume projections for all Hanford waste types. Finally, the status and results of computer modelling of sludge washing of tank wastes will be presented.

M-50-03-T02 Submit a report summarizing the testing of enhanced sludge washing and related tank waste sludge pretreatment methods for samples of tank waste sludge Sept. 1995 (And annually through 1997)

Perform testing of enhanced sludge washing and related tank waste sludge pretreatment methods using actual tank waste samples. Document and issue results of testing completed to that time.

This annual report will also document preliminary candidate tank waste pretreatment and preliminary immobilization sequences and tank blending strategies. Goals for both early progress on waste immobilization and minimization of the production of high level glass will be addressed in these strategies. These preliminary strategies will be utilized to predict the production of high level waste glass associated with candidate enhanced sludge washing and related tank waste sludge pretreatment methods. The prediction of the HLW glass volume production will be updated.

M-50-04	Start hot operations of HLW pretreatment facility	June 2008
M-50-04-T01	Submit conceptual design of HLW pretreatment facility	March 1998
M-50-04-T02	Initiate definitive design of HLW pretreatment facility	November 1998
M-50-04-T03	Start construction of HLW pretreatment facility	June 2001

The strategy for the pretreatment of Hanford tank waste is based on the following:

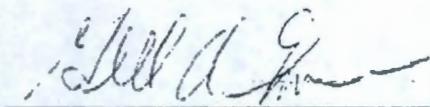
- Separate complexes will be constructed to house enhanced sludge washing and cesium and strontium ion exchange processes. An evaporator will be included in the LLW pretreatment complex. These complexes could be stand-alone facilities, a set of distributed facilities, or part of a central processing complex.
- System configuration will be established in the conceptual design report. The performance of LLW (saltcake and supernatant) pretreatment processes will be evaluated to assure that their capability will match the system needs for radionuclide separations, capacity and timing. The objective of this evaluation will be to verify that an adequate level of radionuclide removal can be achieved to meet the low shielding requirements of the LLW treatment facility and that pretreatment does not detrimentally impact the LLW waste form. The evaluation will also assure that adequate pretreatment capacity can be achieved to complete processing in the required time frame.
- Implementation of removal processes for long-lived radionuclides and organic destruction is not planned. Limited development of selected organic destruction and advanced separations processes will continue as a contingency until requirements are better defined.
- Sludge washing may be performed within the double-shell tanks. Waste blending will be performed to increase waste loading in the high- and low-level waste forms to the degree that tank space and multiple retrieval systems are available.
- Tank safety issues will be mitigated as required using in-situ methods, such as mixer pumps in DST flammable gas tanks, or by retrieval and dilution of the wastes. Development of selected organic destruction processes for safety issue resolution will continue as a contingency until it is demonstrated that these processes are not required to achieve an adequate level of safety in the tanks.
- This facility will be granted interim status to allow construction. A final dangerous waste permit will be required prior to initiation of hot operations. Prior to construction, DOE will be required to obtain the necessary air permits and obtain a letter from Ecology authorizing construction. This authorization will be based on Ecology's ongoing review of the facility design to ensure compliance with appropriate environmental regulatory requirements.

DOE-PC/CHC

IT IS SO AGREED:

Each undersigned representative of a Party certifies that he or she is fully authorized to enter into this Agreement and Action Plan and to legally bind such Party to this Agreement and Action Plan. These change requests and amendments shall be effective upon the date on which this amendment agreement is signed by the Parties. Except as amended herein, the existing provisions of the Agreement shall remain in full force and effect.

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

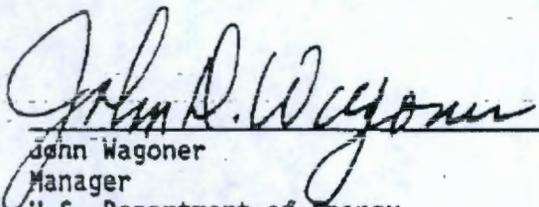


1-25-94

Gerald Emison  
Acting Regional Administrator  
Region 10  
U.S. Environmental Protection Agency

Date

FOR THE UNITED STATES DEPARTMENT OF ENERGY:

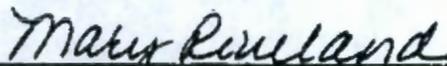


1/25/94

John Wagoner  
Manager  
U.S. Department of Energy  
Richland Operations Office

Date

FOR THE WASHINGTON STATE DEPARTMENT OF ECOLOGY:



1/25/94

Mary Riveland  
Director  
State of Washington  
Department of Ecology

Date

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