



## Department of Energy

9203181

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Mr. Paul T. Day  
 Hanford Project Manager  
 U.S. Environmental Protection Agency  
 Region 10  
 712 Swift Boulevard, Suite 5  
 Richland, Washington 99352

Mr. David B. Jansen. P. E.  
 Hanford Project Manager  
 State of Washington  
 Department of Ecology  
 Post Office Box 47600  
 Olympia, Washington 98504-7600

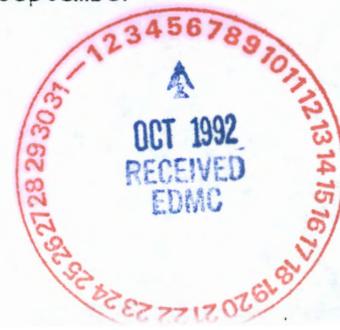
Dear Messrs. Day and Jansen:

ROTARY MODE SAMPLING OF SINGLE-SHELL TANKS AT THE HANFORD SITE  
 (MILESTONE M-10-13)

As has been discussed at several Milestone Review Meetings and Unit Manager Meetings, the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestone M-10-13 dealing with restoring rotary mode sampling at Hanford requires modification. We have held several rounds of technical discussions with your organizations to discuss a change package for this milestone. The most recent of these discussions was held in Richland, Washington, on August 28, 1992. The output from this last meeting was a change request form that was mutually acceptable to all three Unit Managers.

Attached in its final form is Tri-Party Agreement Change Request Form M-10-92-02E, "Rotary Mode Sampling Development, Milestone M-10-13 Technical and Scope Impacts to Development Schedule". The U.S. Department of Energy, Richland Field Office (RL) is recommending that the milestone be delayed by twelve (12) months to accommodate increases in technical complexity within the scope of work, as well as technical design issues.

Mr. Jansen, you are requested to review the attached, indicate your approval of the change request by signing the form, and return the signed copy to Mr. Day for his review and approval. Upon receipt of the original signed by the two regulator Project Managers, the document will go into effect. It is desired that this activity be completed prior to September 15, 1992, to preclude any potential for missing the present completion date of September 30, 1992.



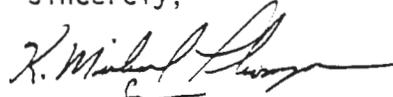
Messrs. Day & Jansen

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If you have any questions, please contact either Mr. Paul Hernandez, RL Safety Evaluation Branch, at (509) 376-2209 or Mr. Jon Yerxa of the Tri-Party Agreement Branch, at (509) 376-9628.

Sincerely,



Steven H. Wisness  
Hanford Project Manager

Attachments (2)

cc w/attachments:  
S. McKinney, Ecology  
D. Sherwood, EPA  
J. Propson, WHC  
T. Veneziano, WHC



9/2/92

TECHNICAL COMPLEXITIES ENCOUNTERED DURING DEVELOPMENT  
OF THE HARD SALTCAKE SAMPLING SYSTEM

Items which adversely affected the Hard Salt Cake Sampler Development schedule are summarized as follows:

**A. Modular Exhauster**

In order to core sample a tank in the rotary mode, the tank dome vapor space pressure must be maintained at a slight vacuum to ensure emission control on the tank top. As the Hard Salt Cake Sampler will use a nitrogen purge to cool and clear the drill bit, a portable exhauster is required to remove the 300 CFM of nitrogen purge gas generated by the drill and also maintain the required tank dome space vacuum. Initial design efforts did not anticipate the high flow rates and hence did not address the exhauster requirement. Incorporation of this exhauster into the program extended the schedule.

**B. Nitrogen Purge Gas System**

The nitrogen purge gas system was developed to eliminate the use of the Normal Paraffin Hydrocarbon hydrostatic balance system and is required for drill bit cooling and removal of debris from the drill face. The initial purge gas system was planned to be regulated bottled nitrogen gas. As system development progressed, nitrogen supply requirements increased requiring procurement of a larger and more capable supply system. This system required an ASME pressure vessel and resulted in additional procurement and vendor fabrication time.

**C. Pressure Vessel Requirements**

In the development of a safe core drilling technique, safety reviews of the apparatus have required that pressure vessel specifications be placed on the Grapple Box and Shielded Receiver components because of their interaction with the nitrogen purge system. The application of ASME criteria and stamp have impacted cost and schedule by requiring an outside vendor to manufacture the equipment.

**D. Sampler Development**

The initial planning was based on a design and build approach, similar to that of constructing a building. The approach allowed implementation of the components as soon as possible, and spendout plans were established based upon this approach. However, this approach proved inadequate as R&D activities and resources were required to further refine the sampler and to respond to third party (Technical Advisory Panel) requests for additional drill bit monitoring capabilities. In responding to the additional needs and directives, additional tasks and time were required.

**E. Envelope Testing**

The envelope testing phase of the project was designed for operating the drill in two simulants for evaluation of thermal concerns. To address these concerns, the number of simulants was increased from two to five. The time required to (1) develop and make the simulants, and (2) perform the added tests, evaluations, and write-ups expanded, causing the schedule to be extended.

**F. Proof of Concept Tests**

To verify concept viability, WHC provided additional tests to demonstrate proof of core drill concepts and design basis. These tests impacted the original testing schedule and allocated costs.

**G. Training**

The initial schedule incorporated the training of operators with the final formal acceptance tests of the equipment. Based upon discussions with operations management and past experience with the first core sampling truck (push mode sampler), training time has been revised as a specific activity in the schedule. This activity will be performed after the formal acceptance testing program and is required to ensure long term safe operation of the equipment. The revision of the status of this activity generated additional time requirements and funding needs in order to support.

**H. Instrumentation**

To operate the Hard Salt Cake Sampler safely requires programmable logic control systems to ensure gas flows, downward force, rotation, and exhaustor systems operate within established guidelines. Operator monitoring and reaction to occurrences could be too slow to ensure a continued safe working environment. To secure a safe operating environment for the Hard Salt Cake Sampler equipment and personnel, additional instrumentation is required to monitor all operating parameters efficiently and have capability of stopping operations in the event of a key equipment failure.

**I. Air Permitting**

Due to the volume of gases to be exhausted ( $\pm 600$  cfm), there is a need to file for air pollution permits for toxic gases and radioactive particulate. The time estimated to secure these permits has directly impacted project critical path and moving the schedule out.

# CORRESPONDENCE DISTRIBUTION COVERSHEET

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Subject: ROTARY MODE SAMPLING OF SINGLE-SHELL TANKS AT THE HANFORD SITE  
(MILESTONE M-10-13)

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