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Change Number M-40-93-01	Federal Facility Agreement and Consent Order Change Control Form <small>Do not use blue ink. Type or print using black ink.</small>	Date Jan. 25, 1994
Originator S. E. McKinney	Phone (206) 459-6725	
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 to Mitigate/Resolve Tank Safety Issues for High Priority Watch List Tanks		
Description/Justification of Change M-40-00 Mitigate/Resolve Tank Safety Issues for High Priority Watch List Tanks September 2001 High priority Watch List tanks are those single-shell and double-shell tanks identified, in accordance with Section 3137 of Public Law 101-510, which have a serious potential for release of high-level waste due to uncontrolled increases in temperature or pressure. These include flammable gas generating tanks, ferrocyanide containing tanks, organic/nitrate containing tanks, and a high heat producing tank. Corrective action strategies will be developed for these tanks. This milestone will be complete when mitigation activities, if required, have been implemented in all Watch List tanks to ensure safe storage of waste during the interim period until retrieval for treatment and/or disposal operations begin. For those safety issues mitigated pursuant to this milestone, safety resolution will be dependent upon final treatment of the waste. Mitigation will allow, however, the characterization retrieval, etc., of these wastes prior to final treatment. (Continued on next page)		
Impact of Change This major milestone is a new addition to the HFFACO, and provides schedules for mitigating and/or resolving current tank safety issues.		
Affected Documents Hanford Federal Facility Agreement and Consent Order, 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. John Wagoner _____ January 25, 1994 DOE Date Gerald Emison _____ January 25, 1994 EPA Date Mary Riveland _____ January 25, 1994 Ecology Date		

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Some safety issues may also be resolved if (1) resolution out-of-tank is not required, or (2) resolution out-of-tank with or without treatment takes place within the time period of this milestone.

This milestone will be reviewed on an annual basis to identify any potential schedule enhancements.

M-40-01 Complete Tank 241-SY-101 Low Speed Mixer Pump Test March 1994

A mixer pump was installed in tank 241-SY-101 during Window I in July of 1993. After pump installation, perform pump bumping followed by limited, low speed testing (Phase A and B) to determine whether mixing can be done safely and whether it is effective in releasing hydrogen from the waste. The low speed test results will be analyzed to evaluate the effectiveness of mitigating the flammable gas retention and large episodic gas releases from tank 241-SY-101. A report will be prepared, cleared for public release and transmitted to RL for subsequent issuance to the Washington Department of Ecology and Environmental Protection Agency.

M-40-02 Upgrade Temperature Monitoring Capabilities in Ferrocyanide Tanks April 1995

Install and operate upgraded temperature monitoring capabilities in ferrocyanide tanks. This upgraded monitoring capability shall provide sufficient data on the temperature characteristics of the tanks to meet safety requirements. The installation of upgraded temperature monitoring in ferrocyanide tanks will allow continued operations of the tanks. This work will provide needed temperature information so that operating safety parameters can be assessed for the ferrocyanide tanks.

M-40-02A Develop Criteria for Upgraded Temperature Monitoring Capabilities in Ferrocyanide Tanks September 1994

Develop an agreed upon criteria for upgraded temperature monitoring capabilities in ferrocyanide tanks. The criteria shall address upgraded monitoring capability of the ferrocyanide tanks to meet safety requirements and shall be agreed upon by DOE, Ecology, and EPA. The criteria will allow for installation of upgraded temperature monitoring in ferrocyanide tanks and the continued operations of the tanks.

M-40-02B Install Six of Twelve New Thermocouples. September 1994

Install six new thermocouple (TC) trees. Work includes procurement of required equipment, material, installation, and placement in operation.

M-40-03 Perform Vapor Characterization for all Ferrocyanide Watch List Tanks November 1995

Perform quantitative vapor characterization to include volatile organics, inorganics, acid gases, and water for all Ferrocyanide tanks on the Watch List as of 9/93. Sampling priority is driven by the logistical consideration of operations in tank farms. As an example, quantitative vapor characterization is requisite to rotary mode core drilling operations and the order of vapor sampling will be influenced by this schedule. Otherwise, the order of vapor sampling is not driven by class or category of Watch List Tanks, but rather by their presence in a specific tank farm. Gaps or extended periods of time for sampling for a specific category of Watch List Tanks (i.e., Ferrocyanide tanks) will result.

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Vapor characterization results, on a tank-by-tank basis as the tanks are sampled and analyzed, will be made available to EPA and Ecology in the Monthly Unit Managers Meeting.

M-40-04 Complete Removal of Floating Organic Layer from Tank 241-C-103 June 1995

Complete removal of the floating organic layer from tank 241-C-103. Removal of the organic layer will resolve the safety issue for this tank. It is anticipated that the removal of this floating layer will also resolve the noxious vapor issue for the C Farm provided characterization of other C Farm Tanks do not identify other potential sources of noxious vapors. This action will also relieve restrictions on worker access to the C Farm, if there are no constituents of the remaining waste that result in restrictions.

The retrieval options will be evaluated in an Engineering Study of Retrieval/Disposal Options due in August 1994.

The Parties agree that lack of receiver tank is justification for a change to this interim milestone.

M-40-05 Complete Safety Alternative Test in High-Heat Tank 241-C-106 September 1995

Conduct a safety alternative test (stop addition of cooling water) in high-heat tank 241-C-106 for one year to reduce and establish the cooling liquid at a minimum level. Prior to initiating the test, core samples will be obtained and analyzed, thermocouples will be repaired and connected to the Tank Monitor and Control System (TMACS), and safety documentation and procedures will be prepared. The proposed safety alternative test may have to be adjusted to accommodate upcoming activities during Fiscal Year 1994-1995 in preparation for the scheduled December 1996 retrieval of tank 241-C-106. The effect of the retrieval activities will be reviewed and assessed in September 1994. A recommendation will be formulated for the minimum amount of water additions needed. A report will be prepared, cleared for public release, and transmitted to RL for subsequent issuance to the Washington Department of Ecology and Environmental Protection Agency. Completion of this test will provide the information necessary to develop a new safe operating envelope for tank 241-C-106.

M-40-06 Complete Vapor Sampling Characterization of Tank 241-C-103 (Phase 2) August 1994

Representative vapor samples will be collected in SUMMA canisters, sorbent tubes, and impingers for an extensive, Phase 2 characterization of Tank 241-C-103. These will be analyzed to assess the tank vapor issues. The results will be reviewed by the Vapor Conference Committee for precision and accuracy and a panel of toxicological experts for analytes of toxicological concern.

M-40-07 Commence Operation of a Vapor Treatment System in Tank 241-C-103 June 1995

Provide a report documenting operational test procedure results and commence permitted operation of a vapor treatment system for tank 241-C-103, unless otherwise agreed to by the Parties following submittal of the Engineering Evaluation of Alternatives (EEA) for Treatment of Tank 241-C-103 Vapor Space. The EEA will document the need and options

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for treatment of potentially hazardous/toxic vapors being discharged from the tank 241-C-103 vapor space. All pertinent characterization data will be considered including: meteorological, area, source, personal monitoring, aqueous/organic layer analysis, vapor characterization, estimates of the vapor characterization after removal of the organic layer, and the schedule for this removal. Once selected, design, procurement, and permitting will be initiated.

Operation of this vapor treatment system is anticipated to provide relief from worker restrictions at tank 241-C-103 in regard to noxious vapor emissions (provided characterization of other C Farm tanks does not identify other potential sources of noxious vapors).

M-40-08 Perform Vapor Characterization for all Organic Watch List Tanks November 1995

Perform quantitative vapor characterization to include volatile organics, inorganics, acid gases, and water for all Organic Watch List tanks. Sampling priority is driven by the logistical consideration of operations in tank farms. As an example, quantitative vapor characterization is requisite to rotary mode core drilling operations and the order of vapor sampling will be influenced by this schedule. Otherwise, the order of vapor sampling is not driven by class or category of Watch List Tanks, but rather by their presence in a specific tank farm. Gaps or extended periods of time for sampling for a specific category of Watch List Tanks (i.e., Organic tanks) will result.

Vapor characterization results, on a tank-by-tank basis as the tanks are sampled and analyzed, will be made available to EPA and Ecology in the Monthly Unit Managers Meeting.

M-40-09 Close All Unreviewed Safety Questions (USQ) for Double-Shell and Single-Shell Tanks September 1998

Four Unreviewed Safety Questions (USQ) have been identified on Hanford single-shell and double-shell waste tanks as of September 30, 1993: high flammable gas concentrations, potentially explosive mixtures of ferrocyanide, potential for nuclear criticality, and existence of a separable organic phase (floating layer). For each USQ, data will be collected and safety documentation, including new operating safety envelopes and appropriate work controls, will be submitted for approval. This will be followed by a USQ screening and evaluation submitted for approval, and finally by a recommendation for USQ closure. The recommendation for closure of a USQ will be transmitted to RL when a tank, group of tanks, or all tanks have been sufficiently reviewed to remove the USQ restrictions. The anticipated order of USQ closure is as follows: first 6 ferrocyanide tanks, 241-C-103 organic layer, remaining ferrocyanide tanks, criticality, 241-SY Farm flammable gas tanks, 241-AW-101 flammable gas tank, 241-AN Farm flammable gas tanks, and 18 single-shell flammable gas tanks.

The Parties recognize the existence of a USQ does not prohibit the continuation or initiation of work in the tank farms.

M-40-10 Complete Vapor Space Monitoring for all Flammable Gas Generating Tanks January 1997

Design, procure, and fabricate standard hydrogen monitoring systems (SHMS) for all unreviewed safety question (USQ) flammable gas generating tanks. Prepare all required safety and environmental documentation for

tank intrusive work on a tank by tank, or group of tanks, basis. Install the SHMSs and obtain vapor space grab samples. Analyze samples using a high sensitivity mass spectrometer to determine the concentrations of flammable gases (hydrogen, nitrous oxide, ammonia) for all tanks, and the background gas compositions for the double-shell tanks that entrap and periodically release gas. The vapor space of each tank will be observed over a sufficient period of time to make decisions regarding resolution of the safety issue. A report, with the analytical data for each tank, will be prepared, cleared for public release, and transmitted to RL for subsequent issuance to the Washington Department of Ecology and Environmental Protection Agency.

Monitoring will continue after the initial report.

M-40-11 Close the Unreviewed Safety Question for the Criticality Issue June 1994

Closure of the USQ will reduce the safety restrictions on waste transference to and from the tank farms. Resolution of the criticality issue will continue under Milestone M-40-12.

M-40-12 Resolve nuclear criticality safety issue September 1999

Resolve the potential for nuclear criticality safety issue by providing sufficient monitoring, analyses, and revision of appropriate safety documentation. These activities must address the various stages of waste transference and the possibility for changes in the potential for nuclear criticality incidents during waste transfers.

M-40-13 Document 100% Design Completion of Permanent Mitigation Pump for Tank 241-SY-101 July 1994

Design a permanent mixer pump for tank 241-SY-101. The permanent pump will have a design life exceeding five years and will replace the test pump that is currently installed in the tank.

M-40-14 Close Ferrocyanide Unreviewed Safety Question March 1994

Develop safety criteria to define conditions for in site safe storage of ferrocyanide waste that satisfy DOE requirements for closure of the Ferrocyanide USQ. The scope of work includes working with DOE-RL and -HQ personnel to incorporate all reviewer comments into the safety documentation for USQ closure of all ferrocyanide tanks, resubmit to DOE for approval, and support approval by DOE of Ferrocyanide USQ closure documentation.

M-40-15 Install Gas Monitoring Equipment in the Remaining Five Potentially Flammable DSTs September 1994

Install the existing standard hydrogen monitoring system (SHMS) on tank 241-SY-103; fabricate and install gas monitors on tanks 241-AW-101, and 241-AN-103, -104 and -105; prepare all associated field work packages; readiness reviews; and site preparation.

M-40-16 Complete Sampling and Safety Evaluation of Liquid Organic in Tank 241-C-103 March 1994

Complete Interim Safety Basis Level 1 Topical Report in support of tank 241-C-103 USQ closure. This Report will incorporate analytical results from tank 241-C-103 dip sample analytical report. The Report will

assess potential accident events related to burning of the organic layer and/or head space gas, and identify controls for continued safe interim storage including anticipated near-term operations.

M-40-17

Close tank 241-C-103 Unreviewed Safety Question

May 1994

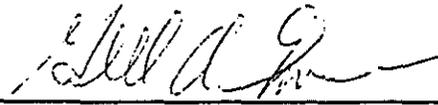
Support approval by DOE of tank 241-C-103 closure documentation by providing input as necessary.

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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.

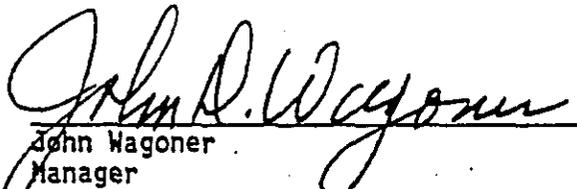
FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:



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

1-25-94
Date

FOR THE UNITED STATES DEPARTMENT OF ENERGY:



John Wagoner
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1/25/94
Date

FOR THE WASHINGTON STATE DEPARTMENT OF ECOLOGY:



Mary RiveLand
Director
State of Washington
Department of Ecology

1/25/94
Date

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