

Change Number M-34-99-01A	Federal Facility Agreement and Consent Order Change Control Form <small>Do not use blue ink. Type or print using black ink.</small> 0051602	Date August 10, 1999
-------------------------------------	--	--------------------------------

Originator P. G. Loscoe, Acting Director Spent Fuels Project Division	Phone (509) 376-7465
---	--------------------------------

Class of Change <input type="checkbox"/> I - Signatories	<input checked="" type="checkbox"/> II - Executive Manager	<input type="checkbox"/> III - Project Manager
--	--	--

Change Title
Change completion date for Milestone M-34-14A, "Complete K West Basin Cask Facility Modification".
Note: This is "Revision A" of the Change Control Form and replaces the original Change Control Form M-34-99-01.

Description/Justification of Change

The current date for completion of K West Basin cask facility modification is 9/30/1999. This date is changed to 2/29/2000, as follows: Note: ~~Struckout~~ text indicates text to be deleted, shaded text indicates text to be added.

M-34-14A	Complete K West Cask Facility modifications.	9/30/1999
		2/29/2000

The K West Cask System Facility modifications shall be constructed, installed and acceptance test(s) completed.

In February 1999, Fluor Daniel Hanford, Inc. (FDH) initiated internal reviews of the structural analyses of several cask drop accidents in the K West Basin south loadout pit and found deficiencies in the analytical modeling of the facility structure that challenged the earlier conclusions. Specifically, the damage caused by an accidental drop of a fully loaded cask to the floor and wall joint of the basin had not been adequately evaluated. The February 1999 review indicated that such a drop could result in a wall/floor joint separation that could allow a significant amount of water to leak from the basin. The K West Basin Cask Loadout System (CLS) cask drop issue is an important safety concern and resolution has required a significant effort over the past few months. RL completed its assessment of the problem, reviewed options for resolution, developed mitigation steps, and made a decision to proceed with the risk-based approach outlined in this change control form.

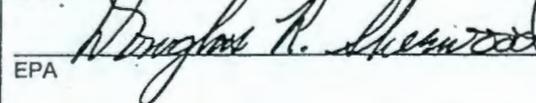
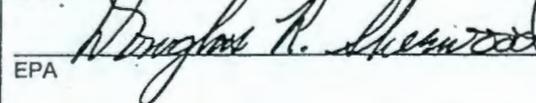
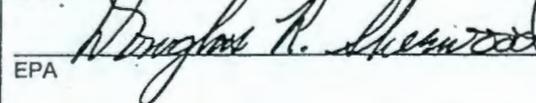
Description/Justification of Change continued on Page 2.

Impact of Change

RL and FDH have evaluated the impact of this change with respect to other elements of the SNF Project in development of the recovery plan for the K West Basin CLS modifications. No other milestones are impacted by this change request. The baseline dates for the start of the RL Operational Readiness Review (ORR) and the start of K Basin fuel removal will be maintained. Significant changes in schedule logic, reductions in activity duration, and use of some of the SNF Project schedule contingency were required for a solution that would not impact the commitment to begin fuel removal by 11/30/2000.

Impact of Change continued on Page 3.

- Affected Documents**
1. Hanford Federal Facility Agreement and Consent Order, Appendix D, as amended.
 2. Spent Nuclear Fuel Project Baseline Schedule.

<p>Approvals</p> <table border="0"> <tr> <td>  DOE </td> <td> 8/10/99 Date </td> <td> <input checked="" type="checkbox"/> Approved _____ Disapproved </td> </tr> <tr> <td>  EPA </td> <td> 8/11/99 Date </td> <td> <input checked="" type="checkbox"/> Approved _____ Disapproved </td> </tr> <tr> <td> N/A Ecology </td> <td> Date </td> <td> <input type="checkbox"/> Approved _____ Disapproved </td> </tr> </table>	 DOE	8/10/99 Date	<input checked="" type="checkbox"/> Approved _____ Disapproved	 EPA	8/11/99 Date	<input checked="" type="checkbox"/> Approved _____ Disapproved	N/A Ecology	Date	<input type="checkbox"/> Approved _____ Disapproved	 <p>Page 1 of 3</p>
 DOE	8/10/99 Date	<input checked="" type="checkbox"/> Approved _____ Disapproved								
 EPA	8/11/99 Date	<input checked="" type="checkbox"/> Approved _____ Disapproved								
N/A Ecology	Date	<input type="checkbox"/> Approved _____ Disapproved								

Description/Justification of Change (continued)

Previously planned installation work (installation of an impact limiter) must be completed prior to resumption of the work on hold. Deferral of the schedule for milestone M-34-14A until 2/29/2000 is necessary at this time to complete the design, construction, installation, and acceptance testing of the CLS.

A significant, unmitigated leak from the K West Basin would exceed the allowable leakage rate in the current safety documentation and could result in the inability to keep the basin water at the level necessary to provide its cooling and shielding functions. Such a leak would also exacerbate the groundwater contamination problem in the 100 K area. Finally, a leak of this magnitude would cause the SNF Project to stop work on fuel movement and related activities for an unspecified time, thereby impacting the M-34-00 milestones.

Recent structural analyses confirmed that the calculated structural damage and resulting basin water leakage rate exceeded that reported in the CLS Safety Analysis Document (SAD). The U.S. Department of Energy, Richland Operations Office (RL) and FDH concluded that the existing in-pool CLS equipment would not function effectively to mitigate the impact of a cask drop accident as previously reported. RL notified the U.S. Environmental Protection Agency (EPA) at the 3/23/1999, Spent Nuclear Fuel (SNF) Project TPA M-34-00 milestone review meeting, that the results of the cask drop analysis for the CLS could negatively impact the existing completion date for milestone M-34-14A. Crucial actions and the corresponding path forward options were also presented by RL during that meeting. RL and FDH have addressed this topic with EPA at the weekly SNF Project interface meetings and at special topic meetings conducted on 7/21/1999 and 7/27/1999.

Design alternatives were identified and evaluated through a value engineering process. On 4/15/1999, RL directed FDH to proceed with an expedited design solution that would not impact the 11/30/2000 fuel removal milestone, while restoring the cask loadout safety function to the same leakage protection capability that was approved in the Safety Evaluation Report for the CLS SAD. FDH evaluated an approach of a complete redesign of a principal component of the CLS to include installation of hydraulic and crushable foam impact absorbers in the Immersion Pail Support Structure, as a conservative solution. This solution would have added a significant cost in FY1999 and FY2000 (approximately \$6M) and would have added significant risk to an already aggressive schedule to begin fuel removal by 11/30/2000. Additionally, the redesign approach would have conflicted with the plan and schedule for the phased startup of the fuel retrieval system (FRS) and the integrated water treatment system (IWTS) in the second quarter of FY2000. The completion date of 2/29/2000 supports the completion of the CLS construction, installation, and acceptance testing, as well as the phased startup of FRS and IWTS. The phased startup allows early fuel retrieval operations testing to improve the schedule risk position for the start of fuel movement from K West Basin by 11/30/2000.

FDH has now provided additional information and a solution that will not require redesign of the CLS, but will require certain mitigation steps to reduce risk associated with a potential cask drop. RL has concurred with this revised approach, which is based on a risk-based demonstration that incorporates risk mitigation measures, resulting in acceptable risk, lower cost and less potential impact to the overall schedule. The following mitigation steps are planned as part of the proposed approach:

Probability of a cask drop:

1. The SNF Project will obtain guidance from the U.S. Navy Center for Excellence in Crane Operations to minimize the possibility of a cask drop.
2. Additional specific procedures will be developed and personnel training will be developed and implemented, as effective steps to avoid a cask drop.
3. Cask handling will be controlled as "critical lifts", in accordance with the Hanford Site Hoisting and Rigging Manual, DOE-RL-92-36.

Description/Justification of Change continued on Page 3.

Description/Justification of Change (continued)

4. Independent spotters will be used whenever a cask is being lifted or lowered.
5. Effective communication between all responsible personnel will be ensured on each lift.
6. Appropriate operations management will be present during each lift to ensure management oversight and direction.

Consequence of a cask drop:

1. Sealant injection equipment will be procured, tested, and staged, for rapid response in sealing the floor/wall joint, as necessary, in the event of a cask drop. If deemed appropriate, additional leak mitigation equipment will also be staged and available for use.
2. Training and procedures for the sealant injection equipment will be developed to ensure swift and reliable response in the event of a cask drop.
3. A maximum thickness crushable pad will be installed directly beneath the CLS to minimize the impact and damage to the floor/wall joint in the event of a cask drop.

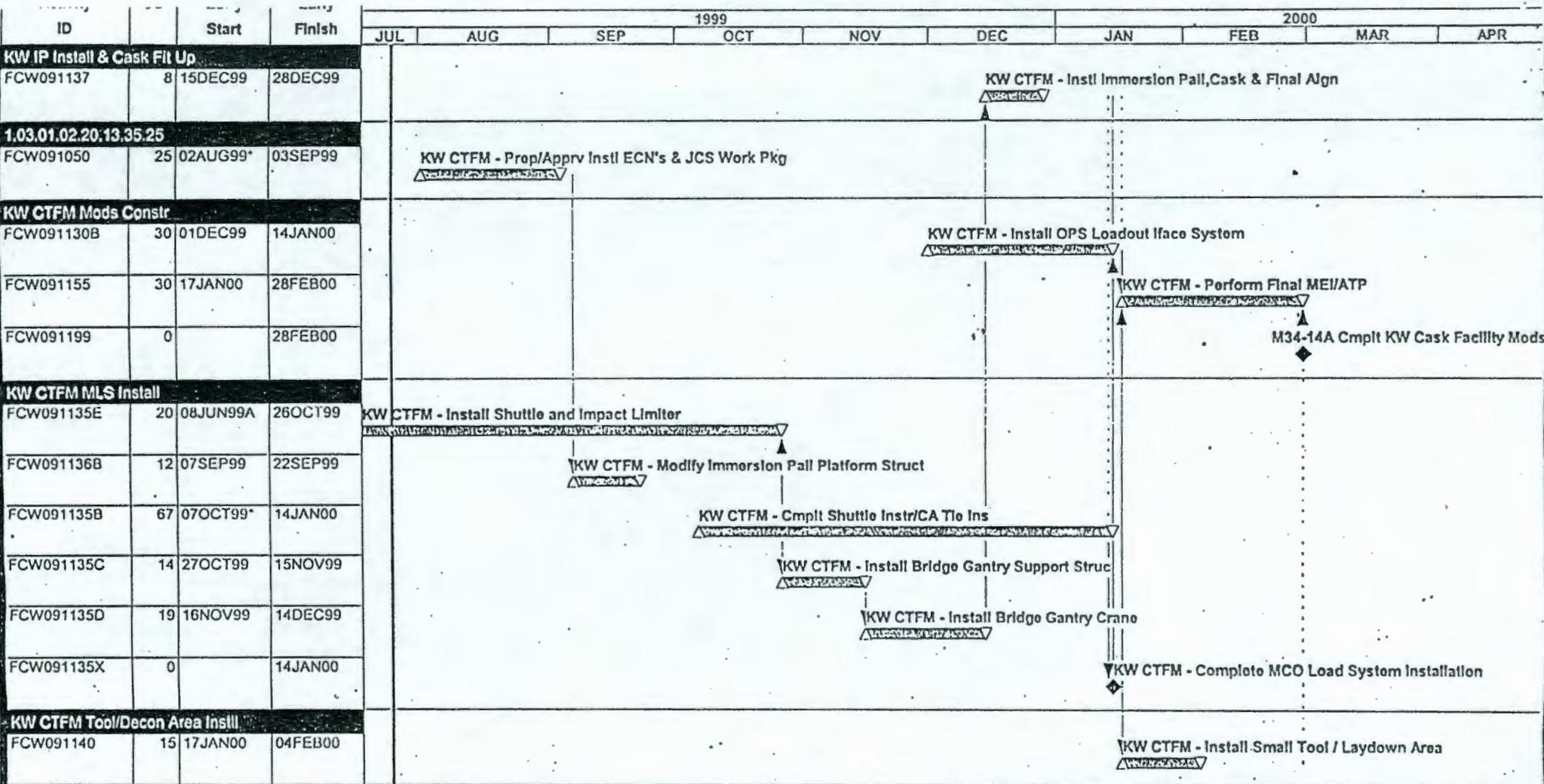
Although not defined as mitigation steps, there are other factors that reduce the consequence of a cask drop during operational events. These include the fact that personnel are present during the operation and will know immediately the specific location and extent of any problem related to a cask drop. In the event of basin damage and water loss due to a natural phenomenon (e.g., an earthquake), there would be competition for emergency services at other Hanford Site facilities and the operation of basin water makeup systems might be disrupted. Competition for emergency services would not be a factor during an operation event involving a cask drop, so response would be focused and immediate.

Impact of Change (continued)

In ideal circumstances, readiness activities for all the fuel removal systems in the basin would be performed as an integrated sequence. In the situation of the delayed CLS construction completion, performance of the CLS actions for readiness must be performed separately and later than originally planned in the baseline schedule. An extensive effort was undertaken to assure the work scope associated with these actions could be distinguished, separated, and reintegrated in time to attain a successful and timely ORR. Completion of this milestone (M-34-14A) by 2/29/00 will require utilization the SNF Project schedule contingency. Approximately two of the eight weeks currently available in the baseline schedule will be used.

Actions taken to ensure that other TPA milestones will not be impacted include:

1. Evaluation of the CLS portion of the 100 K FSAR, to minimize impacts on training and the development of operating procedures (evaluation has been completed); and
2. Development of operator training and operations procedures will commence upon submission of the SAR to RL. RL and FDH will review the CLS logic during weekly critical path management meetings and will identify any issues requiring senior management attention to ensure the actions are completed on schedule.



Attachment

Project Start	01OCT98		Early Bar
Project Finish	04AUG01		Progress Bar
Date Date	28JUL99		Critical Activity
Run Date	04AUG99		

0724:FCUP

Sheet 1 of 1

Spent Nuclear Fuel Project
Cask Load Out System
Proposed Schedule