

Change Number M-34-98-01A	Federal Facility Agreement and Consent Order Change Control Form Do not use blue ink. Type or print using black ink.	Date September 2, 1998
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Originator M-34 Negotiation and Dispute Resolution Teams

Class of Change
 I - Signatories II - Executive Manager III - Project Manager

Change Title
Negotiation/Dispute Settlement of Hanford Federal Facility Agreement and Consent Order (Agreement) commitments for the removal of spent nuclear fuel, debris, sludge, and water from the K East and K West Basins.

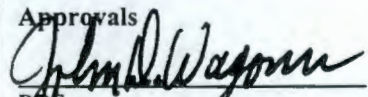
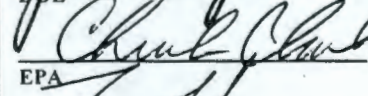
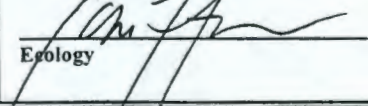
Description/Justification of Change
In 1993, the U. S. Department of Energy (DOE) documented the loss of a substantial quantity of water from the 105 K East Basin where spent nuclear fuel is being stored. DOE operational monitoring data confirmed that the basin water released was contaminated with concentrations of radionuclides exceeding public health and environmental protection standards established by the U.S. Environmental Protection Agency (EPA) for hazardous substances as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The DOE acknowledged through internal reporting and by notification of EPA's National Response Center that CERCLA hazardous substances (radionuclides) had been released to the environment at the 105 K East Basin. These, and similar earlier releases from K East Basin have served to increase DOE, EPA, and State of Washington Department of Ecology (Ecology) concerns regarding the integrity of these aging basins.
(Continued on page 2)

Impact of Change
These M-34-98-01A agreements are made in partial fulfillment of Land Disposal Restriction (LDR) treatment requirements of Agreement milestone M-26-00 (which constitutes an existing Agreement or Order for treatment of mixed waste for purposes of the Federal Facility Compliance Act of 1992 (FFCA)), and as companion documentation to LDR documents submitted by DOE pursuant to Agreement milestone M-26-00.

Approval of this change request by the Parties establishes a new major milestone, and associated interim milestones and target dates governing the removal of spent nuclear fuel, sludge, debris, and basin water. DOE, Ecology, and EPA agree that this Agreement (K Basins) project will be managed through one, unified, project schedule incorporating Agreement milestones, DOE (internal agency) milestones, Defense Nuclear Facilities Safety Board (DNFSB) milestones, and DOE contractor baseline. On approval, Hanford site planning and budget development documents (e.g., Sitewide System Engineering Control Documents, Project Management Plans, and Multi Year Work Plans) will be modified accordingly.

Affected Documents
The Hanford Federal Facility Agreement and Consent Order, as amended, and Hanford Site internal planning and budget documents (e.g., Baseline Change Control Documents, Sitewide System Engineering Control Documents, Project Management Plans, and Multi Year Work Plans).

Approvals

 DOE	12/18/98 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
 EPA	1/4/99 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
 Ecology	1-6-99 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved



The release of CERCLA hazardous substances to the environment, concerns regarding basin age and integrity, and mounting concerns regarding the hazards posed by basin contents have resulted in an agreement between the parties that removal of K East and K West Basin contents (spent nuclear fuel, sludge, debris, and basin water) is necessary. DOE, EPA, and Ecology (the Parties) have agreed that use of a CERCLA "Interim Remedial Action" is warranted. A Proposed Plan for an Interim Remedial Action for removal of spent nuclear fuel, sludge, debris and water from the K Basins will be prepared. The K Basins Interim Remedial Action Proposed Plan will be prepared concurrently with the Proposed Plan for Interim Remedial Actions at the 100 Area Remaining Sites.

History and Basis of Agreement Negotiations:

In early 1993, the Parties conducted initial Agreement negotiations aimed at establishing an agreed upon technical path forward that would minimize and/or eliminate continued endangerment of public health and further contamination of the environment. These negotiations culminated in the establishment of initial Agreement milestones pertaining to Hanford's K-Basins^a. These milestones assumed encapsulation of K East spent nuclear fuel and sludge, and subsequent placement of the fuel and sludge into the K West spent nuclear fuel storage basins. The Parties also agreed to an interim milestone requiring the reduction of the concentration of the radionuclide tritium in K East basin water. At that time, the parties agreed that tritium constituted the principal hazardous substance of concern in basin water and posed the greatest potential risk for further release to the environment and endangerment to public health. Milestones implementing this original technical path forward were agreed upon and established by the Parties in the Agreement's Fourth Amendment. Amendment Four was approved by the Parties in January 1994.

Subsequent to finalization of Agreement Amendment Four, additional information regarding the physical character of basin contents has served to increase safety, public health, and environmental concerns, and to underscore the need for action. As a result of increased knowledge and concerns, DOE proposed a new, safer, and more technically sound path based on the removal and management of all spent nuclear fuel, sludge, debris, and water in the K Basins. A technical analysis of the options associated with selection of a revised technical path forward was documented in a National Environmental Policy Act Environmental Impact Statement (NEPA EIS). In March of 1996, an EIS Record of Decision (ROD) was issued documenting the new technical path forward as the preferred alternative for the management of K-Basins spent nuclear fuel. As a result of this programmatic change in direction, the parties agreed to renegotiate the existing Agreement Milestone M-34-00 series. This commitment to renegotiate was documented in Agreement Change Control Form #M-34-95-02 (March 28, 1995).

This Agreement commitment required DOE to submit a signed change request by June 30, 1996, proposing specific dates for milestones covering the removal of spent nuclear fuel and sludge, completion of stabilization/transition activities, and for transfer of Hanford's K East and K West Basins to DOE's Environmental Restoration Program. DOE's change request was also to serve as the basis for initiating associated negotiations.

On June 26, 1996, DOE submitted its signed change request (M-34-96-02) to Ecology proposing milestones and associated commitments, and requesting that the Parties initiate K Basins negotiations. Ecology disapproved the submitted change request in its particulars on July 12, 1996, but accepted it as a basis from which to begin negotiations to develop mutually acceptable K-Basins commitments. Other agreements among the Parties regarding these negotiations may be found at: (1) their August 16, 1996, Agreement In Principle; (2) DOE's November 1, 1996, letter requesting temporary suspension of negotiations (J. D. Wagoner to M. Riveland and C. Clarke); and (3) a resulting Inter-Agency Management Integration Team (IAMIT), November 16, 1996, "Resolution of Dispute". Tentative agreement was reached on April 16, 1997, and the Parties submitted the M-34-97-01 change request for public comment starting June 9, 1997. DOE subsequently informed Ecology and EPA that it was unable to approve finalization of that tentative agreement.

This revised (M-34-98-01A) change request is a result of the Parties' dispute settlement. Assumptions utilized in reaching

^aUnless otherwise noted, the term "K basins" is used here to denote both K East and K West basins.

these milestones include the following:

1. An appropriate number of both enforceable major and interim milestones, and unenforceable target dates should be established so as to effectively drive each of the four phases of K East and K West Basin work, i.e., spent nuclear fuel, sludge, debris, and basin water.
2. The Parties will employ a CERCLA Interim Remedial Action to abate further releases, or threats of releases of hazardous substances from the basins. This will include development of a Focused Feasibility Study; to assess alternatives for waste disposition that will ensure complete removal of spent nuclear fuel, sludge, debris, and water from the basins in accordance with these M-34-98-01A milestones. It will also include an Interim Remedial Action Proposed Plan, a Record of Decision (ROD), and a Remedial Design Report/Remedial Action Work Plan.
3. The engineered structure of the K Basins and associated soil contamination will be remediated in accordance with the remaining sites ROD for the 100 Area.
4. EPA, with assistance from DOE, will prepare a ROD from the K Basins Administrative Record.
5. DOE will consult regularly with EPA and Ecology on the project and will provide copies of design documents as they are prepared in order to help ensure timely compliance with the M-34-00A milestone series.

New (M-34-98-01A) milestones and target dates (below) replace and delete the current Agreement's series, i.e., M-34-00, M-34-00-T02, M-34-00-T06, M-34-00-T07, M-34-00-T08, and M-34-01. Deleted milestones and targets are as follows:

<u>Milestone</u>	<u>Description</u>	<u>Due Date</u>
M-34-00	Complete actions specified by agreed interim milestones related to remediation of the K East Basins.	TBD
M-34-00-T02	Initiate K East Basin Fuel Encapsulation.	TBD
M-34-00-T06	Initiate K East Basin Sludge Encapsulation.	11/30/96
M-34-00-T07	Complete Encapsulation of the Fuel and Sludge within K East Basin.	12/31/98
M-34-00-T08	Remove all fuel and sludge from both K East and K West Basins in an Encapsulated form.	12/31/02
M-34-01	Contaminated K East Basin water will be removed, replaced, or treated. The timing of this action must be coordinated with encapsulation and the cleaning of the residual contamination in the basin and (as noted below) the alternative selection is dependent on the feasibility of moving encapsulated K East Basin fuel and sludge to the K West Basin. The contaminated water	TBD

will be dispositioned in accordance with reasonable available Hanford Site treatment and/or disposal processes and methods, available at the time of this action. Unless a better option becomes available, the water will be trucked to C-018 for disposal.

If the K East fuel and sludge, once encapsulated, can be moved to the K West Basin (determined through a September 1994 Engineering study target date) the removal and disposal of the contaminated water shall be completed by September 2000. This date is an eighteen-month action, starting in March 1999, three months after fuel and sludge encapsulation is completed. If the transfer of encapsulated K East Basin fuel and sludge to K West Basin is infeasible, contaminated K East Basin water will be replaced by fresh water, starting in September, 1996 at a rate of two million gallons/year and will continue until such time that the tritium concentration in the basin is decreased and is maintained at or below 300,000 pCi/L (the goal is to reduce the tritium concentration in the basin such that resulting groundwater tritium concentration meet drinking water concentration standards, recognizing a lag between basin and groundwater concentrations.

Action Plan Changes:

DOE 's K Basins are hereby deleted as "key facilities" subject to Agreement Section 8 (Facility Decommissioning Process). The K Basins are identified as waste sites within the 100-KR-2 Operable Unit, and as such will be managed under Section 7 (Past Practice Processes) of the Agreement and added to Appendix C of the Agreement.

The new M-34-00A major milestone series established by this M-34-98-01A change is as follows:

M-34-00A	Complete removal of spent nuclear fuel, sludge, debris, and water at DOE's K Basins*.	07/31/07
M-34-03	DOE will submit a Proposed Plan and Focused Feasibility Study for Remedial Action for the K Basins to EPA and Ecology for approval. The Focused Feasibility Study will assess alternatives for waste disposition and will include results of chemical treatment tests necessary to support Tank Waste Remediation Systems acceptance of sludge.	11/30/98

Unless otherwise noted, the term "K basins" is used here to denote both K East and K West basins.

M-34-04 **The DOE shall submit a Remedial Design Report/Remedial Action Work Plan for the K Basins Interim Action to EPA and Ecology for approval. This Work Plan shall be constrained by these (M-34-98-01A) Agreement milestones and target dates, and shall propose detailed** 03/31/00

schedules for initiating and completing activities required for the removal of hazardous substances from K Basins (spent nuclear fuel, sludge, debris, and water).

Sludge and Debris Removal

M-34-05-T01 **Submit DOE approved annual report on quantities, character, and management (e.g., segregation and management subsequent to removal) of K Basins debris to Ecology and EPA. The final report of this series shall be the one occurring one year after completion of milestone M-34-00A.** Annually

M-34-06-T01 **Initiate K West spent nuclear fuel canister cleaning operations.** 12/31/00

Canister cleaning operations consist of removal of all contents from each canister and processing of the canisters through the radioactive decontamination apparatus.

M-34-07-T01 **Complete final safety basis for the transfer of K Basins sludge.** 12/31/03

Provide to Ecology and EPA the DOE approved: 1) K Basin Safety Analysis Report (SAR) update; 2) storage facility SAR or SAR modification; and, 3) Safety Analysis Report for Packaging (SARP) authorizing the transfer of K Basins sludge.

M-34-08 **Initiate full scale K East Basin sludge removal.** 07/31/04

DOE shall complete and approve K East sludge removal definitive design documents, all associated construction, and readiness assessments, and initiate removal of sludge from the Basin.

M-34-09-T01 **Complete K Basins rack and canister removal.** 12/31/04

M-34-10 **Complete sludge removal from K Basins.** 08/31/05

Spent Nuclear Fuel Removal

M-34-11-T01	<p>Complete construction of K West Basin integrated water treatment system to support spent nuclear fuel removal.</p> <p>The K West Basin integrated water treatment system shall be constructed, installed, and acceptance test(s) completed.</p>	06/30/99
M-34-12	<p>Complete construction of K East Basin integrated water treatment system to support spent nuclear fuel removal.</p> <p>The K East Basin integrated water treatment system shall be constructed, installed, and acceptance test(s) completed.</p>	02/28/01
M-34-13A-T01	<p>Complete construction and installation of K West Basin Spent Nuclear Fuel Retrieval System.</p> <p>The K West Basin spent nuclear fuel retrieval system shall be constructed, installed, and acceptance test(s) completed.</p>	07/31/99
M-34-13B-T01	<p>Complete construction and installation of K East Basin Spent Nuclear Fuel Retrieval System.</p> <p>The K East Basin spent nuclear fuel retrieval system shall be constructed, installed, and acceptance test(s) completed.</p>	11/30/00
M-34-14A	<p>Complete K West Cask Facility modifications.</p> <p>The K West Cask System Facility modifications shall be constructed, installed and acceptance test(s) completed.</p>	09/30/99
M-34-14B-T01	<p>Complete K East Cask Facility modifications.</p> <p>The K East Cask System Facility modifications shall be constructed, installed, and acceptance test(s) completed.</p>	01/31/01
M-34-15A-T01	<p>Complete two bays of the Cold Vacuum Drying Facility construction and installation.</p> <p>The first two bays of the Cold Vacuum Drying Facility shall be constructed, all process equipment installed, and acceptance tests completed.</p>	10/31/99

M-34-15B-T01	<p>Complete remaining bay(s) of the Cold Vacuum Drying Facility construction and installation.</p> <p>The remaining bay(s) of the Cold Vacuum Drying Facility shall be constructed, all process equipment installed, and acceptance tests completed.</p>	06/30/00
M-34-16	<p>Initiate Removal of K West Basin Spent Nuclear Fuel.</p> <p>The Cold Vacuum Drying (CVD) Facility and Canister Storage Building (CSB) shall be ready to receive spent nuclear fuel. The spent nuclear fuel transport system shall be operable. The K West Basin spent nuclear fuel retrieval system shall begin retrieving, cleaning, and packaging spent nuclear fuel, and the First Multi-Canister Over Pack of spent nuclear Fuel will be loaded and transported to the Cold Vacuum Drying facility for processing.</p>	11/30/00
M-34-17	<p>Initiate Removal of K East Basin Spent Nuclear Fuel.</p> <p>The K East Basin spent nuclear fuel retrieval system shall begin retrieving, cleaning, packaging and removing spent nuclear fuel for transport to the Cold Vacuum Drying Facility.</p>	11/30/01
M-34-18A	<p>Complete Removal of all K West Basin Spent Nuclear Fuel.</p> <p>This interim milestone will be complete when all spent nuclear fuel has been removed. It is understood that additional fuel fragments may be discovered during removal of the sludge.</p>	04/30/03
M-34-18B	<p>Complete Removal of all K East Basin Spent Nuclear Fuel.</p> <p>This interim milestone will be complete when all spent nuclear fuel has been removed. It is understood that additional fuel fragments may be discovered during removal of the sludge.</p>	12/31/03
<p><u>Basin Water Remediation</u></p>		
M-34-19	<p>Initiate removal, replacement, and treatment of contaminated K Basins water where tritium concentrations exceed 300,000 pCi/L.</p>	04/30/04
M-34-20	<p>Complete removal, replacement, and treatment of contaminated K Basins water such that the tritium concentration in the basin is</p>	10/31/05

decreased and is maintained at or below 300,000 pCi/L. This milestone could be satisfied by removing all water.

M-34-21	Initiate full scale K West Basin water removal.	09/30/04
M-34-22	Complete K West Basin water removal.	09/30/05
M-34-23	Initiate full scale K East Basin water removal.	10/31/05
M-34-24	Complete K East Basin water removal.	10/31/06

FRAMEWORK
for
SPENT NUCLEAR FUEL PROJECT IMPROVEMENT

- **Preface:** DOE has seriously considered each of EPA's suggestions for improving the SNF project's cost and schedule that would lead to a mutually acceptable resolution of the current dispute. Under the current DOE policy, the Agency is seeking to make regulatory commitments only if it has a reasonable expectation of success. That discipline requires that DOE and its contractors develop and maintain an achievable project baseline that is used as the basis for its TPA commitments. Many of EPA's suggestions have strong merit, several of which have already been incorporated into the proposed TPA change request. Others that require more detailed review by DOE and its contractors will take longer to finalize.

DOE is committed to drive improvements in the cost, schedule and schedule logic for the SNF Project over the next six to eight months and to making the search for continual improvement a part of the project management mindset. EPA's suggestions, along with those offered by the DNFSB, the contractor staff and DOE, will be aggressively pursued.

- **Path Forward:** To meet DOE's commitment to aggressively seek improvements in project cost and schedule, the following specific actions are planned:
 - DOE and Fluor Daniel Hanford (FDH) will work with EPA to develop and submit sufficient information to support EPA presentations to the CERCLA National Remedy Review Board by December 1, 1998.
 - Development and approval of Safety Analysis Reports and proper preparations for Operational Readiness Review (ORR) remain a critical path for start of fuel removal. DOE will take action to upgrade both DOE and contractor performance with the aim of achieving improvements in schedule for issue of safety and other cost saving suggestions (like reducing the hiring rate of new operations personnel) to see if improvements in schedule for ORR preparations can be achieved.
 - The entire plan for manning up for operations will be reassessed. This will include a detailed assessment of the benefits derived from delaying K-East Basin fuel removal to start one year after that for the K-West Basin. This planning will include understanding the reasoning for the currently forecast number of operators and HPTs.

- Subcontractor claims will be addressed and closed out as soon as possible. Unpriced contract modifications will be closed out with subcontractors and project baseline cost estimates revised accordingly. Project status reports will be issued periodically to show progress.
- Cost estimating discipline will be improved. Focus will be on the consistent use of acceptable cost estimating practices and procedures. Specific issues raised during TPA dispute resolution meetings will be dealt with and, where supported by specific data, cost changes incorporated into the project baseline.
- The contractor's ability to meet baseline costs and schedules will remain a subject of weekly senior management meetings between DOE and FDH. DOE will verify that project management controls are in place and that the contractor has developed a management system to achieve and sustain control.
- FDH will put in place a system for managing project contingency during September.
- DOE will continue to work closely with the contractors to ensure that project metrics are in place that will allow both DOE and the contractor to properly follow project progress and make timely management decisions.
- The ability to simplify criticality controls for basin operations will be evaluated and appropriate opportunities for more efficient operations will be incorporated into the project baseline.
- A way will be found to more effectively manage sludge removal and treatment in order to reduce costs and optimize integration of sludge work into the overall project schedule.
- DOE and FDH will provide input to EPA of sufficient detail on sludge removal and treatment, debris and water removal, and basin stabilization to support CERCLA document preparation (Feasibility Study, Proposed Plan, and Remedial Design Report/Remedial Action Work Plan).
- The project will make a maximum effort to reduce the number of Cold Vacuum Drying (CVD) units required and to use the first article unit for production work. This will reduce the pressure on project capital funding needs and the FY 00 budget.
- Sub-project task completion dates will be examined so as to improve positive schedule float.
- DOE will sustain its pressure on FDH to follow through on all project baseline revisions to allow the Department to have a final approval baseline by October.

- DOE will continue to ensure that the contractor assigns sufficient management and supervisory personnel with the correct experience to achieve improved project performance.
- The status of project improvement actions items will be discussed and statused at the DOE-contractor weekly management meeting to ensure that senior management is kept appraised of progress being made. Continuous improvement must be demonstrated in reducing project cost.
- FDH has committed to solving the budget gap for FY 99. Additional funds have been requested from DOE Headquarters for FY 00. The goal is to control and reduce costs for the Spent Fuel Project to avoid adverse impacts for other Hanford site projects.
- DOE and EPA will provide routine updates on this improvement plan to Ecology, the Hanford Advisory Board, the Oregon Department of Energy and the Tribes.

**K Basins Response to Public Comment Documents on Milestone M-34
December 18, 1998**

Provided below, are responses to public comments received for Change Request M-34-98-01A, "Proposed Tri-Party Agreement Modifications and Reference Documents for the K Basins Spent Nuclear Fuel Project." Tentative Agreement on the proposed modifications was reached on September 2, 1998, between the U.S. Department of Energy, Richland Operations Office (DOE), the U.S. Environmental Protection Agency (EPA), the Lead Regulatory Agency, and concurred with by the Washington State Department of Ecology (Ecology). The public comment period extended from October 5, to November 18, 1998. A public meeting was held on November 5, 1998 in Richland, WA, and a TPA Spent Fuel Discussion in Portland, OR., on November 12, 1998, to provide an opportunity for stakeholders to present verbal comments on the proposed modifications. The K Basins Response to Public Comments Documents was prepared jointly by the Tri-Party Agreement Agencies.

Comment Number 1 (Bruce W. Frazier, letter, dated October 15, 1998): "What measures will DOE take to ensure the work is completed in compliance with the schedule?"

Response to Comment Number 1: The Tri-Party Agreement M-34 Change Control Package contains a series of interim target and enforceable milestone dates and definitions of Spent Nuclear Fuels (SNF) Project tasks that must be completed by the year 2007. Due to concerns about performance of the site management and integration contractor, the parties agreed to a framework for management improvement of the SNF Project. A copy of the framework document was provided in the public review comment package as Attachment 2. Senior Management and technical staff working on the SNF Project are committed to maintaining the existing project schedule and do not want to put EPA in the position of having to use enforcement action to force completion of project milestones. To preclude missing any target or enforceable milestones, DOE has established weekly project review meetings with the Hanford Management and Integration contractor Fluor Daniel Hanford Inc (FDH). These meetings have been established specifically for the purpose of allowing FDH and the DOE SNF Project senior management personnel to focus on keeping the project on schedule and within its approved budget. Individuals from the U.S. EPA's Hanford Project Office also participate in these meetings. As an example, meetings are held weekly to resolve emerging technical issues that are encountered by the project. These issues could potentially impact existing cost and schedule and Agreement milestones. Another weekly meeting is held to review project activities that are deemed to be on critical path for completion of essential work. EPA is also invited to participate in these meetings and propose corrective actions which may be necessary to ensure the project is completed by the established due dates for pending milestones. DOE has implemented a rigorous process to incentivize FDH to meet all commitments included in the Tri-Party Agreement Change Control Package. FDH has agreed to significant performance penalties, amounting to millions of dollars, if the project and TPA milestone schedule is not met.

Comment Number 2 (Bruce W. Frazier, letter, dated October 15, 1998): "It is not clear from the information furnished how the spent nuclear fuel will be stored."

Response to Comment Number 2: The K Basins Spent Nuclear Fuel Environmental Impact Statement (EIS) issued in March 1996, identified several alternatives for the management of the K Basins spent nuclear fuel. The preferred alternative, causing the least impact to the public health and safety and the environment is the path forward that is being implemented by DOE and FDH. This alternative embodies a series of technical activities that are being implemented to treat and place the fuel into safe interim dry storage in the 200 East Area of the Hanford Site. This interim storage period could last as long as 40 years, pending a decision by the Secretary of Energy regarding final disposal of the fuel. The technical path forward for dry storage of the K Basins fuel is to process the fuel through a cleaning operation to render the fuel as clean as possible. Following cleaning, the fuel will be packaged in specially designed containers called Multi-Canister Overpacks or MCOs. The MCOs will be removed from the K Basins and taken to a drying station. A drying process will be applied to the fuel to remove as much free water from the MCOs as is technically feasible. After the fuel has been dried in the MCOs, it will be transported from the 100 K Area of the site and placed into storage in a specially constructed underground concrete vault and support facility called the Canister Storage Building. The Canister Storage Building is located in the 200 East Area of the Hanford Site. For safety purposes, the MCO containers and the Canister Storage Building are being constructed to design and construction requirements equivalent to those that would be required if the fuel storage activities were to be licensed by the Nuclear Regulatory Commission. DOE will conduct a long term monitoring program on selected MCOs to detect any changes in the condition of the fuel during the interim storage period.

Comment Number 3 (Bruce W. Frazier, letter, dated October 15, 1998): "There was no information regarding what treatment water in the K Basins will receive: will this treatment insure that the treated water is no longer radioactive?"

Response to Comment Number 3: The Tri-Party Agreement contains two milestones that require the construction of new integrated water treatment systems in K East and K West Basins. These water treatment systems are being constructed to support removal of the spent nuclear fuel from the basins. Both K East and K West Basins already have water treatment apparatus called ion exchange modules. These modules are comprised of chemical ion exchange materials that remove most radioactivity from the water. The ion exchange modules are currently in continual operation to remove radioactive isotopes such as strontium and cesium that is generated while the fuel is stored in the basins. One radioactive contaminant, tritium, is also being generated by the spent nuclear fuel but cannot be removed by the ion exchange modules. The Agreement milestones for the completion of new integrated water treatment systems requires the installation of new chemical/mechanical treatment equipment required for controlling radioactivity that is projected to increase during fuel retrieval operations. Laboratory testing conducted on the fuel during the past three years indicates that when fuel retrieval operations begin, corrosion materials from the fuel will become suspended in the basin water causing

reduced visibility for operations personnel. Radioactivity also rises during fuel movement activities. The new water treatment systems have been designed to enhance control of newly generated radioactive contamination and to filter out corrosion materials and floor sludge that becomes suspended during the fuel retrieval process. The new water treatment systems will allow operations personnel to retrieve and clean fuel without interruption. The water remaining in the basins after the spent fuel, sludge, and debris have been removed will still be contaminated with tritium. This water will be treated by a special Liquid Effluent Treatment Facility in the 200 East Area. Basin water will be removed and trucked to the Liquid Effluent Treatment Facility for secondary treatment and ultimate disposal. Ecology permitted the Liquid Effluent Treatment Facility for the purpose of treating radioactively contaminated liquids including tritium.

Comment Number 4 (Bruce W. Frazier letter, dated October 15, 1998): "Are there toxic metals and metallic compounds, radioactive isotopes of uranium and trans-uranium elements present in the K Basins? If so, in what amounts and what form?"

Response to Comment Number 4: There is an estimated 55,000,000 curies of radioactivity in the two basins. The principal isotopes include Plutonium (^{238}Pu and $^{239/240}\text{Pu}$), Uranium (^{233}U , ^{234}U , ^{235}U , and ^{236}U); Americium (^{241}Am), Cesium (^{137}Cs), Strontium ($^{89/90}\text{Sr}$), and Tritium (^3H). The majority of radioactivity is contained within the stored fuel and in the K East Basin floor sludge. In addition, operational process information associated with the long-term storage of the fuel, particularly in the K East Basin, indicates that the floor sludge contains concentrations of non-radioactive metallic compounds such as zinc, iron, and chromium, soil silicates, spalled and dissolved concrete, paint chips and residues, and organic resin beads from the ion exchange modules. Floor sludge particulate in the K East Basin range from 2 microns to 20 microns. There is very little sludge on the floor of the K West Basin. Particles of Uranium Oxide are suspended in the water in both basins. The more soluble of the radioactive constituents listed above are also present in the water along with the tritium.

Comment Number 5 (Bruce W. Frazier letter, dated October 15, 1998): "What steps will be taken to remediate the K Basins after clean up? The K Basins Project cannot be considered complete until the basins are removed and the sites restored to something resembling their re-1940's appearance."

Response to Comment Number 5: Following removal of the spent nuclear fuel, sludge, debris, and water from the basins, TPA major milestone M-34-00A requires deactivation (additional contaminate removal) to prepare the Basins for safe storage and/or further remedial action. In the process of negotiating the Tri-Party Agreement M-34-098A change control package, extensive discussions took place regarding the final end-state of the basins. The regulatory agencies and DOE agreed that the most appropriate immediate path forward is to place the basins in a safe low maintenance condition and then coordinate final remedial actions with similar work that is being done in the 100 Area of the site. Some cleanup decisions in the K Area are complete. Cleanup decisions for the remaining waste sites in K Area associated with the K Basins will be complete by the year 2000. In Fiscal Year 2005, planning activities will begin to evaluate a deactivation

and stabilization process for the basins. DOE will prepare a deactivation and stabilization plan and submit it to the regulatory agencies to gain agreement upon end-point criteria for the basins. Concurrent with the planning activities, funding will be requested from Congress to support implementation of decontamination and stabilization work on the basins. New milestones will be negotiated for the Tri-Party Agreement to include deactivation and stabilization work into the Agreement. The intent of the deactivation and stabilization process is to place the basin into safe storage pending final remediation. A schedule for final remediation of the basins is not known at this time. However, it is anticipated that the basins will be left in a condition similar to the conditions that currently exist at N Reactor. Following the deactivation and stabilization work, the basins will be turned over to DOE's Environmental Restoration Program. Final cleanup actions will be determined using the environmental restoration program planning process.

Comment Number 6 (Bruce W. Frazier letter, dated October 15, 1998): "In the past, milestones have not been met and work has not been carried out because of shifting priorities within DOE and lack of secure funding. The affected citizens of states surrounding Hanford need assurance that this ten-year project has the possibility of being completed on time."

Response to Comment Number 6: The Secretary of Energy, Bill Richardson, has stated that he is committed to request funds for this project and other cleanup work on the Hanford Site. It is true that funding priorities at Hanford Site have shifted based on calculated risk to the public health and safety and existing or potential insult to the environment. At this time, the SNF Project remains as the one of the highest priority projects at DOE. EPA and Ecology are also committed to supporting funding requests and maintaining the priority of this project. Nevertheless, it has been demonstrated that there is no guarantee to ensure existing priorities. Strong public support for on-going actions at the Hanford Site is the most effective mechanism for sustaining existing funding and maintaining appropriate work priorities. EPA is prepared to exercise its enforcement authority if necessary to ensure completion of this project according to the schedule developed in this Agreement.

Comment Number 7 (Alisa D. Huckaby letter, dated November 16, 1998): "It is respectfully requested that this TPA change package include milestones which address monitoring, characterization, and ultimately, remediation of the grossly contaminated vadose zone, groundwater, and surface water (if applicable)."

Response to Comment Number 7: In negotiating the Tri-Party Agreement M-34-098A change control package, extensive discussions took place regarding extending the scope and extent of the SNF Project. Pros and cons were discussed about extending the scope of the project to include final remediation work to be done in the 100 K Area. As a result of the dialogue between EPA, Ecology and DOE, the parties decided that the SNF Project should terminate with the completion of the removal of all spent nuclear fuel, sludge, debris, and water and deactivation of the Basins. Completion of these actions will mitigate the potential for the Basins to release additional hazardous substances into the environment. The parties determined that following completion of the SNF Project, the

deactivation and stabilization process existing for Hanford Site facilities should be the next logical step in the cleanup process. Once deactivation and stabilization is completed, a coordinated effort of remediating all 100 Area sites will be implemented. Final restoration of the 100 K Area will be consistent with a Record of Decision for remediation of the basin structures, the K Reactors and the groundwater remediation program. This strategy is stated in the assumptions used to create the milestones of the change package. Assumption three in the change control package states, "The engineered structure of the K Basins and associated soil contamination will be remediated in accordance with the remaining sites ROD for the 100 K Area."

Comment Number 8 (TRIDEC, letter, dated November 17, 1998): "We believe the EPA must maintain a strong public oversight in monitoring progress towards these goals. The project management system improvements outlined in the proposed M-34 change package include many project management procedures and controls which must be implemented to insure timely and cost effective completion of this project."

Response to Comment Number 8: The EPA is committed to maintaining a strong regulatory oversight role in monitoring progress toward completion of this project. If necessary the EPA will exercise its enforcement authority to ensure completion of this project. The commitment to project management improvements was an important element in reaching agreement on milestone commitments. Implementation of the improvements will help the project achieve its milestones.

Comment Number 9 (James F. Brown III, letter, dated November 16, 1998): "What actions will DOE take to ensure that its prime contractor and sub-contractors complete all aspects of this project on time and within the budget? If DOE's prime contractor begins missing deadlines what steps will DOE take to sanction the prime contractor for missing these commitment due dates?"

Response to Comment Number 9: DOE management and technical staff overseeing the SNF Project do not want enforcement action taken on the SNF Project. To preclude missing any target or enforceable milestones, DOE has established weekly project review meetings with the Hanford Management and Integration contractor FDH. These meetings have been established specifically for the purpose of allowing FDH and the DOE SNF Project senior management personnel to focus on keeping the project on schedule and within its approved budget. Individuals from the U.S. EPA's Hanford Project Office also participate in these meetings. As an example, meetings are held weekly to resolve emerging technical issues that are encountered by the project. These issues could potentially impact existing cost and schedule and Agreement milestones. Another weekly meeting is held to review project activities that are deemed to be on critical path for completion of essential work. EPA is also invited to participate in these meetings and propose corrective actions which may be necessary to ensure the project is completed by the established due dates for pending milestones. The contract between the DOE and its prime contractor is a performance-based contract. This means that the contractor can only earn performance incentives by completing major activities on time and within budget. If the prime contractor does not complete activities on time and

within budget the contractor's performance incentives may be greatly reduced or eliminated. Ultimately, if the contractor does not perform to the minimum standards set forth in the terms and conditions of the contract, the contractor would be required to return performance incentives back to DOE. DOE has implemented a rigorous process to incentivize FDH to meet all commitments included in the Tri-Party Agreement Change Control Package. FDH has agreed to significant performance penalties, amounting to millions of dollars, if the project and TPA milestone schedules are not met.

Comment Number 10 (Mary Lou Blazek, letter, dated October 22, 1998): "There is insufficient information in this package to make public comment meaningful. The package does not contain the baseline and the assumptions used in developing this baseline. Without these, it is not possible to verify the milestones proposed represent the safest, most realistic, most expeditious set of goals. We recommend the public comment period be extended, or a second public comment period be opened once the detailed basis information is available for review."

Response to Comment Number 10: The comment from the State of Oregon was received prior to the Public Meeting held in Richland, WA., on November 5, 1998, and the TPA Spent Fuel Discussion held in Portland, Or., on November 12, 1998. Subsequent to these public sessions, the Oregon Office of Energy has indicated that sufficient information was available for their evaluation of the proposed commitments for the SNF Project. The parties have had major concerns about establishing milestones without a fully approved project technical baseline. At the beginning of the public comment period, that project technical baseline was not approved. However, in mid-December DOE approved the contractor SNF Project technical baseline that is consistent with the Tri-Party Agreement change package. By mutual agreement, the request to extend the public comment period was verbally withdrawn. EPA and DOE have further committed to maintaining close communication with Oregon through the duration of the project to keep them informed.

Comment Number 11: (Charles Sullivan, letter, received on November 18, 1998): "In rereading the E.I.S. for the K Basins published in 1995, I noticed that little import was given to the seismicity and vulcanism in the area. While the time scale seems unimportant, I wish to comment that there are few other states in the continental U.S. that have more recent vulcanism threatening such an installation."

Response to Comment Number 11: The DOE, EPA and Ecology recognize the potential impacts for catastrophic events such as earthquakes and volcanic activity on the spent nuclear fuel storage basins. The Department is required by DOE Orders to renovate aging facilities to withstand earthquakes, tornadoes, volcanic eruptions, floods, etc., where practicable. Decisions to upgrade existing facilities is based on extensive analysis including present and future planned use, life cycle cost analysis, public and worker health risk factors and existing structural integrity. The K East and K West spent nuclear fuel storage basins are over 40 years old. In the K Basins Environmental Impact Statement, a no action alternative was analyzed. The no action alternative would have left the degrading fuel in the 40 year-old aging basins. The EIS preferred alternative Record of Decision was to build a new dry storage facility for the fuel. The age of the

basins, their current structural integrity, their proximity to the Columbia River and continued corrosion of the fuel were factors considered in selecting the preferred alternative. A path forward to implement the preferred alternative subsequently became the one of the highest priorities cleanup action for the Hanford Site. Notwithstanding the plan to move the fuel from the K Basins to the 200 Area, renovation actions have been undertaken. In 1992, construction activities were taken to mitigate potential leaks that might emanate from the Basins if an earthquake was to happen. Special barrier doors were installed in the basins to control leakage from the basins. In addition to physical renovations, emergency response procedures have been implemented to mitigate the consequences of a natural phenomenon hazard at the basins. New facilities built to support the removal of the spent fuel from the basins have been designed and constructed to the highest DOE and Nuclear Regulatory Commission standards for natural phenomenon hazards (e.g. the Canister Storage Building).

Comment Number 12. (Meryllyn Reeves, verbal comment, December 5, 1998): "I welcome the regulatory authority that the Environmental Protection Agency has given now, to this project. And I do believe that because of the effort of this regulatory authority, working in conjunction with DOE, we will have a more assured schedule, and we will have a more cost-effective schedule."

Response to Comment Number 12. DOE, with support from the SNF Project contractor, has worked very closely with the EPA's Hanford Project Office over the past several months. This partnering has been very successful in designing a process that meets the needs of all the parties and Hanford stakeholders. DOE fully supports EPA's decision to use CERCLA as the appropriate regulatory authority for cleanup actions at the K Basins and specifically supports the tailored approach that we have used to apply CERCLA to this very important project.

Comment Number 13. (Women's International League for Peace and Freedom, Portland Branch, letter, dated November 12, 1998): "It is imperative that those who manage the Hanford clean-up become advocates for funding that task adequately. They must communicate with the public the importance of each citizen's obligation to share the responsibility for demanding as complete and thorough cleanup as possible. They must insist on monitoring the Hanford situation into perpetuity."

Response to Comment Number 13. As indicated before, the Secretary of Energy, Bill Richardson, has stated that he is committed to request funds for this project and other cleanup work on the Hanford Site. It is true that funding priorities at Hanford Site have shifted based on calculated risk to the public health and safety and existing or potential insult to the environment. At this time, the SNF Project remains as the one of the highest priority projects at DOE. EPA and Ecology are also committed to supporting funding requests and maintaining the priority of this project. Nevertheless, it has been demonstrated that there is no guarantee to ensure existing priorities. Strong public support for on-going actions at the Hanford Site is the most effective mechanism for sustaining existing funding and maintaining appropriate work priorities. As stated previously, EPA is prepared to exercise its enforcement authority if necessary to ensure

completion of this project according to the schedule developed in this Agreement. DOE and the regulatory agencies are committed to open public dialogue regarding the progress of this project. The forum for this communication is typically accomplished through the Hanford Citizen's Advisory Board, of which the Oregon Office of Energy is a member. However, DOE and its' contractor are willing to provide your organization with copies of the monthly progress review that is conducted by the Project.