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U.S. Department of Energy

Office of River Protection

P.O. Box 450
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JAN 30 2003

03-ED-022

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Dear Addressees:

**SEMI-ANNUAL COMPLIANCE REPORT FOR THE WASTE TREATMENT AND
IMMOBILIZATION PLANT FOR FEBRUARY 2002 THROUGH JULY 2002**

This letter transmits the U.S. Department of Energy (DOE), Office of River Protection Semi-Annual Report required by interim Milestone M-62-01 for the period from August 2002 through January 2003. This report provides the following information:

- A concise description of project accomplishments and issues including those encountered during the previous year and those expected in the near term (Section 3);
- When applicable, a description of any actions initiated or otherwise taken to recover any agreement schedule slippage (Section 4);
- A budget and cost schedule which is included in the attachment, with a brief narrative (Section 5); and
- A statement documenting whether or not DOE and DOE's contractors have performed sufficient work to assure with reasonable certainty that DOE will accomplish series M-62 major and interim milestone requirements. This information is provided for each milestone where appropriate (milestones identified with "To Be Determined" do not include this information [Section 8]).

All M-62-00 Critical Path Milestones occurring during the period covered by this report have been met.

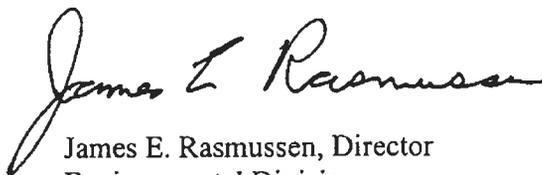
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JAN 30 2003

If you have any questions, please contact Woody Russell, of my staff, (509) 373-5227.

Sincerely,



James E. Rasmussen, Director
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ED:WR

Attachment

cc w/o attach:

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Attachment
03-ED-022

Office of River Protection
Semi-Annual Project Compliance Report
for the Waste Treatment and Immobilization Plant
August 1, 2002 – January 31, 2003

**OFFICE OF RIVER PROTECTION
SEMI-ANNUAL PROJECT COMPLIANCE REPORT
FOR THE WASTE TREATMENT AND IMMOBILIZATION PLANT
August 01, 2002 – January 31, 2003**



**U.S. DEPARTMENT OF ENERGY
OFFICE OF RIVER PROTECTION
2440 Stevens Center Place
Richland Washington 99352**

January 31, 2003

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**U.S. DEPARTMENT OF ENERGY (DOE), OFFICE OF RIVER PROTECTION (ORP)
RIVER PROTECTION PROJECT (RPP) – WASTE TREATMENT AND
IMMOBILIZATION PLANT (WTP) SEMI-ANNUAL COMPLIANCE REPORT**

1. INTRODUCTION M-62-01F – RIVER PROTECTION PROJECT – WTP PROJECT COMPLIANCE REPORT

As required by the Hanford Federal Facility Agreement and Consent Order (HFFACO) Milestone M-62-01F this semi-annual ORP WTP Project Compliance Report reflects issues, activities, and accomplishments for the ORP occurring during the reporting period of August 1, 2002, through January 31, 2003. As detailed in M-62-01, this report documents the ORP's compliance with HFFACO Milestone M-62-00 series requirements, and provides information regarding issues, activities, and progress relative to those milestones. The report includes information pertaining to the status of progress to date, progress made during the reporting period, and activities expected in the foreseeable future as defined and required by M-62-01.

2. WTP COMPLEX DESCRIPTION

Hanford Site Background: Hanford tank waste consists of approximately 190 million curies in 54 million gallons of highly radioactive and mixed hazardous waste stored in underground storage tanks at the Hanford Site. The tank waste includes solids (sludge), liquids (supernatant), and salt cake (dried salts that will dissolve in water, forming supernatant). The tank waste will be remediated through treatment and immobilization to protect the environment and meet regulatory requirements.

DOE determined through the *Tank Waste Remediation System Environmental Impact Statement Record of Decision* that the preferred alternative to remediate the Hanford tank waste is to:

- pretreat the waste to prepare it for processing and vitrification;
- immobilize the Low-Activity Waste (LAW) for onsite disposal; and
- immobilize the High-Level Waste (HLW) for ultimate disposal in the national repository.¹

WTP Complex Description: The River Protection Project – WTP is a new treatment and storage complex being designed, constructed, and commissioned by Bechtel National, Inc. (BNI) as defined by specifications and requirements listed in DOE Contract No. DE-AC27-01RV14136. The WTP will be designed, constructed, and permitted to store and treat radioactively contaminated dangerous waste, called mixed waste, at the Hanford Site in Richland, Washington.

The WTP will receive waste from Hanford's Double-Shell Tank system unit, operated by CH2M HILL Hanford Group, Inc. in batches that are composed of either LAW or HLW feed. The LAW and HLW feed will be transferred by pipeline to the WTP for pretreatment and vitrification. The vitrification process will combine the pretreated tank waste with glass-forming materials and melt the mixture into a liquid that is poured into stainless steel containers. The hot glass cools and hardens and each container will be dosed in preparation for storage and permanent disposal. The dangerous waste and radioactive constituents will be destroyed, removed, or immobilized in this durable glass matrix through the vitrification process.

3. PROJECT ACCOMPLISHMENTS AND ISSUES

A. PROGRESS TO DATE

ORP has completed three of the twelve M-62-00 series milestones. M-62-02, *Submission of Hanford Tank Waste Alternatives Report*, was completed March 1, 2000, and M-62-004T, *Readiness to Proceed – Support to Phase I Treatment*, was completed April 24, 2000, as scheduled. M-62-06 – *Start of Construction – Phase I Treatment Complex*, initiating first placement of structural concrete at

¹ U.S. Department of Energy, *Contract No. DE-AC27-01RV14136, Section C.1*, December 2000

one of the treatment complex principle facilities (i.e., Pretreatment, LAW Vitrification, or HLW Vitrification facilities) was completed July 10, 2002.

Additionally, pursuant to the amended Interim Stabilization Consent Decree, M-62-05, *Issuance of DOE Authorization to Proceed – Phase I Treatment*, has been removed from the HFFACO.

WTP Design and Construction Activities:

- **Workforce Mobilization:** BNI received authorization from DOE to proceed with Important to Safety (ITS) work on March 22, 2001. The Project completed ITS requirements (training and procedures) and assumed design authority on March 22, 2001. To-date (January 2003), BNI is fully mobilized with a work force of nearly 3000 personnel and is fully underway with design and construction activities.

- **Permitting and Licensing:** There is a close tie between the WTP construction efforts and necessary permits. The table below lists all the permit submissions and approvals to-date.

Environmental Permits Required for Start of Construction			
Permit	Type	Regulatory Authority	Description/Status
Radioactive Air Emission Notice of Construction (NOC) for excavation at WTP	Radioactive air emissions	State of Washington Department of Health (WDOH)	Complete - Permit provided a mechanism to continue excavation if radioactive contamination was encountered during limited construction activities.
Concrete Batch Plant NOC	Criteria air pollutants (particulate matter)	State of Washington Department of Ecology (Ecology)	Complete - Permit was required for construction of the concrete batch plant during the limited construction phase and operation throughout the life of the project.
Radioactive NOC and National Emission Standards for Hazardous Air Pollutants approvals	Radioactive Air Emissions	WDOH and U.S. Environmental Protection Agency (EPA)	Radioactive air emission approvals are required from both EPA and WDOH prior to start of construction. The EPA approval is complete. The State approval has been divided into two phases. Phase I has been issued and allows limited construction (beyond floors and walls to grade). Phase II will cover the balance of construction, and a third phase will likely cover operations.
Prevention of Significant Deterioration (PSD) Permit	Criteria Air pollutants (Only NO _x exceeds PSD significance level)	Ecology	Complete - Permit was issued July 8, 2002. Permit governs nitrogen oxide emissions from WTP.
Non-Radioactive Air Emission NOC	Toxic air pollutants	Ecology	Complete - Approval Order was issued July 8, 2002. Permit governs toxic and criteria pollutant emissions from WTP.

Resource Conservation and Recovery Act (RCRA)/Dangerous Waste Permit	Hazardous waste management	Ecology	Complete -Temporary Authorization to Construct was issued July 1, 2002. Final permit was issued September 25, 2002. Subsequent approvals are required in accordance with permit conditions and compliance schedule.
Hanford Site Discharge Permits 4508, 09, and 10.	Discharge Permits	Ecology	Complete - Hanford Site permits support hydrotest and maintenance, cooling water and storm water discharges.
Discharge Permit ST 9240	Discharge Permit	Ecology	Complete - WTP permit supports large volume discharges in excess of existing site permit limits.
Sand and gravel permit – 5180	Discharge Permit	Ecology	Complete - discharge permit for concrete batch plant
Sand and gravel permit – 5181	Discharge Permit	Ecology	Complete - discharge permit for gravel operations
On-Site Sewage Treatment Plant	Sanitary sewer	WDOH	Complete - WDOH has indicated all required engineering and operations documentation has been submitted. WDOH has approved occupancy and issued permit.

- **Limited Construction:** Following the receipt of environmental permits and approvals from the requisite regulatory authorities, DOE, in response to a Limited Construction Authorization Request (LCAR), granted approval to BNI to commence with LCAR activities on October 1, 2001. Work under the initial LCAR authorization was limited to one year ending in October 2002 but was later expanded in scope and extended to April 2003. Limited construction activities include initial site preparation (clearing and grubbing of the WTP site); the completion of the North parking lot; initiation of mass excavation activities for the LAW, HLW, Pretreatment (PT) facilities and Balance of Facilities (BOF); and installation of underground piping. **As of December 2002, all LCAR work has been completed.**
- **Partial (ITS) Construction:** BNI received authorization from ORP to begin concrete preparations for the LAW Vitrification and HLW Vitrification facilities in April 2002. In response to the BNI submittal of a Partial Construction Authorization Request (PCAR), DOE also granted authorization to proceed with PCAR activities in July 2002. This authorization was later expanded and extended to April 2003 to include the PT facilities and selected BOF facilities. The work scope under this authorization includes concrete pours for basemats and walls-to-grade, installation of forms, rebar and embeds, installation of ground grids, and backfills.
- **Commodities Installations:** Under the construction activities summarized above, the following commodities have been placed or installed:

CONSTRUCTION PROGRESS AS OF DEC. 2002

I. Quantity Progress			Monthly	To-Date
(direct & subcontract, permanent & temporary)				
A. Earthwork				
	Excavation	cubic yards	10,000	542,000
	Backfill	cubic yards	15,000	347,000
B. Concrete				
	Rebar	tons	540	8,650
	Embeds	pounds	102,000	358,000
	Formwork	square feet	4,200	41,500
	Concrete	cubic yards	6,300	28,100
C. Piping				
		linear feet	2,500	64,500
D. Electrical Raceway				
		linear feet	3,500	64,500
E. HVAC Ductwork				
		pounds	0	37,800
II. Site Population (force report month end)			25	940
	Manual (total, incl. S/C)		25	535
	Non Manual (total, incl. S/C)		0	405

▪ **Facility Construction Progress:**

- LAW facility: basemat construction is complete; in process of constructing walls-to-grade;
- HLW facility basemat construction is complete; in process of constructing walls-to-grade;
- PT facility: no basemat concrete yet; forms, rebar, and embeds installed;
- Analytical facility: no construction as yet; in formative stage of design; and
- BOF: Construction office complete, Warehouse and Combination Shop complete, changes facilities complete, Switchgear building underway with concrete, rebar and form work; underground utilities installation is more than 20 percent complete.

- **WTP Project Completion:** Based upon the BNI December 2002 cost data (budgeted cost of work performed divided by the trended estimate at completion cost) the WTP is approximately 18 percent complete.

B. PROJECT PROGRESS THIS PERIOD

i. ORP – Project Management

During the past several months, ORP has focused management attention on the following:

- Critical Decision (CD) 3c – This decision, like 3a and 3b before it, is for construction authorization and must be obtained from DOE Headquarters in accordance with DOE orders. External Independent Reviews (EIR) are required for the decisions and generally involve large efforts for preparation and planning. Originally, CD-3c was scheduled for authorization in the September/October 2002 time frame. However, due to significant project cost growth requiring congressional review and approval of a new Total Project Cost (TPC), CD-3c was postponed until the spring of 2003. Work scope under CD-3a and 3b was expanded and extended to April 2003 in order to allow the project to continue. EIR

evaluation team arrives January 20, 2003, as a pre-visit to the actual evaluation in March 2003.

- ORP Reorganization – In preparation for CD-3c, a new Project Execution Plan was drafted describing how ORP would manage the WTP project. An essential change in management oversight was the assignment of a Federal Project Manager (FPM) to each of the five facility areas of the project. Planning includes co-locating each FPM with their respective BNI Area Project Manager. This change is intended to ensure more effective ORP oversight of WTP project developments. The FPMs are recognized as the key points-of-contact for all aspects of their respective facilities. Also, new Change Control and Trend Management processes were implemented to more effectively manage change.
- Environmental Permits - Much attention was given to review and submittal of permit documents and NOC's necessary to allow construction to continue and advance. See table above.
- Evaluation of LAW Concrete "Cold Joint" – In coordination with the Defense Nuclear Facilities Safety Board, considerable attention was given to evaluating and resolving the technical issues associated with initial pour of LAW concrete that was outside temperature specifications. This issue has been effectively resolved.
- Review of "2+2" Project Strategy – DOE and BNI are currently in process of implementing the accelerated cleanup strategy for the WTP consistent with the Hanford Performance Management Plan (HPMP) for the Accelerated Cleanup of the Hanford Site. This strategy involves adding a second melter to the HLW facility and deleting one of the three melters in the LAW facility. Preliminary planning was provided by BNI to ORP in December 2002.
- Oversight and Management of Trends - DOE has focused attention on review and disposition of WTP scope, cost, and schedule trends in efforts to reduce or limit project cost growth to a level consistent with "minimum essential" project planning and development. Significant trends that are in various stages of implementation include:
 - a) Elimination of the Technetium Separations system in the PT facility, resulting in \$28M savings;
 - b) Elimination of the Administration Building and the Melter Assembly Building, resulting in \$10M savings; and
 - c) Evaluations are also underway for the elimination of the Central Waste Storage Facility, Failed Melter Storage Facility, Spent Melter Facility, and the Encapsulation Facility. Eliminating these facilities has a potential savings of more than \$9M.

ii. BNI – WTP Complex Design and Construction

Design and construction activities are well underway for the LAW Vitrification, HLW Vitrification, and PT facility, in addition to a number of WTP support facilities as previously described in the progress to-date. Most of the commodities installations described above as well as most of the work in each facility area were accomplished during this reporting period.

BNI recently surpassed the seven million hours worked without a lost time accident; a record that dates back to the inception of the WTP Project.

The current WTP workforce level as of December 1, 2002, includes approximately 2444 non-manual and 537 manual personnel.

A summary of BNI performance against contract deliverables is included in Table 3B-1, *WTP Progress Against Contract Deliverables*, provided below:

Table 3B-1: WTP Progress Against Contract Deliverables through December 1, 2002

RPP MSC #	Contract Deliverable Description	Target Schedule Date	Actual Delivery Date
Contract Milestone			
13	WTP - Start of Construction (M1)	1-Jul-02	10-Jul-02
Pretreatment Facility			
916	PT facility - DOE Authorizes Pretreatment Concrete Placement	4-Nov-02	25-Nov-02
LAW Vitrification Facility			
965	LAW - 1st Concrete Placement	1-Jul-02	10-Jul-02
HLW Vitrification Facility			
985	HLW - 1st Concrete Placement	1-Jul-02	10-Jul-02
Balance of Facilities			
907	BOF - Start Construction Sitework	1-Oct-01	19-Oct-01
906	BOF - Initiate Raw Water Service for Construction (ICD01)	3-Jun-02	7-Jul-02
912	BOF - Initiate Potable Water Service for Construction (ICD02)	6-May-02	28-May-02
915	BOF - Initiate Power Service for Construction (ICD11)	5-Dec-01	5-Dec-01

Since the May 2002 WTP baseline forecast was submitted, the following developments have occurred:

- We have learned through research and technology that the WTP is a more robust plant with greater operational flexibility than previously recognized.
- To take advantage of this flexibility, DOE has begun implementing the accelerated cleanup initiative, which for the WTP, will require installation of two HLW melters and two LAW melters.
- This approach has led to project cost growth and has made alignment to a \$690 Million per year funding level more difficult.
- The accelerated cleanup initiative requires a new approach to commissioning that will better attain the M-62-10 milestone.

This new commissioning strategy will delay introduction of high-level waste into the facility – meaning that cold commissioning would be of a longer duration and hot commissioning of a shorter one – thereby extending problem solving opportunities before the plant becomes radioactive; correcting process problems after the plant becomes radioactive is much more difficult, risky, and costly than while the plant is cold. To ensure that full plant performance is demonstrated, a composite test feed comprised of all the likely waste types will be developed and

processed. This approach will allow an earlier transition to full operations, and achieving the M-62-10 milestone, Complete Hot Commissioning, on or ahead of schedule.

In order to accommodate these developments, DOE will need Ecology's agreement to redefine the M-62-09 milestone. The need for this redefinition is consistent with the approach taken in DOE's October 2001 Recovery Plan, which was based upon the best available knowledge at that time. The developments noted above – which arose subsequent to the issuance of the 2001 Recovery Plan – represent new information that presents the need to modify the M-62-09 milestone to reflect the current project approach and status.

DOE recognizes that any such change to the M-62-09 milestone requires the consent of the Parties to the HFFACO. We have discussed this issue informally with the parties and look forward to continuing these discussions.

C. CURRENT PROJECT ACTIVITIES

i. ORP – Project Management

- Support congressional process for adjusting TPC – ORP is underway with efforts to update and realign the WTP Contract and close on technical details associated with project scope, cost, and schedule, in order to support alignment of appropriate congressional funding for the project.
- Obtain CD-3c – ORP is currently in process of completing the necessary actions to obtain CD-3c, which will provide unconstrained construction authorization. The current authorization ends in April 2003. To support the process of obtaining CD-3c, ORP is preparing for an EIR to be conducted in March 2003. The work required to close on the congressional funding item, mentioned above, is also a necessary input to the EIR and ultimately needed to obtain CD-3c.
- Continuing to support permit changes and issues resolution – The close-coupled approach to executing the WTP requires continuous updates to various permits as the design evolves and design media is provided for procurement and construction. Continued success working with Regulators and BNI is key to maintaining continuous construction.
- Continuing to monitor design and construction – ORP personnel continue to monitor and track the construction progress of concrete work for the LAW, HLW, and PT facility's basemat and walls to grade activities. Monitoring of engineering, design, and procurement activities for all the facilities continues also.
- Continuing to monitor design and construction – ORP personnel continue to monitor and track the construction progress of concrete work for the LAW, HLW, and PT facility's basemat and walls to grade activities.
- Monitor implementation of 2+2 – Careful monitoring of the design implementation of the 2+2 melter scope continues.

ii. BNI – WTP Complex Design and Construction

WTP management has commissioned a Schedule Analysis Project (SAP) consisting of off project and on project personnel strictly dedicated to a review and rebuild of the Project schedule. Incorporation of Six Sigma tools to flowchart key design deliverables has produced schedule

fragnets (Engineering discipline schedule logic models) for each design deliverable. These flowcharts and schedule fragnets have been reviewed and approved by BNI Corporate Engineering Chiefs and a collection of BNI Project Control Managers from around the country. We believe the rigor and consistency that the SAP is applying to constructing this schedule is producing a sound project execution plan. As a result of their efforts, a Level III schedule, key resource staffing profiles, as well as a series of design release curves and installation curves are planned for delivery to the DOE-ORP on March 7, 2003. This deliverable is timed to support a review by the EIR team beginning March 10, 2002.

iii. High Level Waste

During this period, Construction completed placement of basemat concrete. Approximately 3,420 cubic yards of concrete, 130 tons of rebar, 19,800 pounds of embedded metal, and 1,760 square feet of formwork were set in the month of December 2002. Also, welding and testing of the embedded pulse jet piping assembly was completed. The Construction schedule, specifically most wall placements from basemat to-grade, continues to be affected by several design issues and embed deliveries which are stalling progress in this area. Construction has identified priorities for release of these walls from Engineering to enable final completion of formwork, rebar, embeds, and then placement of concrete. This is deemed a serious schedule concern.

The focus in Engineering for the month of December 2002 was centered on release of civil design holds, Stage D Piping and Instrumentation Diagrams (P&ID), piping stress calculations, Heating, ventilation, and air conditioning (HVAC) orthographic drawings, Equipment Location drawings, and General Arrangement (GA) drawings. Highlights included the issuance of elevations 62' and 76' GA drawings (final GAs for the building), seven P&IDs issued for construction, and the near completion of HVAC orthographic drawings for elevation -21'. Also, Civil is within a few weeks of releasing embed holds on approximately half of the basemat walls. The HLW facility is still experiencing design challenges and has two key design issues to resolve; mercury poisoning of the off-gas catalytic oxidizer and corridor space limitations. Efforts by Engineering to resolve the latter issue are challenging due to the complexity of the facility elevations and the congested space -- which is extremely tight. Keeping the design workarounds within the existing facility space envelope is requiring significant efforts by Engineering and may cause modifications to previously issued deliverables. Moreover, it is keeping key resources from progressing the design up into the building. At this time, this is deemed a technical concern.

The HLW Environmental and Nuclear Safety (E&NS) team continued discussions with regulators on a plan to revise two air permits incorporating the Melter 2+2 scope. Research & Technology continued to support critical technology areas including H₂ mitigation and validation of Computational fluid dynamics (CFD) modeling codes for pulse jet mixing. Additionally, a HLW pilot scale test of simulated AZ-102 melter feed at 20 percent solids loading was completed demonstrating throughput rates in excess of the three metric tons per day requirement. Process Operations completed the development and issuance of the annual updates (Deliverables 2.5, 2.6, 2.7) to the WTP flowsheet assessments. These analyses will establish the basis for the Melter 2+2 configuration.

There were several Procurement awards this month including: the wet electrostatic precipitator, CSV remote change HEPA filter housings, and the second Submerged bed scrubber condensate vessel. Several other vital awards are forecasted in January 2002 for the HLW facility. Key Procurement deliveries that are tracking several months behind schedule are being evaluated for criticality as the building infrastructure continues to lag behind the scheduled plan relief is being utilized for some "over the top" installation of equipment for the lower building elevations as necessary and on a case-by-case basis. This schedule slippage is also allowing Procurement to

continue to incorporate critical Melter 2+2 required equipment into existing or new material requisitions for the lower elevations.

Design challenges continue to significantly affect the HLW facility slowing the team's ability to complete lower elevation design. Construction is nearing a point where once the basemat concrete placements are complete there will be a period of slow infrastructure progress. Timely resolution of two key design issues (mercury poisoning and corridor space limitations) is key to any near term turnaround for the HLW facility. Currently, the HLW team and WTP management are concentrating project and company resources to effectively re-plan the optimum path forward for not only HLW, but for the entire project.

iv. Pretreatment

Pretreatment continues working to the pretreatment re-plan/construction interface schedule, which was implemented in November 2002 and has now been integrated with the Project Level 4 forecast schedule.

Progress and accomplishments are being evaluated against the engineering deliverables as specified in the schedule. Engineering is slightly behind schedule for the P&ID's release but is on schedule for the next release to Construction: which is the rebar Issued-for-fabrication drawings for planning areas one and seven to elevation 28'.

At the project level, an exercise is being carried out to assess the "to-go" work for engineering, and the effects of this on downstream activities. A detailed analysis of the engineering processes and the time taken to complete deliverables is ongoing. A revised Project Level three with supporting quantity/commodity release curves will be produced, covering engineering, procurement, construction, and commissioning.

Construction completed the pours for the pit and tunnel floors this period. Preparatory work on the walls for these areas is now progressing, with the first wall pour (North Tunnel) occurring in late January 2003.

Preparatory work for the first basemat pour at grade (0') level is now complete; however, a delay in starting the pour is happening due to a rejection of the Dangerous Waste Permit (DWP) Secondary Containment Package by Ecology. Resolution of the comments has now been completed and dates have been agreed upon for review of these with Ecology and DOE. Resubmittal of the package was expected mid-January 2003 with approval expected early February 2003. Basemat pours at the 0' elevation would then commence.

Work continues to resolve outstanding issues to obtain the Safety Evaluation Report (SER) and full Construction Authorization. Receipt of these authorizations will allow Pretreatment to expand construction activities, starting with placement of vessels and steelwork in the Fire Water and Process Vessel pits. The granting of authorizations is being anticipated to support vessel and steelwork deliveries, currently due in March 2003.

The Atomic Energy Authority provided a schedule, for the fluidic vessel internals, which has now been integrated with the vessel fabrication activities in the Project Level four schedule. Reviews carried out indicate no impact on the forecast Required on Site dates.

Negotiations with bidders for the evaporators and autosamplers continue. BNI has requested further technical information on both procurements. The information is due late January 2003.

Following resolution of outstanding technical issues, awards for the evaporators, and autosamplers are expected to be placed in March 2003.

v. Low Activity Waste

Approval of Phase II of the *Radioactive Notice of Construction* is not expected before the middle of April 2003 from the WDOH which will have minor impacts in the placement of C-5 equipment at elevation -21'. The *Radioactive Notice of Construction* Phase I permit revision to allow placement of process equipment and piping at elevation -21' was submitted and authorization is expected, with no delays to construction anticipated Dangerous Waste Permit Application (DWPA) Temporary Authorization request for vessels at elevation -21' is expected to be granted in time to allow placement with no construction disruption.

Cold joint recovery is proceeding with the Office of Safety Regulation concurring with the recommended corrective actions. The first of three placements occurred the week of January 12, 2003. Concrete has been poured and this issue has been effectively resolved.

Exterior and interior wall placements are being worked in parallel with the cold joint recovery, but the deliberate slowdown of construction to allow development of design and materials backlog is planned until mid-February 2003. Increase of construction craft hiring is currently planned for February 2003, when forecasted work backlog will support two wall placements per week. Major embedment deliveries are forecast over the next several weeks to support the construction ramp up.

The last of the elevation -21' structural steel drawings have been issued. First structural steel delivery is forecast for late February 2003 with erection in April 2003. The remaining interior wall drawings are complete. Schedule forecast for the placement of the elevation +3' decking is behind schedule by approximately 16 weeks.

CFD analysis refinement continues to change pour cave heat loads and designs with committed calculations issued in January 2003. Engineering design is maximizing cooling of the canisters and minimizing exhaust air temperatures.

Model reviews are in progress by the construction planning area to support the start of the piping isometrics releases. Model reviews are identifying P&ID updates that are taking longer than anticipated. Increased emphasis is being placed on the model reviews and updates to preclude impacts to the issue of fabrication isometrics.

All LAW bubbler test assemblies are in place and expected to confirm design life expectancy by April 2003. Feed concentration tests were completed in the LAW Pilot Melter to assess the potential use of melter feed dilution as a method for production turndown. Initial results indicate that LAW feed concentration does not have a significant influence on production rate. Completed changeover testing between Envelope A (AP-101) to Envelope B (AZ-101) glass in the LAW Pilot Melter to assess processability of intermediate chemistries associated with the transition from one feed to the other. The transition batch processed smoothly at a rate of 21.2 metric tons per day compared to the required rate of 15 metric tons per day.

vi. Balance of Facilities

BOF construction progress continued with the start of concrete pours for the switchgear building and underground piping and ductbank for utilities. BOF construction planning efforts focused on underground utility installation sequencing. Engineering completed and issued Stage C & D - P&IDs for various BOF facilities. Concrete drawings were issued for the switchgear building

grade slab. Efforts to develop the DWPA continued. Procurement received bids for the simulator facility and bid evaluations have begun.

vii. Analytical Laboratory

During the month of December 2002, the laboratory team completed sizing calculations for the C2, C3 and C5 tanks. This allows finalization sizes for laboratory tanks and the pits in which they are located. Routing of C3 and C5 drains were finalized in the 3D model. The team also completed compiling a list of the detailed drawings that will be deliverables that support DWP packages.

A letter was received from DOE on December 30, 2002, in which ORP proposed an alternate to submittal of a PCAR for the Analytical Laboratory, namely. ORP desires that the WTP submit a Construction Authorization Request (CAR) in June 2003 for the full laboratory facility with a request for early approval of the two pits and tunnels, as well as the basemat for the facility. Under this arrangement, the CAR would be submitted when all of the accident analysis and the related preliminary design drawings and calculations supporting the hazard and accident analysis are complete (Revision 0).

Detailed design continues on the basis that the laboratory will be classified as Seismic Class 3. The Authorization Basis Change Notice (ABCN) #19 requesting the recategorization, has been delayed for coordination with the SER. Further delays in this ABCN will result in affects on the issuance of design documents.

The autosampler system is being managed as a critical item due to the potential for delay in receipt of the successful bidder's technical data. Vendors were requested to propose cost reduction ideas and provide technical clarifications with responses due in January 2003.

Dilution and trench removal trends were approved at the January 9, 2003, Trend Meeting. A trend capturing other design evolutions from May through October 2002 will be presented to the Trend Board during January 2003. Additionally, the number of safety showers and eye wash stations was evaluated and reduced for new cost reductions.

D. ISSUES THIS PERIOD

i. ORP – Project Management

There were no ORP project management issues identified this period affecting HFFACO compliance.

ii. BNI – WTP Complex Design and Construction

Issue 1

Addresses concerns with BNI's compliance to design process requirements.

Description: Between April and July 2002, a Quality Assurance surveillance, as well as a project review initiated by BNI technical experts of engineering calculation records, discovered a number of non-technical (administrative) procedure compliance problems. Several Corrective Action Reports have been written, documenting these findings. Additionally, in December 2002, errors related to HLW embeds have been discovered and will be addressed in the corrective action below.

A Root Cause Analysis was performed and a number of corrective actions identified. These corrective actions were transmitted to ORP on October 30, 2002. Also, several recent senior project management communications have been issued to emphasize strict compliance with project procedures, including self-assessment and self-reporting. As part of the corrective action program, the Engineering department instituted additional steps including second checkers to review previous and future calculations to ensure that procedural compliance and acceptable work quality is maintained. The use of second checkers will continue until additional training is completed and satisfactory compliance can be demonstrated.

Issue 2

The 2+2 Melter scope change.

Description: DOE approved the addition of a second HLW melter and deletion of one of the three LAW melters. The required design changes necessary to accommodate this reconfiguration will initially affect the project execution plan.

Corrective Action: Trend approval closed this action in January of 2003. **Issue Closed**

Issue 3

Features the target schedule impact analysis.

Description: Since the submittal of the May 2002 Forecast, several project issues have developed. These issues include changes in the PT seismic design, engineering performance and quality (Issue 1), the 2+2 Melter change (Issue 2), and the focus on minimizing cost of the Project by applying the "Minimum Essential" philosophy. The combination of all these issues is having a negative affect on the target schedule.

Corrective Action: This issue is being addressed in Issue 5, below. **Issue Closed**

Issue 4

Is associated with DOE's request to open contract negotiations to address Pending Items and to revise Section B, "Fee Incentives", and Section C, "Statement of Work" of the WTP Contract (DE-AC27-01RV14136).

Description: Align Section C, "Statement of Work", with current technical scope and Minimum Essential philosophy and finalize negotiations on revised fee incentives.

Corrective Action: Comments have been incorporated into an electronically marked-up (red-lined) version of Section C of the Contract and meetings continue with DOE. Revision 10 of the *Agreement in Principle*, including the 2+2 Melter configuration, has been incorporated into Section C which was provided to DOE in early January of 2003. A newly drafted Section B, reflecting the fee structure contemplated in the *Agreement in Principle*, is in review as well.

Issue 5

Is associated with the approval from DOE of CD-3C to proceed with full construction of the WTP.

Description: Prior to CD-3C approval on April 15, 2003, the DOE has required that the WTP Project demonstrate a schedule that can be executed within contract funding limits.

Corrective Action: To address project schedule concerns, the WTP has commissioned a SAP consisting of off and on project personnel strictly dedicated to a review and rebuild of the project schedule. As a result of their efforts, a Level III schedule with key resource staffing profiles, as well as series of design release curves and installation curves, are planned for delivery to the ORP on March 7, 2003. This resource load schedule is timed to support a review by the EIR team beginning March 10, 2003. Several members of the EIR team will visit the WTP on January 27, 2003, to review progress and proposed content.

Issue 6

The American Society of Mechanical Engineers/American National Standards Institute compliance matrices.

Description: WDOH has informally rejected the code compliance matrices for plant radioactive ventilation systems supplied by BNI.

Corrective Action: Dedicated teams of E&NS, Engineering, and WDOH personnel were assembled to modify the matrices. The updated matrices were sent to the WDOH on November 13, 2002. **Issue Closed**

Issue 7

Uniform Building Code equivalency

Description: Use the 2000 International Building Code (IBC) in place of the 1997 Uniform Building Code (UBC) for non-structural applications in determining occupancy and construction types for LAW, HLW, PT, and the analytical laboratory.

Corrective Action: 1) Approve ABCN 24590-WTP-ABCN-ESH-02-033; *Application of IBC 2000 for Determination of Classification of Construction Type for the WTP Process Facilities and Analytical Laboratory*, to replace non-structural portions of the UBC with corresponding Chapters of the IBC in the SRD. 2) Prepare and approve the Trend for TI&OC 749; Fireproofing savings - Change SRD to implement IBC. The aforementioned Trend is currently in review.

Issue 8

Continuing Resolution

Description: The project continues to operate under Congressional Continuing Resolution where funds are being restricted to the WTP Project. It is anticipated that restricted funding will continue until the end of January 2003. The Project has received only \$174M of the \$690M in Fiscal Year (FY) 2003 contract funds and \$1,196M versus a contract requirement of \$1,712M on a to-date basis. This funding restriction challenges the Project by reducing the Project's financial flexibility and demands that the Project more closely manage the commitment of funds to sub-tier vendors. This restricted funding affects our vendors, Acquisition Services, and Project Controls by requiring added administration of our procurements. Due to the Project's current schedule delays (Issue 3), this continuing resolution has not yet impacted the schedule. However, unless notification of full \$690M FY 2003 funding is received soon, there could be an impact on the Project's ability to recover from the current delays.

Corrective Action: None required. This issue has been overcome by events. Current project schedule delays have resulted in a lowered project outlay of available funding. Continuing resolution in FY 2003 is no longer an issue. **Issue Closed**

E. NEAR TERM ISSUES

i. ORP – Project Management

Modification to various permits will be necessary as work progresses on the construction of the WTP. As additional data is received and design work advances, modifications applications will be submitted, as required, to obtain any additional authorization necessary to continue with construction activities. The ORP continues to use the Consolidated Action Report System to track all key project activities as well as the Project Management Plan and Baseline schedules.

As previously mentioned, there is need to redefine and replan commissioning and reformulate project schedules. This work is currently underway.

4. ACTIONS TAKEN OR INITIATED TO RECOVER ANY SCHEDULE SLIPPAGE

N/A

5. BUDGET AND COST STATUS

The BNI costs for FY 2003 funding is unresolved and ORP is working with Congress, DOE Headquarters, regulators, and other stakeholders.

6. DOE/DOE CONTRACTOR COMPLIANCE

ORP and BNI are on schedule for meeting all HFFACO milestones, with further evaluation pending in regard to start of hot commissioning (M-62-09). These milestones reflect critical commitments that are defensible and consistent with mission requirements.

7. AREAS OF NON-COMPLIANCE

There are currently no areas of non-compliance. ORP missed the July 31, 2001, Start of Construction. Subsequently, DOE and Ecology negotiated resolution of the M-62-06 Start of Construction date. The Recovery Plan was successfully completed and HFFACO Change Control Forms for M-20-01-01, M-62-01-03, and M-90-01-03 signed in June 2002. The status M-62 milestones discussed in Section 8 reflect the negotiated changes.

8. STATUS OF HFFACO MILESTONES

A. M-62-00 – Complete Pretreatment Processing and Vitrification of Hanford High Level and Low Activity Tank Wastes

Milestone Date: December 28, 2028

Description: "Compliance with the work schedules set forth in this M-62 series is defined as the performance of sufficient work to assure with reasonable certainty that DOE will accomplish series M-62 major and interim milestone requirements."

Status: On Schedule

B. M-62-00A – Complete Pretreatment, Processing and Vitrification Of Hanford High Level and Low Activity Phase I Tank Wastes

Milestone Date: February 28, 2018

Description: "Phase I tank waste processing shall pretreat and vitrify no less than 10% of Hanford's tank waste by mass² and 25% by activity."

² In meeting this requirement DOE will pretreat and vitrify no less than 6000 metric tons of sodium (in the instance of LAW feed) and 800 metric tons of waste oxides (in the instance of HLW feed). Source: State of Washington Department of Ecology Director's Determination, March 29, 2000.

Status: On Schedule

C. M-62-01 – Submit Semi-Annual Project Compliance Report

Milestone Date: Semi-Annual Beginning July 31, 2000

Description: "DOE's Manager, Office of River Protection (ORP), will submit a "Project Compliance Report" to Ecology semi-annually (a copy of this report will also be provided to EPA's Region 10 Office of Waste and Chemicals Management). This report will document DOE compliance with agreement requirements and shall be sequentially updated by information documenting work performed and issues encountered during the previous report period. The ORP Project Compliance Report will be provided as part of the parties' Inter Agency Management Integration Team meetings, and shall document the status of progress to date, progress made during the report period, and activities expected in the foreseeable future."

Status: Ongoing. Report(s) to meet HFFACO Milestones M-62-01A through M-62-01C were submitted on schedule. The report corresponding to HFFACO Milestone M-62-01D was deferred in lieu of the ORP Recovery Plan submitted to Ecology in March 2002.

Note: The M-62-01 milestone reoccurs on a semi-annual basis, and therefore each report is identified in the HFFACO by a unique alpha character included with the M-62-01 milestone.

D. M-62-02 – Submittal of Hanford Tank Waste Alternatives Report

Milestone Date: March 1, 2000

Description: "DOE will submit a report that describes the alternatives (technical, financial, and contractual) to treat Hanford tank waste. The report will 1.) identify and describe credible alternatives to the current privatization approach that meets DOE commitments to achieve hot operations by December 2007, and to treat no less than 10% of the tank waste by mass and 25% of the tank waste by activity by February 2018; 2.) serve as a basis to amend the fiscal year 2001 budget request for authority to implement a contingency option (authority to use privatization set-aside funds); and 3.) be released concurrently to Ecology, EPA, and the public."

Status: Completed.

E. M-62-03 – Submit DOE petition for RCRA delisting of vitrified HLW

Milestone Date: December 31, 2006

Description: "DOE will submit its petition for delisting of the immobilized high-level waste (HLW) from the Phase I waste treatment plant from RCRA and the Washington State HWMA (delisting petition) in accordance with 40 CFR 260.22 and WAC 173-303-072."

Status: On Schedule

F. M-62-04T – Readiness to Proceed – Support to Phase I Treatment

Milestone Date: May 1, 2000

Description: "DOE and its Hanford tank farm operations contractor will complete all necessary work and achieve readiness to proceed in support of Part B-2, Phase I."

Status: Completed

G. M-62-05 – Issuance of DOE Authorization to Proceed – Phase I Treatment

Milestone Date: August 31, 2000

Description: "DOE will authorize Part B-2, Phase I of Contract DE-AC06-96RL13308 (the contract phase to design, construct, commission, and provide services for Hanford tank waste pretreatment, low-activity waste vitrification, and high-level waste vitrification). The parties will revise or confirm start of construction and construction progress milestone due dates (see milestones M-62-06 and M-62-07) within six (6) months of authorization to proceed. Revision, if necessary, shall be consistent

with hot commissioning by December 2007, commercial operations by December 2009, and completion of Phase I treatment by February 2018.”

Status: M-62-05 has been removed from the HFFACO and will no longer be reported.

H. M-62-06 – Start of Construction – Phase I Treatment Complex

Milestone Date: July 31, 2001

Description: “First placement of structural concrete at one of the treatment complex principle facilities (i.e. Pretreatment, Low-Activity Waste Vitrification, or High-Level Waste Vitrification facilities).”

Status: Completed.

I. M-62-07 – Construction Progress Milestones (2) – Phase I Treatment Complex.

Milestone Date: TBD

Description: “Two new Construction Progress Milestones have been defined and submitted in the Recovery Plan. Pending approval of the associated change form, the new milestones will be:

- M-62-07A, Initial erection of LAW Structural Steel in the Vit. Facility
Due Date: October 30, 2003
- Recovery Plan: M-62-07B, Complete Assembly of LAW Melter
Due Date: October 30, 2005”

Status: On Schedule

J. M-62-08 – Submittal of Hanford Tank Waste Phase II Treatment Alternatives Report

Milestone Date: July 31, 2005

Description: “DOE will submit a preliminary report that describes the technical, financial, and contractual alternatives to treat the tank wastes remaining after completion of Phase I treatment. The report will identify credible alternatives to complete treatment of the remaining wastes by 2028, and aid in budget planning for future budget authority submittal. The report will be updated every two years until the tank waste treatment phase II plan is finalized.”

Status: On Schedule

K. M-63-09 – Start (Hot) Commissioning – Phase I Treatment Complex

Milestone Date: December 31, 2007

Description: “DOE will start hot commissioning of its tank waste treatment complex (defined as first principal facility receipt of radioactive tank waste for treatment).”

Status: Commissioning needs further definition.

L. M-62-10 – Start Commercial Operations – Phase I Treatment Complex

Milestone Date: December 31, 2009

Description: “DOE will achieve sustained throughput of pretreatment, low-activity waste vitrification and high-level waste vitrification processes, and demonstrated treatment complex availability to complete treatment of no less than 10% of the tank waste by mass and 25% of the tank waste by activity by December 2018.”

Status: On Schedule

M. M-62-11 – Submittal of Hanford Tank Waste Treatment Phase II Plan

Milestone Date: three years after start of Commercial Operations (See M-62-10)

Description: DOE will submit to Ecology a detailed plan and proposal for the processing of the remainder of DOE’s LAW and HLW wastes (Phase II wastes). This plan and proposal will be accompanied by a draft negotiation agreement in principle (AIP), and draft agreement change request containing sufficient enforceable milestones and associated agreement requirements to effectively

drive Phase II work to completion in accordance with agreement requirements. Phase II agreement negotiations will be completed within six (6) months of AIP finalization.”

Status: On Schedule

N. M-62-12 – Issuance of DOE Authorization to Proceed – Phase II Treatment

Milestone Date: TBD (by negotiations provided for at M-62-11)

Description: “DOE will authorize the contract phase to design, construct, commission, and provide services for Hanford tank waste pretreatment, low-activity waste vitrification, and high-level waste vitrification of all remaining Hanford tank waste, consistent with completion of treatment by December 2028.”

Status: TBD This milestone will be negotiated in the 2014 timeframe.

9. GANTT CHART OF MILESTONES

The RPP Integrated Baseline consists of three companies: the ORP baseline, the Tank Farm Contractor baseline, and the WTP Contractor (WTPC) baseline. The WTPC baseline is updated and submitted annually to the ORP. Following review and acceptance by the ORP, it is incorporated as the WTPC baseline in the Integrated Baseline. For the FY 2002 Integrated Baseline effort, ORP has not yet accepted the WTP forecast. Therefore, the information contained in the Integrated Baseline documents is awaiting acceptance or changes.

M-62 series milestones and the schedule critical paths to achieve HFFACO Major Milestone M-62-00 for both LAW and HLW are captured in the RPP Integrated Baseline and illustrated on the Expanded Management Summary Schedule (a graphical output of the Integrated Baseline). Upon acceptance of the WPF Forecast by ORP, the Expanded Management Summary Schedule will be provided to Ecology for review.