



JUN 29 2007

07-ESQ-096

CCN:145816

Ms. Jane Hedges, Program Manager  
Nuclear Waste Program  
Washington State  
Department of Ecology  
3100 Port of Benton Blvd.  
Richland, Washington 99354

RECEIVED  
JUL 09 2007  
EDMC

Dear Ms. Hedges:

SUBMITTAL OF HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 2007 HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) PROGRESS REPORT

- References:
1. Hanford Facility Resource Conservation and Recovery Act Permit (WA7890008967), Part III, Operating Unit 10, Unit-Specific Conditions, Waste Treatment and Immobilization Plant.
  2. ORP letter from S. J. Olinger and W. S. Elkins, BNI, to J. Manning, Ecology, "Hanford Tank Waste Treatment and Immobilization Plant (WTP) Dangerous Waste Permit (DWP) Compliance Schedule Items 3, 4, 5, 6, 7, 8, 11, 15, 17, 21, 25, and 30," 07-ESQ-047/CCN:149986, dated April 12, 2007. *0072677*
  3. Ecology letter from B. Becker-Khaleel to S. J. Olinger, ORP, and W. S. Elkins, BNI, "Submittal of Hanford Facility RCRA Permit Modification Notification Form 24590-WTP-PCN-ENV-07-001; Class 1 Modification to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10 (Waste Treatment and Immobilization Plant), WA7890008967," dated June 7, 2007. *0073015*

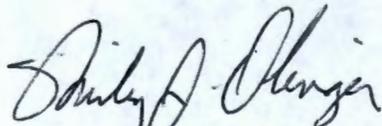
Attached is the Hanford Facility RCRA 2007 Hanford Tank WTP Progress Report. The purpose of the report is to meet Condition III.10.C.2.h of Reference 1 that requires a progress report be generated if at least one compliance schedule item cannot be completed within a 12-month period. Permit Change Notice 24590-WTP-PCN-ENV-07-001 was submitted to update the permit compliance schedule to include this report consistent with the required permit condition (Reference 2). The Washington State Department of Ecology established June 30, 2007, as the report's due date in its related letter (Reference 3).

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If you have any questions, please contact Ms. Lori A. Huffman, Office of Environmental Safety and Quality, (509) 376-0104, or Mr. Brad G. Erlandson, BNI, (509) 371-3826.



Shirley J. Olinger, Acting Manager  
Office of River Protection



W. S. Elkins, Project Director  
Bechtel National, Inc.

ESQ:LAH

Attachment

cc w/attach:

C. M. Albert, BNI  
J. M. Atwood, BNI  
B. G. Erlandson, BNI  
P. A. Fisher, BNI  
D. A. Klein, BNI  
L. T. Lamm, BNI  
P. E. Peistrup, BNI  
T. D. Semmens, BNI  
B. Becker-Khaleel, Ecology  
S. L. Dahl, Ecology  
E. A. Fredenburg, Ecology  
S. A. Thompson, FHI  
A. C. McKarns, RL

Administrative Record (WTP H-0-8)

BNI Correspondence  
Environmental Portal, LMSI

cc w/o attach:

C. E. Rogers, BNI

Attachment  
07-ESQ-096

Hanford Facility Resource Conservation and Recovery Act  
2007 Hanford Tank Waste Treatment and Immobilization Plant  
Progress Report

# Hanford Facility RCRA 2007 WTP Progress Report

## 1. Introduction

This report documents compliance with the Waste Treatment and Immobilization Plant (WTP) Unit Specific Condition III.10.C.2.h of the Hanford Facility Resource Conservation and Recovery Act Permit (RCRA) (also referred to as the Dangerous Waste Permit [DWP]). This condition reads as follows:

“III.10.C.2.h. The Permittees must complete at least one Compliance Schedule interim requirement every 12 months, as specified in Attachment 51, Appendix 1.0 of this Permit. If no interim requirement will be completed within a 12 month period, the Permittees shall submit progress reports to Ecology for incorporation into the Administrative Record. Progress report Compliance Schedule dates shall be submitted to Ecology as a Class ‘1 permit modification, for incorporation into Attachment 51, Appendix 1.0 of this Permit. Progress reports shall contain at a minimum, the following information:

- i. A description of the portion of the interim requirement completed;
- ii. Summaries of any problems affecting timely completion of the interim requirement;
- iii. A description of the plans for completing the remaining portion of the interim requirement, including any alternatives;
- iv. Projected interim requirement completion date.”

## 2. Issues Impacting Completion (III.10.C.2.h.ii):

Interim compliance schedule requirements not completed include engineering and operations related items. This progress report provides an update to the engineering and construction status of the WTP.

Compliance schedule dates were originally established when the project was scheduled to begin operations in 2007. Revised seismic criteria, use of final rather than initial design for permit packages, and several other factors have impacted the project schedule and moved the operations date of the WTP from 2007 to 2019. This has stretched the design and construction phases of the project and delayed activities that are essential to the completion of the interim compliance schedule requirements. The specific issues impacting completion of the interim requirements are documented in the U.S. Department of Energy, Office of River Protection letter 06-WTP-011 (CCN 135388), which is included as Appendix 1 to this progress report.

## 3. Work Completed to Date (III.10.C.2.h.i):

Work on open compliance schedule requirements and associated operating procedures have been delayed. The compliance schedule requirements pertain to submittal of engineering information that was not available at the time of application and updating the DWP in preparation for commissioning by incorporating additional detail including descriptions of operating practices required prior to the initial receipt of dangerous waste. While this work has not been completed for the reasons discussed in Section 2 and

## Hanford Facility RCRA 2007 WTP Progress Report

Appendix 1, the WTP continues to make significant progress in the areas of design and construction.

Work has progressed on compliance schedule requirements associated with incorporating design into the permit. This includes submittal of design packages, permit change notices (PCN), and an increased number of design change documents. Within the last 12 months, High-Level Waste (HLW) permit design packages HLW-018 and HLW-019 were submitted for the HLW Melter Process System miscellaneous treatment subsystem and subsystem equipment to fulfill compliance schedule Requirements 28 and 29. In addition, the Pretreatment (PT) Facility Pretreatment In-Cell Handling System (PIH) permit design package was submitted for the Decontamination Soak Tank (PIH-TK-00001). Bechtel National, Inc., and the U.S. Department of Energy (DOE), Office of River Protection have provided significant support to the Washington State Department of Ecology for the issuance of the DWP incorporating the 2+2 melter configuration permit modification. The 2+2 permit modification is pending issuance by Ecology.

Design and construction have made considerable progress on the Low-Activity Waste (LAW) Vitrification Facility, Balance of Facilities (BOF), and Analytical Laboratory (LAB) based on PCNs and submitted packages. As of April 2007, design on the LAW Facility has progressed to 92% complete. Similarly, BOF design is 72% complete and LAB design is 85% complete.

The WTP is also preparing to resume construction on the HLW and PT facilities later this year. As of April 2007, design on the HLW Facility has progressed to 79% complete and design for the PT Facility has progressed to 66% complete.

Intra-facility transfer line construction is nearing completion. The transfer lines have been constructed and completion of backfill activities will occur following disposition of outstanding field changes. An interim corrosion assessment report has been completed and a new independent contractor has been hired to continue this work.

The major challenges faced over the past year included:

- The WTP's cost and schedule was revised to account for changes in the project's work scope, new seismic design criteria, technical modifications, and funding limitations. The new estimate at completion, which calls for the project to be completed in 2019 at a cost of \$12.26 billion, has been reviewed and validated by independent experts and approved by the Deputy Secretary for the Department of Energy (DOE). A certified Earned Value Management System will track the project's progress against this validated cost and schedule baseline.
- In 2006, a team of 50 independent experts in chemical and nuclear operations also reviewed the project's technical baseline. This review team identified issues that could prevent the plant from operating at its design capacity or impact its reliability and operations. The most significant issues were the potential for pipe plugging, the effectiveness of ultra-filters for removing radioactive solids from the tank waste, mixing of tank waste in vessels, and the effectiveness of chemically leaching metals from the waste. BNI and ORP have developed plans to resolve the issues identified

## Hanford Facility RCRA 2007 WTP Progress Report

by the review team. The cost of these solutions has been accounted for in the updated cost and schedule baseline and they are being incorporated in the plant design.

- The validation that seismic design criteria for the PT and HLW Vitrification Facilities are final will be completed by September 2007. Design methodology for incorporating new ground-motion is in place and was accepted by the Defense Nuclear Facilities Safety Board and the U.S. Army Corps of Engineers and approved by DOE. Already-constructed work was evaluated using this methodology that determined that the work meets the new criteria. Four deep boreholes were drilled at the construction site to study how shock waves move through rock and sediment layers beneath the site. Analysis of those data is complete and the DOE expects the Pacific Northwest National Laboratory's report in July 2007. Finalizing the seismic criteria will allow construction to resume on the PT and HLW Vitrification Facilities.

Considerable progress continued on the construction of the LAW Vitrification Facility, Analytical Laboratory, and support facilities.

The LAW Vitrification Facility was "closed in," thus providing a weather-tight work environment, all structural work for the main building structure of the facility was completed, a 40 meter (130-foot) tall emissions stack was erected, and the LAW tower crane was dismantled and removed.

The concrete foundation and structural steel has been completed on the LAB. Of the support facilities, the Simulator Facility, Cooling Towers, and Electrical Switchgear Building were substantially completed, while the Chiller-Compressor Building, Water Treatment Facility, and Steam Plant are nearing completion.

From the start of the project through April 22, 2007, the WTP placed 128,560 cubic meters (168,150 cubic yards) of concrete; erected 8,515 metric tons (9,386 tons) of steel; installed 59,454 meters (195,060 feet) of pipe, 3,984 meters (13,070 feet) of cable tray, 76,005 meters (249,360 feet) of conduit, and 53,858 meters (176,700 feet) of wire and cable.

#### **4. Plans for Completion of Compliance Schedule Items (III.10.C.2.h.iii) and Revised Compliance Schedule Dates (III.10.C.2.h.iv):**

Further progress on the design and construction of the WTP Facility is needed to support the completion of compliance schedule items. Discussions on the revised design and construction schedules in support of Hanford Federal Facility Agreement and Consent Order (HFFACO) milestone discussions are on-going. Revision to the compliance schedule dates will be proposed after the HFFACO negotiations are completed.

Permit change notice 24590-WTP-PCN-ENV-07-001 proposed to update the permit compliance schedule to include the Hanford Facility RCRA 2007 WTP Progress Report

## **Hanford Facility RCRA 2007 WTP Progress Report**

consistent with unit specific permit condition III.10.C.2.h. The date was proposed to be 12 months after the last compliance schedule date that was met.

## Appendix 1

ORP letter from R. J. Schepens and J. P. Henschel, BNI, "Waste Treatment and Immobilization Plant Dangerous Waste Permit Compliance Schedule," 06-WTP-011, dated February 1, 2006.



FEB 01 2006

06-WTP-011

Ms. Jane Hedges, Program Manager  
Nuclear Waste Program  
State of Washington  
Department of Ecology  
3100 Port of Benton Blvd.  
Richland, Washington 99352

Dear Ms. Hedges:

WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) DANGEROUS WASTE  
PERMIT COMPLIANCE SCHEDULE

- References:
1. WA7890008967, "Dangerous Waste Portion of the Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Chapter 10 and Attachment 51, Waste Treatment and Immobilization Plant."
  2. ORP letter from R. J. Schepens to M. A. Wilson, Ecology, "Independent Qualified Registered Professional Engineer (IQRPE) Reports for the Hanford Tank Waste Treatment and Immobilization Plant (WTP)," 05-ED-052, dated June 17, 2005.

The purpose of this letter is to provide you with notice that the near term items in the Compliance Schedule of the WTP portion of the Hanford Facility Resource Conservation and Recovery Act of 1976 Permit are in jeopardy and are unrecoverable. In addition, this letter is also intended to provide notification to the U.S. Department of the Ecology (Ecology) pursuant to WAC 173-303-815(3)(a)(iii). Though the resulting final WTP cost and schedule are still not known, based on the initial revised Estimate at Completion (EAC) submittal from Bechtel National, Inc. (BNI) December 22, 2005, the remaining Compliance Schedule Items in the attachment incorporated into the permit as of January 17, 2006 (Reference 1) will not be met. Though the work could potentially be re-sequenced to accomplish some items, this would negate the necessary consistency required between facilities as designs are advanced. Completion of the remaining compliance schedule items is dependent upon the finalization of the WTP EAC, and resolution of related Hanford Federal Facility Agreement and Consent Order (HFFACO) milestone issues.

Factors affecting our ability to meet the compliance due dates include:

- Commodity growth;
- Revised seismic criteria affecting structural design of the Pretreatment (PT) and High-Level Waste Facilities;
- Evaluation of hydrogen buildup in piping and vessels in the PT Facility;
- Difficulty in mixing slurries in the PT Facility;
- A reduced Fiscal Year 2006 funding level; and
- Use of final rather than initial design for permit packages.

Ms. Jane Hedges  
06-WTP-011

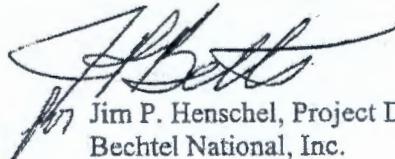
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As Ecology is aware, the compliance schedule was based on submittal of permit design packages, and IQRPE reports, based on initial design information, not final vendor information. This approach resulted in the IQRPE including words regarding "design intent" in their reports. Ecology has advised the U.S. Department of Energy (DOE), Office of River Protection (ORP) and BNI that they will not accept permit packages based on initial design information any longer. ORP and BNI have agreed to provide permit design packages based on vendor information and calculations, so that the "design intent" language can be deleted from IQRPE certifications (Reference 2). As part of these discussions, Ecology was advised that this would impact the schedule for permit design package submittal.

DOE, BNI, and the U. S. Army Corps of Engineers are in the process of evaluating the impact of these changes through the development of a revised cost and schedule estimate with completion scheduled for the summer of 2006. Additional information is contained in the Semi-Annual Compliance Report for the period July - December 2005 to be submitted in accordance with HFFACO milestone M-62-01 under separate cover. DOE and BNI will continue to constrain construction activities to those elements that have been incorporated into the permit or are authorized by Ecology.

Should you have any questions, please contact us, or your staffs may contact Lori Huffman, ORP, (509) 376-0104 or Bradley Erlandson, BNI, (509) 371-3826.

  
Roy J. Schepens, Manager  
Office of River Protection

  
Jim P. Henschel, Project Director  
Bechtel National, Inc.

WPD:JLS

Attachment

cc: See page 3

Ms. Jane Hedges  
06-WTP-011

-3-

cc w/attach:

B. G. Erlandson, BNI

J. P. Henschel, BNI

R. E. Lawrence, BNI

J. Markillie, BNI

J. Cox, CTUIR

S. Harris, CTUIR

M. Anderson-Moore, Ecology

B. L. Becker-Khaleel, Ecology

R. K. Biyani, Ecology

L. Cusack, Ecology

S. L. Dahl, Ecology

G. P. Davis, Ecology

K. Elsethagen, Ecology

E. A. Fredenburg, Ecology

T. Z. Gao, Ecology

J. Hensley, Ecology

G. Bohnee, NPT

K. Niles, Oregon Energy

A. C. McKarns, RL

R. Jim, YN

Administrative Record

Environmental Portal, LMSI

### Near Term WTP Compliance Schedule Items

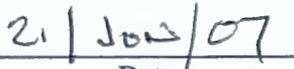
Item Number	Description	Due Date
Item 10	Submit detailed information associated with containers and container management area	03/22/06
Item 13	Submit engineering information for each dangerous waste tank and primary sump to be included in the permit	04/29/06
Item 14	Submit engineering information for each tank system ancillary equipment to be included in the permit	04/29/06
Item 19	Submit engineering information for Pretreatment Plant Miscellaneous Unit Systems	02/11/06
Item 20	Submit engineering information for Pretreatment Plant Miscellaneous Unit Systems equipment	04/12/06
Item 24	Submit engineering information for equipment for each LAW Vitrification Miscellaneous Treatment Unit subsystem	06/02/06
Item 28,	Submit engineering information for HLW Vitrification Miscellaneous Treatment Unit sub-system	06/18/06
Item 29	Submit engineering information for equipment for each HLW Vitrification Miscellaneous Treatment Unit sub-system	06/18/06

## Bechtel National, Inc. Certification

The following certification statement is provided consistent with Contract No. DE-AC27-01RV14136, Section H.26, Environmental Permits, paragraph (g) for the submittal of the Hanford Facility RCRA 2007 WTP Progress Report.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

  
\_\_\_\_\_  
W. S. Elkins  
Project Director

  
\_\_\_\_\_  
Date