U.S. Department of Energy
[redacted]
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

APR 19 2007

07-WTP-054

Mr. C. M. Albert, Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Dear Mr. Albert:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF DESIGN OVERSIGHT REPORT, D-06-DESIGN-036, "REVIEW OF WASTE TREATMENT PLANT (WTP) LABORATORY (LAB) HEATING VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS"

This letter transmits the Design Oversight Report, D-06-DESIGN-036, "Review of Waste Treatment Plant (WTP) Laboratory (LAB) Heating Ventilating and Air Conditioning (HVAC) Systems." The report concludes that the LAB passive confinement system satisfies the applicable requirements and specifically that the components of the passive confinement boundary are adequately designed to satisfy the requirements necessary to perform their credited safety functions.

This letter is not considered to constitute a change to the Contract. In the event the Contractor disagrees with this interpretation, it must immediately notify the Contracting Officer orally, and otherwise comply with the requirements of the Contract clause entitled 52.243-7, "Notification of Changes."

If you have any questions, please contact me, or your staff may call Robert W. Griffith, Acting Director, WTP Project Engineering Division, (509) 376-6817.

Sincerely,

John R. Eschenberg, Project Manager
Waste Treatment and Immobilization Plant

WTP:JEO

Attachment

cc w/attach:
BNI Correspondence

U.S. Department of Energy, Office of River Protection

DOE ORP DESIGN OVERSIGHT REPORT

REVIEW OF WASTE TREATMENT PLANT (WTP) LABORATORY (LAB) HEATING VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS

February 2007

Design Oversight: D-06-DESIGN-036

Assessor: John Orchard

Team Lead: 2/15/07

John Orchard, WED Confinement Ventilation SSO

Approval:

John Eschenberg, Project Manager
Waste Treatment and Immobilization Plant

EXECUTIVE SUMMARY

As part of its oversight responsibilities, the U.S. Department of Energy (DOE), Office of River Protection performs various assessments of Bechtel National, Inc. (BNI) activities during the design and construction phase. One type of assessment is a design review of various systems and processes, called a design oversight, performed by the Waste Treatment and Immobilization Plant Engineering Division. A design oversight typically consists of document reviews, field walkdowns, and BNI management and staff interviews.

As part of the design oversight program, the Analytical Laboratory (LAB) heating, ventilation, and air conditioning (HVAC) systems were reviewed. The C5 ventilation system in the LAB is normally active, but on loss of power, the exhaust fans stop and the system relies on a passive confinement strategy. Engineered leakage paths are controlled with high-efficiency particulate air (HEPA) filters on the inbleeds to the hotcell and C5 effluent vessel and pump cells, and uncontrolled leakage paths are eliminated. Any air flowing backwards from high potential contamination zones is cleaned to an equivalent level as the air normally exhausted to the atmosphere. This strategy has received extensive internal and external scrutiny, and it has been the subject of several Defense Nuclear Facilities Safety Board (DNFSB) reviews and reports. Passive confinement of the LAB C5 ventilation system is a significant and high-visibility design feature that will be the focus of this design oversight.

There are no industry, DNFSB, or DOE requirements for passive confinement; although the DNFSB has issued guidance on observed weaknesses in the application of passive confinement. There are no explicit requirements, but the LAB Preliminary Safety Analysis Report (PSAR) provided some implicit requirements for the Passive Confinement strategy, as it is used in the LAB C5 ventilation system. The LAB Fire Analysis in the PSAR indirectly prescribes the performance criteria for the passive confinement boundary by assuming a leak path factor (LPF) of one, and limiting the air exchange rate to one per hour at a pressure differential of 0.1 in. water gauge (WG). Also, the PSAR section on passive confinement identifies every component in the passive confinement boundary, its functional requirement, and the applicable design codes and standards. The system descriptions for the LAB ventilation system and the radioactive liquid waste disposal system incorporate the applicable functional requirements, and design codes and standards to ensure the passive confinement boundary will adequately perform its credited safety function.

The report concludes that the LAB passive confinement system satisfies the applicable requirements and specifically that the components of the passive confinement boundary are adequately designed to satisfy the requirements necessary to perform their credited safety functions. There are no Findings or Assessment Follow-up Items, because there were no requirements identified that were not being addressed to the degree appropriate to the stage of design in progress.

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LIST OF ACRONYMS

AFI	Assessment Follow-up Item
ASME	American Society of Mechanical Engineers
BNI	Bechtel National, Inc.
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
HEPA	high-efficiency particulate air (filter)
HVAC	heating, ventilating, and air conditioning
LAB	Analytical Laboratory
LPF	leak path factor
NPH	natural phenomena hazards
ORP	Office of River Protection
P&ID	piping and instrumentation diagram
PSAR	Preliminary Safety Analysis Report
RES	radiological exposure standards
SRD	Safety Requirements Document
WED	WTP Engineering Division
WG	water gauge
WTP	Waste Treatment and Immobilization Plant

1.0 INTRODUCTION

A major component of the U.S. Department of Energy (DOE), Office of River Protection (ORP) mission is the design and construction of the Waste Treatment and Immobilization Plant (WTP) in the 200 East Area of the Hanford Site. The design and construction contractor for the WTP is Bechtel National, Inc. (BNI also referred to as the Contractor). As part of its oversight responsibilities, ORP performs various assessments of BNI activities during the design and construction phase. One type of assessment is the design review of various systems and processes, called a design oversight, performed by the WTP Engineering Division (WED). A design oversight typically consists of document reviews, field walkdowns, and BNI management and staff interviews. This design oversight of the Analytical Laboratory (LAB) heating, ventilating, and air conditioning (HVAC) systems was conducted between January 8 and February 16, 2007.

2.0 BACKGROUND

The WTP LAB is divided into four ventilation zones according to the level of potential contamination. The potential contamination is controlled and confined by the air being channeled or cascaded from zones of lower potential contamination (C2) to zones of higher potential contamination (C5) by progressively lower negative pressures induced by the exhaust fans. Then the air is exhausted to the atmosphere only after passing through high-efficiency particulate air (HEPA) filters designed to remove a sufficient portion of the particulate contamination, which allows the release of the cleaned air within regulated release criteria. However, if the electrical power fails such that the exhaust fans stop inducing the vacuum, the pressure would equalize between the ventilation zones, allowing the potentially contaminated air to flow backwards. The design of the LAB C5 ventilation system permits this condition to occur by providing a Passive Confinement strategy, where the engineered leakage paths are controlled with HEPA filters on the inbleeds to the hotcell and C5 effluent vessel and pump cells, and uncontrolled leakage paths are eliminated. Thus, any air flowing backwards from high potential contamination zones is cleaned to an equivalent level as the air normally exhausted to the atmosphere. This strategy has been the subject of several Defense Nuclear Facilities Safety Board (DNFSB) reviews and reports. Passive confinement of the LAB C5 ventilation system is a significant and high-visibility feature that will be the focus of this design oversight.

3.0 OBJECTIVES, SCOPE, AND APPROACH

3.1 Objectives

Verify that the LAB passive confinement system satisfies the applicable requirements and specifically that the components of the passive confinement boundary are adequately designed to satisfy the requirements necessary to perform their credited safety functions.

3.2 Scope

This oversight reviewed the relevant requirements for the LAB ventilation systems and the passive confinement strategy. The C5 LAB ventilation system is normally energized, but on loss of power, the exhaust fans stop and the system relies on a Passive Confinement strategy. Engineered leakage paths are controlled with HEPA filters on the inbleeds to the hotcell and C5 effluent vessel and pump cells, and uncontrolled leakage paths are eliminated. Thus, any air flowing backwards from high potential contamination zones is cleaned to an equivalent level as the air normally exhausted to the atmosphere.

3.3 Approach

ORP conducted oversight within the guidelines of ORP DI 220.1, "Conduct of Design Oversight," Rev. 1, issued April 18, 2006. Information was collected from various BNI and DOE documents, and interviews with BNI design staff were conducted. See Section 6.0 for a full listing of reviewed documents and personnel contacted.

4.0 RESULTS

4.1 Passive Confinement Strategy

The assessor reviewed the following industry, DOE, and DNFSB documents to uncover the requirements applicable to the passive confinement strategy. The requirements are generally qualitative rather than quantitative, in the form of providing guidance and lessons learned on what to avoid. The DOE and the DNFSB have issued guidance on observed weaknesses in the application of passive confinement.

- DOE-HDBK-1169-2003, *Nuclear Air Cleaning Handbook.*
- DNFSB Recommendation 2004-2, *Active Confinement Systems.*
- DNFSB/TECH-34, *Confinement of Radioactive Materials at Defense Nuclear Facilities.*

The assessor reviewed the following project documents to uncover the requirements applicable to the LAB Passive Confinement strategy. (There are no explicit requirements for Passive Confinement in the above documents nor in the project-specific Safety Requirements Document (SRD) or Basis of Design, but the LAB Preliminary Safety Analysis Report (PSAR) provides some implicit requirements for the Passive Confinement strategy, as it's used in the LAB C5 ventilation system, as discussed below.)

- Contract: Section C "Statement of Work," (c) "Design,"
  "(15) Facility Ventilation System Design: The Contractor shall prepare the ventilation flow diagrams and heating, ventilation, and air conditioning system design for the Pretreatment, HLW Vitrification, LAW Vitrification, Analytical Laboratory, and balance of plant facilities. The diagrams shall identify the individual systems, all equipment components, and flows in the facilities. Sample locations and methods shall be specified. Equipment to provide motive force and ventilation control shall be identified."

- 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document*, Safety Criterion 4.4-3, "Applicable Project Phases – Design and Construction, Ventilation Systems and Off-Gas systems"; and Appendix C-35.0, American Society of Mechanical Engineers (ASME) AG-1, *Code on Nuclear Air and Gas Treatment.*

- 24590-WTP- PSAR-ESH-01-002-06, *Preliminary Safety Analysis Report to Support Construction Authorization; Lab Facility Specific Information*, Section 3.4.1.2, "Laboratory Fire Analysis," and Section 4.4.2, "Passive Confinement."

- 24590-WTP-DB-ENG-01-001, *Basis of Design*: Section 12, "Ventilation Basis of Design."

- 24590-LAB-3YD-60-00001, Rev. 0, *Combined LAB Ventilation System Description for Systems C1V, C2V, C3V, and C5V*, Section 3.7, "Safety Related Functions," Section 4.1.6, "Availability," and Section 6.4, "Zone C5 Description of Major Components."

- 24590-LAB-3YD-RLD-00001, Rev. 2, *System Description for the Radioactive Liquid Waste Disposal System for the Analytical Laboratory*, Section 4.3, "Containment and Confinement."

The LAB PSAR, Section 3.4.1.2, "Laboratory Fire Analysis," states the bounding accident is a hotcell fire, with loss of forced ventilation. The unmitigated dose to the public is 0.05 rem, well below the Radiological Exposure Standard (RES) of 5 rem for an unlikely event. The unmitigated dose for a co-located worker is 50 rem, necessitating a safety significant control. The safety significant control is the Passive Confinement strategy for the C5V Ventilation System, which mitigates the calculated dose to 11 rem. The analysis assumes the passive confinement boundary has a leak path factor (LPF) of 1, but limits the air exchange rate to one per hour at a pressure differential of 0.1 in. water gauge (WG).

The LPF of one means all the source term becomes airborne and escapes the confinement, so the confinement boundary is not credited with being totally leak-tight. However, the passive confinement boundary is credited with slowing the escape rate to over one hour. This allows the dose to become diluted and dissipated as it escapes, from the unacceptable 50 rem to the acceptable 11 rem, according to the Laboratory Fire Analysis. Thus, the implied quantitative acceptance criteria for the leak-tightness of the passive confinement boundary is an equivalent air change of 1 per hour at 0.1 in. WG. The volume of the Hot Cell is estimated at 42,000 cu ft, which for one air change per hour translates to a flow rate of 700 cfm. This flow at 0.1 in WG requires an orifice of 80 sq in. or approximately 10 inches diameter. Therefore, another implied quantitative acceptance criteria is that the sum of areas of all the leakage paths in the passive confinement boundary must be less than 80 sq in.

The assessor reviewed the ventilation and instrumentation diagrams, duct orthographics, and other drawings (listed in Section 6.0) to identify the boundaries of the C5 (Normal) Ventilation zone and the C5 Passive Confinement zone. The assessor determined that the boundaries were generally features such as building walls or HVAC ducts and housings, or the hotcell in-bleed filters and C5V exhaust HEPA filters. There are several gloveboxes that also form boundaries, including their in-bleed HEPA filters. There is also a C5 effluent/radioactive drain tank vault, pump and valve pits, and co-axial pipe annuli that form part of the boundary, including the in-bleed HEPA filters.

The assessor reviewed the system descriptions for the LAB ventilation system and the radioactive liquid waste disposal system to verify that all components of the passive confinement boundary, as identified above, were captured and that their applicable safety functions were correctly characterized and adequately addressed in the design.

4.2 Passive Confinement Boundary

The assessor concluded from the reviews that the only significant requirement for the passive confinement strategy is the integrity of the boundary which has the implied quantitative acceptance criteria that the sum of areas of all the leakage paths in the passive confinement boundary must be less than 80 sq in. Therefore, all the components that make up the passive confinement boundary have been collated from the various sources reviewed and are listed below to provide an overall perspective of the complexity of the system and the completeness of the delineation of the boundary. The safety class, seismic category, quality level, and credited safety function for each component are also included to more precisely demonstrate that they have been fully and correctly characterized and carried into the system design via the applicable system description. This listing confirms that the components of the LAB passive confinement boundary are adequately designed to satisfy the requirements necessary to perform their credited safety functions.

1. The hotcell concrete walls, floors, and ceiling: The concrete structures are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to limit structural cracking and have negligible air infiltration. They are passive design features that do not require routine maintenance or surveillance to demonstrate operability.

   Radioactive Liquid Waste Disposal System (RLD) System Description Section 4.3 states, "During abnormal conditions, including [natural phenomena hazards] NPH events, the concrete walls, floors, and ceiling of the hotcell, the hotcell through-wall devices (including shield windows, service embeds, gloveboxes, hotcell monorail airlocks, and trolley containment troughs), and the waste drum transfer port system must provided confinement for radioactive materials. The concrete structures must limit structural cracking and have negligible air infiltration."

2. The hotcell through-wall devices are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to provide confinement of radioactive materials. RLD System Description Section 4.3 states, "During abnormal conditions, including NPH events, the concrete walls, floors, and ceiling of the hotcell, the hotcell through-wall devices (including shield windows, service embeds, gloveboxes, hotcell monorail airlocks, and trolley containment troughs), and the waste drum transfer port system must provided confinement for radioactive materials."

- Shield Windows,
- Shield Doors,
- Service Embeds,
- Waste Drum Transfer Port,
- Hotcell Monorail Airlocks,
- Trolley Containment Troughs.

3. The sample analysis gloveboxes including inbleed HEPA filter are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to provide confinement of radioactive material. RLD System Description Section 4.3 states, "During abnormal conditions, including NPH events, the concrete walls, floors, and ceiling of the hotcell, the hotcell through-wall devices (including shield windows, service embeds, gloveboxes, hotcell monorail airlocks, and trolley containment troughs), and the waste drum transfer port system must provided confinement for radioactive materials."

4. The C5 effluent (hotcell drain collection) vessel cell, and the C5 effluent vessel pump and valve pits are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to provide confinement for spilled material including dispersible particulates. RLD System Description Section 4.3 states, "The C5 effluent vessel cell and the hotcell drain collection tank pump and valve pits must provide confinement for spilled material including dispersible particulates. The C5 effluent vessel cell and associated pipe and pump pits in conjunction with the cell in-bleed HEPA filters must ensure materials remain confined to the C5 effluent vessel cell."

5. The C5 effluent vessel cell in-bleed HEPA filter and supply ducts, and the vent pipes connecting the C5 effluent vessel pump and valve pits to C5 effluent vessel cell are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to ensure materials remain confined to the C5 effluent vessel cell. RLD System Description Section 4.3 states, "The C5 effluent vessel cell and the hotcell drain collection tank pump and valve pits must provide confinement for spilled material including dispersible particulates. The C5 effluent vessel cell and associated pipe and pump pits in conjunction with the cell in-bleed HEPA filters must ensure materials remain confined to the C5 effluent vessel cell."

6. Coaxial pipe penetrations to the C5 effluent vessel cell are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to ensure materials remain confined to the C5 effluent vessel cell. The outer jacket will be designed and constructed in accordance with ASME B31.3, *Process Piping*, and it will be designed to ensure it maintains its structural integrity during and following a seismic event. RLD System Description Section 4.3.1.1 states, "Leak Testing. Co-axial lines (pipe-in-pipe) shall have the provision to test both primary and secondary lines for leakage."

   - That portion of the outer jacket that is sealed to the inner pipe just inside the C5 effluent vessel cell on the transfer line from the C3 effluent vessel cell to the C5 effluent vessel cell,

- That portion of the outer jacket that is sealed to the inner pipe just inside the C5 effluent vessel cell on the drain lines from the hotcell gloveboxes (located outside the hotcells), transfer trays, and decontamination booth,
- That portion of the outer jacket that is sealed to the inner pipe just inside the C5 effluent vessel cell on the transfer pipe to the Pretreatment Facility,
- The outer jacket and the flange on the truck side of the transfer pipe in the C5 effluent vessel cell.

7. The backdraft dampers (including the damper housings) in the exhaust duct from the CO2 decontamination glovebox in the C3 maintenance shop are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to close on loss of C5 exhaust flow to isolate the glovebox. The backdraft dampers will be designed and fabricated in accordance with ASME AG-1, *Code on Nuclear Air and Gas Treatment*. The support structure for the backdraft dampers will be designed and constructed in accordance with Uniform Building Code to ensure the design is within allowable stress limits to meet Seismic Category III requirements, and the proper materials of construction and fabrication will be used to accommodate the seismic loading. The backdraft dampers will be designed to withstand temperatures of 150°C. They will be routinely tested to ensure that they close on loss of C5 exhaust flow.

8. The C5V ductwork from the C5 effluent vessel, the C5 effluent vessel cell, the hotcell, the sample analysis gloveboxes, and the CO2 decontamination booth downstream of the first backdraft damper are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to direct the exhaust air to the environment through the C5V exhaust HEPA filters. C5V ductwork is stainless steel, welded, and designed to withstand the maximum expected negative pressure.

9. The C5V HEPA filter housings, the duct between the first and second stage HEPA filter housings, and the HEPA filter isolation damper housings are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to direct the exhaust air to the environment through the C5V exhaust HEPA filters. The filter housing of the C5V system will be constructed and inspected in accordance with ASME AG-1, Section HA. The ductwork will be designed in accordance with ASME AG-1, Section SA, or ASME B31.3.

10. The hotcell in-bleed units are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to direct any exhaust air to the environment through the HEPA filters.

11. The ember screens in the hotcell in-bleed units are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to prevent ignition sources from damaging HEPA filters in the C5V exhaust system and in the hotcell in-bleed units. Ember screens are not required on the vessel cell in-bleed units.

12. The fire dampers in the hotcell in-bleed units are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to protect the HEPA filters from heat

damage during a hotcell fire. The performance requirement is that the dampers close at a pre-selected temperature and maintain the fire boundary for the duration of the bounding postulated hotcell fire event. The performance criteria are met by designing and testing the dampers to ASME AG-1 (Underwriters Laboratory (UL) Standard 555, "Fire Damper," and National Fire Protection Agency [NFPA] 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*) requirements. They will be routinely tested and maintained to ensure that they remain operable, closing as intended to perform their credited function.

13. The mist eliminators and filter housing drains in the hotcell in-bleed units are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to ensure that the in-bleed HEPA filter is not wetted in the occurrence of a cooling coil leak. ASME AG-1 (Paragraph HA-4441) specifies the drain.

14. The C5V HEPA filters must satisfy the ASME AG-1 efficiency test criteria. They are Safety Significant, Seismic Category III, Quality Level Q; their credited safety function is to provide continuous removal of particulates so that release standards are met. HEPA filters will meet the performance requirements of ASME AG-1. Specified construction materials will ensure that the HEPA filters will continue to filter releases to the required efficiency under process upset conditions. HEPA filters will be inspected in accordance with ASME AG-1. Each C5V HEPA filter bank must have a particle collection efficiency of $\geq$ 99.95 % when tested in situ.

4.3 Conclusions

The LAB PSAR Section 3.4.1.2, "Laboratory Fire Analysis," says the bounding consequence accident for the LAB facility is a hotcell fire with loss of forced ventilation, an unlikely event. The unmitigated dose to the public is 0.05 rem, well below the RES of 5 rem for an unlikely event. The unmitigated dose for a co-located worker is 50 rem; thus a safety significant control is required that reduces the mitigated dose to a conservatively calculated 11 rem, which is below the applicable RES of 25 for an unlikely event. The consequences to the facility worker are approximated by those to the co-located worker. The safety significant control selected for the co-located and facility worker is the Passive Confinement strategy of the C5V system.

There are no industry, DNFSB, or DOE requirements for passive confinement; although, the DNFSB has issued guidance on observed weaknesses in the application of passive confinement. There are no explicit requirements, but the LAB PSAR provided some implicit requirements for the Passive Confinement strategy, as it is used in the LAB C5 ventilation system. The LAB PSAR Section 3.4.1.2, "Laboratory Fire Analysis," indirectly prescribes the performance criteria for the passive confinement boundary by conservatively assuming an LPF of one, and limiting the air exchange rate to one per hour at a pressure differential of 0.1 in. WG.

The LPF of one means all the source term becomes airborne and escapes the confinement, so the confinement boundary is not credited with being totally leak-tight. However, the passive confinement boundary is credited with slowing the escape rate to over one hour. This allows the dose to become diluted and dissipated as it escapes, from the unacceptable 50 rem to the acceptable 11 rem, according to the Laboratory Fire Analysis. Thus, the implied quantitative acceptance criteria for the leak-tightness of the passive confinement boundary is an equivalent air change of 1 per hour at 0.1 in. WG.

The volume of the Hot Cell is estimated at 42,000 cu ft, which for one air change per hour translates to a flow rate of 700 cfm. This flow at 0.1 in WG requires an orifice of 80 sq in. or approximately 10 inches diameter. Therefore, another implied quantitative acceptance criteria is that the sum of areas of all the leakage paths in the passive confinement boundary must be less than 80 sq in.

The LAB PSAR Section 4.4.2, "Passive Confinement," identifies every component in the passive confinement boundary, its functional requirement, and the applicable design codes and standards. These functional requirements, and applicable design codes and standards are carried into the respective system descriptions, piping and instrumentation diagrams (P&ID), and equipment specifications. The applicable design codes and standards were selected to provide reasonable expectation that each component would fully satisfy its functional requirement. Thus, the passive confinement boundary will perform its credited safety function of confining the postulated contamination and validate the analysis assumption that it provides an LPF of one, and limits the air exchange rate to one per hour at a pressure differential of 0.1 in. WG.

Therefore, this report concludes that the LAB passive confinement system satisfies the applicable requirements and specifically that the components of the passive confinement boundary are adequately designed to satisfy the requirements necessary to perform their credited safety functions.

5.0 OPEN ITEMS AND RECOMMENDATIONS

5.1 Findings

There are no Findings. The assessor did not identify any requirements that were not being addressed to the degree appropriate to the stage of design in progress.

5.2 Assessment Follow-up Items (AFI)

There are no Assessment Follow-up Items.

6.0 PERSONNEL CONTACTED AND REFERENCES

6.1 Personnel Contacted

- Gerard Garcia, BNI Engineering – HVAC, Supervisor
- Gary Dalton, BNI Engineering – HVAC
- John Dick, BNI Engineering – HVAC
- Pietro Martinelli, BNI Engineering – Mechanical Systems
- Belinda Niemi, BNI Engineering – Nuclear Safety

6.2 References

ASME AG-1, *Code on Nuclear Air and Gas Treatment.*

ASME B31.3, *Process Piping.*

DNFSB Recommendation 2004-2, *Active Confinement Systems.*

DNFSB/TECH-34, *Confinement of Radioactive Materials at Defense Nuclear Facilities.*

DOE-HDBK-1169-2003, *Nuclear Air Cleaning Handbook.*

ORP DI 220.1, "Conduct of Design Oversight," Rev. 1, U.S. Department of Energy, Office of River Protection, Richland, Washington, April 18, 2006.

<u>Contractor Documents:</u>

24590-CM-POA-HYDR-00001-06-00003, *LAB Glovebox Installation Interfaces.*

24590-LAB-3YD-60-00001, *Combined LAB Ventilation System Description for Systems C1V, C2V, C3V, and C5V*, Rev. 0, June 23, 2005.

24590-LAB-3YD-RLD-00001, *System Description for the Radioactive Liquid Waste Disposal System for the Analytical Laboratory*, Rev. 2, February 15, 2005.

24590-LAB-M6-RLD-00001, P&ID – *LAB Radioactive Liquid Waste Disposal System – C5 Collection and Transfer.*

24590-LAB-M6-RLD-00008, P&ID – *LAB Radioactive Liquid Waste Disposal System – C5 Collection & Leak Detection.*

24590-LAB-M8-C5V-00001001, 002, 003 – *Analytical Laboratory V&ID – Inbleed, Hotcell, & RLD Vessel C5V Exhaust.*

24590-LAB-M8-C5V-00002001, 002, 003 – *Analytical Laboratory Plant Room V&ID – C5V Exhaust.*

24590-LAB-P2-P63T-00225 [through 00228] – *Analytical Laboratory HVAC Orthographic Plan at EL. 0'-0"/Area 1 [3, 5, 7] – C5V System.*

24590-LAB-P2-P63T-00229 [through 00232] – *Analytical Laboratory HVAC Orthographic Plan at EL. 17'-0"/Area 1 [3, 5, 7] – C5V System.*

24590-WTP- PSAR-ESH-01-002-06, *Preliminary Safety Analysis Report to Support Construction Authorization; Lab Facility Specific Information*, Section 3.4.1.2, "Laboratory Fire Analysis," and Section 4.4.2, "Passive Confinement."

24590-WTP-3PS-MKH0-T0002, *Engineering Specification for Nuclear Grade High Efficiency Particulate (HEPA) Filters* (ASME AG-1 Section FK Filters), Rev. 2, March 08, 2006.

24590-WTP-DB-ENG-01-001, *Basis of Design*, Section 12, "Ventilation Basis of Design," Rev. 1H, August 3, 2006.

24590-WTP-SRD-ESH-01-001-02, Rev. 4, *Safety Requirements Document*, Safety Criterion 4.4-3, "Applicable Project Phases – Design and Construction, Ventilation Systems and Off-Gas systems"; and Appendix C-35.0, ASME AG-1, *Code on Nuclear Air and Gas Treatment*.

Task# ORP-WTP-2007-0059

E-STARS™ Report
Task Detail Report
04/19/2007 0211

TASK INFORMATION			
Task#	ORP-WTP-2007-0059		
Subject	(Concur 07-WTP-054) TRANSMITTAL OF DESIGN OVERSIGHT REPORT, D-06-DESIGN-036, "REVIEW OF WASTE TREATMENT PLANT (WTP) LABORATORY (LAB) HEATING VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS"		
Parent Task#		**Status**	CLOSED
Reference		**Due**	
Originator	Licht, Sarah	**Priority**	High
Originator Phone	(509) 373-0068	**Category**	None
Origination Date	02/16/2007 1516	**Generic1**	
Remote Task#		**Generic2**	
Deliverable	None	**Generic3**	
Class	None	**View Permissions**	Normal
Instructions	Hard copy of the correspondence is being routed for concurrence. Once you have reviewed the correspondence, please approve or disapprove via E-STARS and route to the next person on the list. Thank you. bcc: MGR RDG file WTP OFF file WTP RGD file J. J. Short, AMD J. R. Eschenberg, WTP L. F. Miller, WTP J. E. Orchard, WTP		

ROUTING LISTS

1	Route List	Inactive
	• Orchard, John E - Review - Cancelled - 04/19/2007 1411 *Instructions:*	
	• Miller, Lewis F - Review - Withdrawn - 04/12/2007 1503 *Instructions:*	
	• Eschenberg, John R - Review - Concur - 04/17/2007 1310 *Instructions:*	
	• Schepens, Roy J - Approve - Withdrawn - 04/12/2007 1503 *Instructions:*	
	• Griffith, Robert W - Review - Concur with comments - 04/16/2007 1535 *Instructions:*	
	• Olinger, Shirley J - Review - Concur - 04/19/2007 1203 *Instructions:*	
	• Eschenberg, John R - Approve - Approved - 04/19/2007 1411 *Instructions:*	

Task# ORP-WTP-2007-0059

ATTACHMENTS	
Attachments	1. 07-WTP-054.JEO.Attach.FINAL-DesignOversightReport-LAB-HVAC-Systems.doc 2. 07-WTP-054.JEO.Elkins.doc
COLLABORATION	
COMMENTS	
Poster	Griffith, Robert W (Griffith, Robert W) - 04/16/2007 0304
	Concur
	This report was actually concurred with by Mark Ramsay acting on my behalf.
TASK DUE DATE HISTORY	
No Due Date History	
SUB TASK HISTORY	
No Subtasks	

-- end of report --

Task# ORP-WTP-2007-0059

E-STARS[TM] Report
Task Detail Report
02/16/2007 0321

TASK INFORMATION			
Task#	ORP-WTP-2007-0059		
Subject	(Concur 07-WTP-054) TRANSMITTAL OF DESIGN OVERSIGHT REPORT, D-06-DESIGN-036, "REVIEW OF WASTE TREATMENT PLANT (WTP) LABORATORY (LAB) HEATING VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS"		
Parent Task#		**Status**	Open
Reference		**Due**	
Originator	Licht, Sarah	**Priority**	High
Originator Phone	(509) 376-9025	**Category**	None
Origination Date	02/16/2007 1516	**Generic1**	
Remote Task#		**Generic2**	
Deliverable	None	**Generic3**	
Class	None	**View Permissions**	Normal
Instructions	Hard copy of the correspondence is being routed for concurrence. Once you have reviewed the correspondence, please approve or disapprove via E-STARS and route to the next person on the list. Thank you. bcc: MGR RDG file WTP OFF file WTP RGD file J. J. Short, AMD J. R. Eschenberg, WTP L. F. Miller, WTP J. E. Orchard, WTP		

ROUTING LISTS

1	Route List	Active
	• Orchard, John E - Review - Awaiting Response 2/15/07 *Instructions:*	
	• ~~Miller, Lewis F~~ Griffith, Bob - Review - Awaiting Response 4/16/07 *Instructions:*	
rec'd 4/16/07	• Eschenberg, John R - Review - Awaiting Response 4/17 *Instructions:*	
	• ~~Schepens, Roy J~~ Olinger, Shirley J. - Review - ~~Approve~~ - Awaiting Response *Instructions:*	

• Eschenberg John R. - Approve -

ATTACHMENTS

Attachments	1. 07-WTP-054.JEO.Attach.FINAL-DesignOversightReport-LAB-HVAC-Systems.doc 2. 07-WTP-054.JEO.Elkins.doc

COLLABORATION

Task# ORP-WTP-2007-0059
COMMENTS
No Comments
TASK DUE DATE HISTORY
No Due Date History
SUB TASK HISTORY
No Subtasks

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