

U.S. Department of Energy
Office of River Protection

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

07-WTP-324

FEB 04 2008

Mr. L. J. Simmons, Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Dear Mr. Simmons:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF THE U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION (ORP) DESIGN OVERSIGHT REPORT: THE WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) ENGINEERING DIVISION ASSESSMENT OF CONTRACTOR CORRECTIVE ACTIONS FOR CONFIGURATION MANAGEMENT (CM) AND DESIGN CONTROL IN SUPPORT OF DESIGN/ CONSTRUCTION COMPLETION PROCESS FOR SYSTEM TURNOVER (D-08-DESIGN-057)

ORP has completed the above assessment and is transmitting the results via Design Oversight Report D-08-DESIGN-057 (Attachment). ORP concluded Bechtel National, Inc. (BNI) completed closure of a number of Findings, Assessment Follow-up Items (AFI), and Observations, as listed below. While viewed with concern, improvement is noted in the definition and implementation of the design and construction completion process supporting system turnover. Progress is noted in BNI's self-identified subcontractor closeout management assessment in support of the construction turnover process. Progress is observed in configuration management of facilities either where a subcontract was terminated or had substantial delays caused by changes. Progress is noted in the Engineering organization's deliverables for system turnover as described in its design turnover procedure. However, some previously identified items remain open, primarily in the area of subcontractor closeout.

The following ORP assessment items are considered closed:

- D-06-DESIGN-029-A01, A05, F03, and O02
- D-06-DESIGN-032-A01, A02, and O01

The following assessment items were opened:

1. **D-08-DESIGN-057-A01:** Instances were noted in which BNI did not appear to process Project Issue Evaluation Report (PIER)/Condition Reports in accordance with established procedures for corrective actions or closure activity. In addition, instances were noted in which BNI did not identify some issues as PIERs, or did not accurately document issues in the PIER systems from management assessments. These type of issues had been previously documented under Findings A-07-ESQ-RPPWTP-009-F01, F02, and F03. This AFI will track the closure of these Findings relative to resolution of the BNI Corrective Action Program.

Mr. L. J. Simmons
07-WTP-324

-2-

2. **Observation D-08-DESIGN-057-O02:** Procedures 24590-WTP-GPP-MGT-022 and 24590-WTP-GPP-QA-208 provide no guidance for review and acceptance of closure of PIERs/CRPTs whose stated problem has the potential to adversely affect stakeholders beyond the responsible manager assigned ownership of the PIER/CRPT.
3. **Observation D-08-DESIGN-057-O03:** The project is now in need of an integrated project turnover procedure to provide for completion of subcontractor work per 24590-WTP-GPP-CON-4103 and design completion per 24590-WTP-3DP-G04T-00916 prior to Construction turnover to Startup per 24590-WTP-GPP-CON-1602.
4. **AFI D-08-DESIGN-057-A04:** Based on the management assessment 24590-WTP-MAR-CON-07-0084 results, procedure 24590-WTP-GPP-CON-4103 appears inadequate for implementation due to lack of detail for execution, which causes subcontractor closeouts without configuration management and technical acceptance prior to demobilization. This AFI tracks to closure the BNI PIERs that were initiated based on this management assessment.

ORP requests BNI to provide a response within 30 days of receipt of this letter. For the AFIs, please address actions to be taken to resolve the issue; for Observations, inform ORP if actions are to be taken to address these issues.

If you have any questions, please contact me, or your staff may contact James H. Wicks, Director, WTP Engineering Division, (509) 376-3522.

Sincerely,



John R. Eschenberg, Project Manager

Waste Treatment and Immobilization Plant Project

WTP:JEA

Attachment

cc w/attach:
D. Jantosik, BNI
D. Kammenzind, BNI
M. Lewis, BNI
W. Lung, BNI
S. C. Lynch, BNI
D. J. Pisarcik, BNI
BNI Correspondence

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

**THE U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER
PROTECTION (ORP) DESIGN OVERSIGHT REPORT**

**THE WASTE TREATMENT AND IMMOBILIZATION PLANT
(WTP) ENGINEERING DIVISION ASSESSMENT OF
CONTRACTOR CORRECTIVE ACTIONS FOR
CONFIGURATION MANAGEMENT (CM) AND DESIGN
CONTROL IN SUPPORT OF DESIGN/CONSTRUCTION
COMPLETION PROCESS FOR SYSTEM TURNOVER**

November 05 – 23, 2007

Design Oversight: D-08-DESIGN-057

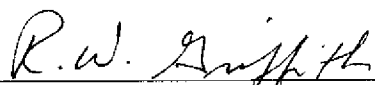
Team Lead:


James E. Adams, WTP Design Oversight Engineer

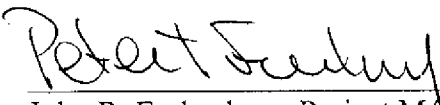
Team Members:

Richard Cooper, ORP WTP Consultant

Concurrence:


for James H. Wicks, WED Division Director

Approval:


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

EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE), Office of River Protection (ORP) staff conducted an assessment of the Waste Treatment and Immobilization Plant (WTP) Project Contractor's corrective actions implemented to resolve previously identified issues associated with design and construction completion processes primarily involving subcontractor work and closeout for completion of systems. This assessment also provided oversight of the existing Contractor turnover program being implemented at this time. The following are the specific objectives of this assessment:

1. Evaluate the Contractor's closure of issues identified in the design assessment report D-06-DESIGN-029, *Review of Subcontractor Configuration Management*.
2. Evaluate the Contractor's closure of issues identified in the design assessment report D-07-DESIGN-032, *WED Assessment of the Design/Construction Completion Process for System Turnover*.
3. Review the Contractor's management self-assessment report 24590-WTP-MAR-CON-07-0084, *Subcontractor Closeout*, and determine the effectiveness of Contractor oversight by verifying that issues identified were properly identified, documented, and tracked for closure to assess process effectiveness.
4. Review the turnover process procedures to verify procedures exist to define the various organizations responsibilities and deliverables to effect turnover from Construction to Startup.

Overall Conclusions

This Design Oversight Report concluded the WTP Contractor, Bechtel National, Inc. (BNI), had completed the closure of a number of issues documented in Findings, Assessment Follow-up Items (AFI), and Observations in their continuing efforts to improve the definition and implementation of the design and construction completion process. This will enhance the present efforts of BNI to provide an adequate system turnover program. This combined with the completion of the BNI management assessment of the subcontracting process, which self-identified issues in the area of subcontractor closeout, has provided a path forward for subcontractor work completion in support of the construction turnover process. Progress has also been made in improving the configuration management of subcontracted facilities where the subcontracts were either altered or cancelled, causing work interruptions and documentation issues. Progress has also been made by the design organization with the approval of their design turnover procedure.

However, work is still needed in the resolution of an adequate subcontractor management turnover process procedure as reflected by the BNI Management Assessment Report (MAR) 24590-WTP-MAR-CON-07-0084, *Subcontractor Closeout*, and is reflected in ORP's inability to close some previous ORP Findings. .

The following assessment items previously issued by ORP are considered closed:

- Items D-06-DESIGN-029-A01, A05, F03, and O02
- Items D-06-DESIGN-032-A01, A02, and O01

As a result of this assessment, items D-08-DESIGN-057-A01, O02, O03, and A04 are considered open.

- **D-08-DESIGN-057-A01:** Instances were noted in which BNI did not appear to process Project Issue Evaluation Report (PIER)/Condition Reports in accordance with established procedures for corrective actions or closure activity. In addition, instances were noted in which BNI did not identify some issues as PIERs, or did not accurately document issues in the PIER system from management assessments. These type of issues had been previously documented under Findings A-07-ESQ-RPPWTP-009-F01, F02, and F03. This AFI will track the closure of these Findings relative to resolution of the BNI Corrective Action Program.
- **Observation D-08-DESIGN-057-O02:** Procedures 24590-WTP-GPP-MGT-022 and 24590-WTP-GPP-QA-208 provide no guidance for review and acceptance of closure of PIERs/CRPTs whose stated problem has the potential to adversely affect stakeholders beyond the responsible manager assigned ownership of the PIER/CRPT.
- **Observation D-08-DESIGN-057-O03:** The project is now in need of an integrated project turnover procedure to provide for completion of subcontractor work per 24590-WTP-GPP-CON-4103 and design completion per 24590-WTP-3DP-G04T-00916 prior to Construction turnover to Startup per 24590-WTP-GPP-CON-1602.
- **AFI D-08-DESIGN-057-A04:** Based on the management assessment 24590-WTP-MAR-CON-07-0084 results, procedure 24590-WTP-GPP-CON-4103 appears inadequate for implementation due to lack of detail for execution, which causes subcontractor closeouts without configuration management and technical acceptance prior to demobilization. This AFI tracks to closure the BNI PIERs that were initiated based on this management assessment.

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	BACKGROUND	1
3.0	OBJECTIVES, SCOPE, AND APPROACH.....	1
3.1	Objectives	1
3.2	Scope.....	2
3.3	Approach.....	2
4.0	RESULTS	2
4.1	OBJECTIVE 1: Evaluate Contractor’s Closure of Issues Identified in Design Assessment Report D-06-DESIGN-029	2
4.1.1	Statement of Issue: D-06-DESIGN-029-A01.....	2
4.1.2	Statement of Issue: D-06-DESIGN-029-A05.....	4
4.1.3	Statement of Issue: D-07-DESIGN-029-F03	7
4.1.4	Statement of Issue: D-07-DESIGN-029-F04	8
4.1.5	Statement of Issue: D-07-DESIGN-029-O02.....	9
4.2	OBJECTIVE 2: Evaluate Contractor’s Closure of Issues identified in Design Assessment Report D-07-DESIGN-032	10
4.2.1	Statement of Issue: D-07-DESIGN-032-F01	10
4.2.2	Statement of Issue: D-07-DESIGN-032-A01.....	11
4.2.3	Statement of Issue: D-07-DESIGN-032-A02.....	11
4.2.4	Statement of Issue: D-07-DESIGN-032-A03.....	11
4.2.5	Statement of Issue: D-07-DESIGN-032-F02	12
4.2.6	Statement of Issue: D-06-DESIGN-032-O01.....	12
4.3	OBJECTIVE 3: Review 24590-WTP-MAR-CON-07-0084 and Determine Effectiveness of Contractor Oversight by Verifying If Issues were Properly Identified, Documented, and Tracked for Closure.....	13
4.3.1	Results of Assessment.....	13
4.4	OBJECTIVE 4: Review Turnover Process Procedures to Verify Procedures Exist to Define Various Organizations Responsibilities and Deliverables to Effect Turnover from Construction to Startup.....	16
4.4.1	Procedure Review.....	16
4.4.2	Punchlist Meeting.....	17
4.4.3	Management Interviews	18
5.0	OPEN ITEMS	18
5.1	Findings.....	18
5.2	Assessment Follow-Up Items and Observations	19
6.0	CLOSED ITEMS	21
7.0	PERSONNEL CONTACTED AND REFERENCES	21
7.1	Personnel Contacted.....	21
7.2	References.....	21

LIST OF ACRONYMS

AFI	Assessment Follow-up Item
BNI	Bechtel National, Inc.
BOF	Balance of Facilities
C&T	Commissioning and Test
CA	corrective actions
CDR	construction deficiency report
CIS	component identification system
CM	configuration management
CMMS	Computerized Maintenance Management System
CRPT	condition report
DCD	Design Criteria Database
DCN	drawing change notice
DOE	U.S. Department of Energy
DVR	design verification report
EOC	extent of condition
FIR	Field Inspection Report
FSW	Fire Service Water System
HVAC	heating, ventilation, and air conditioning
MA	management assessment
MAR	management assessment report
MCC	motor control center
NFPA	National Fire Protection Association
NRTL	Nationally Recognized Testing Laboratory
NSQI	Nuclear Safety and Quality Imperative
O&M	Operations and Maintenance
ORD	Office of Research and Development
ORP	Office of River Protection
P&ID	process and instrumentation diagram
PA	Process Assurance
PIER	project issue evaluation report
QA	Quality Assurance
QVRP	Quality Verification Review Package
R&T	Research and Technology
RAMI	Reliability, Availability, Maintainability, Inspectability
RVM	Requirements Verification Matrix
SD	system description
SLD	single line diagram
SME	subject matter expert
SSC	structures, systems, and components
VAC	volts alternating current
VDCN	vendor document change notice
WTP	Waste Treatment and Immobilization Plant

1.0 INTRODUCTION

A major objective 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) Project in the 200 East Area of the Hanford Site. The WTP design and construction contractor is Bechtel National, Inc. (BNI). As part of its oversight responsibilities, ORP performs various assessments of BNI activities during the design and construction phase in compliance to DOE O 226.1, *Implementation of Department of Energy Oversight Policy*, Section 4.0, and supports the scheduled assessments required by ORP M 220.1, *Integrated Assessment Program*, Rev. 5. The fiscal year (FY) 2008 assessment schedule provides for this assessment.

The design oversight consisted of document reviews and BNI management and staff interviews. The team clarified and evaluated the initial information through early November 2007 and prepared the report in December 2007. The preliminary report was informally reviewed by BNI for factual accuracy before issuing the final report.

2.0 BACKGROUND

The process of ORP oversight not only requires the identification of issues, but also the closure of the issue by the responsible Federal agency following the closure by the Contractor. The scope of this assessment (including the overview and closure of D-06-DESIGN-029, *Review of Subcontractor Configuration Management*, and D-07-DESIGN-032, *WED Assessment of the Design/Construction Completion Process for System Turnover*) was performed with the expectation of obtaining a broad perspective of how the subcontractor administration and the Design organization were managing issues that need closure to advance the project turnover process toward systems completion for the Startup organization. The project has reached the point where the Contractor has scheduled the turnover of a system (Fire Service Water System [FSW]) from Construction to Startup. This now requires a turnover process and procedures implementing system completion based on design and construction (including subcontract work) completion. The Contractor announced the FSW turnover for November 28, 2007, and the startup of this system in early 2008 in order to supply site fire protection needs. In addition, BNI initiated actions for construction forces to use a permanent plant crane to support construction.

This assessment was performed to see if issues previously identified in the area of subcontractor completion and technical closeout, design completion, and construction completion were resolved sufficiently to support this effort by construction. In addition, the assessment reviewed the Contractor's efforts to date to provide and follow a turnover program, allowing the turnover of a system to startup. This assessment is intended to provide some insight as to whether system design and construction completion processes are sufficiently defined to accomplish this endpoint, including the establishment of system configuration control for the test phase.

3.0 OBJECTIVES, SCOPE, AND APPROACH

3.1 Objectives

ORP conducted this design oversight per the approved Assessment Plan (D-08-DESIGN-057) (Appendix A). The assessment plan had the specific objectives to:

- Evaluate the Contractor's closure of issues identified in the design assessment report D-06-DESIGN-029, *Review of Subcontractor Configuration Management*.
- Evaluate the Contractor's closure of issues identified in the design assessment report D-07-DESIGN-032, *WED Assessment of the Design/Construction Completion Process for System Turnover*.
- Review the Contractor's management self-assessment report 24590-WTP-MAR-CON-07-0084, *Subcontractor Closeout*, and determine the effectiveness of Contractor oversight by verifying that issues were properly identified, documented, and tracked for closure to assess process effectiveness.
- Review the turnover process procedures to verify procedures exist to define the various organizations responsibilities and deliverables to effect turnover from Construction to Startup.

3.2 Scope

The Assessment Team reviewed documentation, performed field inspections, and interviewed personnel to determine the viability of BNI's closure of issues associated with the design assessments D-06-DESIGN-029 and D-07-DESIGN-032. The team reviewed BNI's management assessment report 24590-WTP-MAR-CON-0084, Rev. 0, to determine the effectiveness of Contractor oversight. Finally, the team reviewed project procedures, schedules, in process efforts, and interviewed personnel relative to the BNI turnover program to provide oversight and recommendations on the program as it presently exists.

3.3 Approach

ORP conducted this oversight within the guidelines of ORP DI 220.1, *Conduct of Design Oversight*, Rev. 1. Information was collected from various BNI and DOE documents, and interviews with BNI design and construction staff were conducted (see Section 7.0 for a full listing of reviewed documents and personnel contacted).

4.0 RESULTS

4.1 OBJECTIVE 1: Evaluate Contractor's Closure of Issues Identified in Design Assessment Report D-06-DESIGN-029

4.1.1 Statement of Issue: D-06-DESIGN-029-A01

D-06-DESIGN-029-A01 stated, "This AFI tracks closure of PIERs, generated by Management Assessment 24590-WTP-MAR-ENG-06-0009, *Subcontractor Built Facilities Component Identification Rev. 9 of August 18, 2006*, associated with inconsistencies between approved design and physical inspections (PIERs 06-0051, 06-0056, 06-0061, 06-0062, 06-0063, 06-0066, 06-0067, 06-0069, and 06-0116)."

The ORP assessment D-06-DESIGN-029 was performed in September 2006, which included a review of BNI's issued report, 24590-WTP-MAR-ENG-06-0009. Because the Contractor's MAR preceded the ORP assessment D-06-DESIGN-029, ORP evaluated the Contractor's assessment to determine it was sufficiently comprehensive. ORP's review concluded the Contractor's MAR was adequate, with the BNI response to the BNI MAR ultimately resulting in the actions documented in corrective action reports CRPT-05-180 and CRPT-06-130.

The closure of these condition reports (CRPT) and their predecessor Project Issue Evaluation Reporting (PIER) reports was reviewed with the following results.

CRPT-05-180 provided a plan and schedule to address items from the walkdown of subcontract-designed and built systems verifying the assignment of equipment numbers into the Component Information System (CIS) and INTools. The assessor noted CRPT-05-180 contained programmatic actions to revise configuration management (CM)-related procedures to ensure subcontractor requirements for component/equipment numbering and updating of CIS and INtools occurred for current and future subcontracts. The assessor reviewed affected procedures (24590-WTP-3DP-G03B-00044, *Standard Component Numbering*; -3DP-G04B-00047, *Engineering Deliverables to Construction and Startup/Commissioning*; and -3DP-G04B-00058, *Supplier Engineering and Quality Verification Documents*) and verified the required changes were made.

The assessor's review of CRPT-06-130 verified the CRPT actions adequately resolved several of the component identification issues (from PIERs 06-0051, 0066, and 0069, as well as five others not derived from the MAR) so that BNI would implement a consistent approach to correcting these problems. Actions listed in CRPT-06-130 include:

1. Establishing the minimum standards for the types of drawings and information content to be verified by field inspections of the as-built Balance of Facilities (BOF) design/build subcontract facilities
2. Establishing the complete list of affected facilities and documents for field inspection and markup
3. Preparing instructions for performing the field inspections and verifications
4. Assembling field inspection packages for documentation of results
5. Performing the field inspections
6. Resolving the CM issues from the walkdowns – incorporating field markups into supplier documents, and updating CIS and INtools, as necessary
7. Performing spot checks to verify correction of issues
8. Reviewing active design/build subcontracts for clear requirements to provide as-built information and clarifying requirements, if needed
9. Redrafting Steam Plant drawings and performing field walkdowns to verify as-builts consistent with drawings
10. Performing verification walkdowns of the Steam Plant

BNI's response also indicated three additional condition reports were written to address three other PIERs identified from the MAR, as follows:

1. CRPT 06-116 was written for PIER 06-061 and involved a few valves on the subcontractor's FSW process and instrumentation diagram (P&ID), which was not configured the same on BNI's associated P&ID drawing (inconsistent with standard component numbering and the component identifier's listing). The Contractor wrote drawing change notices (DCN) and vendor change notices (VCN) to resolve these problems.

2. CRPT 06-117 was written for PIER 06-062 and noted further CM issues, including some subcontractor simulator drawings turned over to Construction, were not as-built. This condition report CRPT-06-117 was closed after BNI verified the scope and actions implemented under CRPT-06-130 fully addressed this condition.
3. CRPT 06-118 (originally PIER 06-116) noted several differences between a BNI P&ID and an as-built subcontractor P&ID for the South Fire Water Pump House. BNI evaluated the differences and revised its P&ID to correlate with the subcontractor's P&ID. In addition, BNI reviewed the duplicate P&ID for the North Fire Water Pump House to ensure it was as-built. The assessor reviewed the BNI North Fire Water Pump House P&ID against the as-built system for a number of components, which were numbered differently on the subcontractor's P&ID, and confirmed the components in the field were consistent with the numbering on the current BNI P&ID (which superseded the subcontractor's P&ID).

The Assessment Team followed the closure of PIERS 06-0056, 06-0063, and 06-0067, which addressed issues from 24590-WTP-MAR-ENG-06-009.

1. PIER 06-0056 involved components installed in subcontractor built facilities turned over to Construction (Steam Plant, South Firewater Pump House, and Simulator Facility) not identified in design with unique component tag numbers. Corrective actions related two of the conditions to CAR-05-186 and CRPT-06-117; affected drawings were revised to address the third condition.
2. PIER-06-0063 involved as-built Steam Plant components on subcontractor design documents not existing in CIS. Corrective actions related to CAR-05-186 for adding required information to CIS, and separate action was taken to revise the subcontractor P&ID to allow valve and in-line component tag number identification from the drawings.
3. PIER 06-0067 dealt with a corrective action issue covered in follow-up to Design Oversight D-06-DESIGN-029-F04, which was evaluated for closeout separately.

Conclusion: All PIERS and CRPTs generated as a result of 24590-WTP-MAR-ENG-06-0009 were successfully followed up and closed by BNI. Assessment Follow-up Item (AFI) D-07-DESIGN-029-A01 is considered closed.

4.1.2 Statement of Issue: D-06-DESIGN-029-A05

D-06-DESIGN-029-A05 states, "The series of BNI Project Issues Evaluation Reports (PIERS) (24590-WTP-0052, 0068, 0070, 0079, 0090, and 0092) and the Corrective Action reports 24590-WTP-QA-06-006, 06-039, 06-050 that were initiated by the BNI Management Assessment Report 24590-WTP-MAR-ENG-06-009, will be tracked for closure. These BNI recommendations are necessary to sufficiently define the subcontractor actions needed for the establishment of CM for the subcontractor."

This AFI was written to track the closure of the set of PIERS and corrective action reports (i.e., CPRT) above, and to evaluate the effectiveness of the BNI closure of these PIERS for closure of the AFI. BNI noted these issues were reported in the PIER system as evaluation opportunities to improve safety, quality, or production; therefore, no CM requirements were contrary to CM or the CM Plan requirements. However, the assessors determined the details brought forward by these PIER resolutions are essential to sufficiently clarify the program to

support implementation of the CM Plan, as well as be compliant to the BNI Quality Assurance Manual Policy Q-05.1.

- a. PIER-06-0052 was elevated to CRPT-06-064, which required the development and proceduralization of process details for facility walkdowns to inspect and accept subcontractor work. One of the corrective actions (CA) (due June 30, 2007) was to revise 24590-WTP-GPP-CON-4103, *Subcontract Surveillance, Acceptance, and Closeout*, to define the requirements for a BNI walkdown of completed subcontracted work. The assessors' review of these documents determined the CA was not yet completed per the CRPT closure record. The assessors also determined the closure was overdue, and had not been placed in escalation. From this, the assessors concluded closure of this CRPT was being processed in accordance with the corrective action procedure but was not being addressed in a timely manner. Closure of the issue as well as failure to obtain timely resolution of a CA will be tracked by **AFI D-08-DESIGN-057-A01**. Section 5.0 will provide details of the Finding.
- b. PIER-06-0068 required Engineering to provide advance notice of planned procedure changes to the end-user community, since implementation of approved procedure changes may take many months to complete. BNI Engineering Process Assurance (PA) organization reviewed this issue and took no action to implement it. The PIER documented PA's basis for taking no action. (The assessor considered this resolution appropriate.)
- c. PIER-06-0070 noted several BOF facility labels did not meet 24590-WTP-3PS-M0000-T0014, *Engineering Specification for Labeling Permanent Plant Components*. The PIER recommended development of process requirements for labeling, including who is required to do what and when, in addition to why the specification is not used in subcontracts. The PIER was closed in December 2006 after the BNI Commissioning and Test (C&T) organization wrote a desk instruction (C&T-DI-41) as an interim measure to implement a process for temporary labeling of permanent plant equipment, thus ensuring system and component labeling consistency. Subsequently, in June 2007, 24590-WTP-GPP-COPS-020, Rev. 0, *Plant Equipment Labeling Procedure*, was issued for installing and maintaining plant labels at WTP. (The assessor considered this resolution appropriate.)
- d. PIER-06-0079 identified the Computerized Maintenance Management System (CMMS) Data Import Function process was flawed because it indicated a component had not been installed. The PIER was closed based on a discussion of the current process for verifying quantities of BNI scope work via TeamWorks was adequate. The response indicated BNI Field Engineers were responsible for updating TeamWorks for quantities of work, including installation of individual components. However, TeamWorks is only updated for BNI scope of work; therefore, no BNI or subcontractor individual was assigned responsibility to update TeamWorks for equipment installed by subcontractors. Therefore, the assessors considered this PIER was improperly closed, because the accepted response did not address the issue for subcontractor scope of work. The assessors concluded this issue was not closed appropriately and will add this example to **AFI D-08-DESIGN-057-A01**.
- e. PIER-06-0090 (originated July 31, 2006) recommended revising a single line diagram (SLD) electrical breaker arrangement drawing to align with as-built panel schedules. The MAR assessment team noted the current SLD complied with drawing standards, but the MAR team made a recommendation for improvement for Reliability, Availability, Maintainability, Inspectability (RAMI) considerations. The MAR team viewed the condition as a potential error precursor in the event the panel schedule label was lost or became illegible, and could

cause Operations and Maintenance (O&M) to be dependent on the subcontractor drawing. Electrical Design (who was the responsible manager assigned to disposition the PIER) reviewed the recommendation, noted the current SLD did not violate any drawing standards, noted the associated subcontractor drawing included a panel board layout reflecting the as-built configuration, and closed the PIER with no action.

Discussion of this disposition with the originator of the PIER revealed he was not comfortable with the responsible manager having taken no action to address it. However, he was able to cite another corrective action document (RITS-QAIS-06-770) that he believed may have appropriately addressed the issue. The assessors reviewed RITS-QAIS-06-770, which had been originated on July 21, 2006 (10 days earlier than the PIER), and noted that it identified the exact same condition as PIER-06-0090. RITS-QAIS-06-770 was closed in August 2007 by a vendor document change notice (VDCN). This VDCN deleted the subject information from the original SLD, and added correct configuration information on four BNI drawings. (Based on this additional information and review, the assessors considered the issue described in the subject PIER as resolved appropriately.)

However, the assessors noted that PIER-06-0090 was not reviewed and accepted by O&M--the affected stakeholders--for adequacy of corrective actions. The assessors reviewed procedures 24590-WTP-GPP-MGT-022, *Project Issue Evaluation Reporting*, and 24590-WTP-GPP-QA-208, *Management of Corrective Action*, to determine if either of these provided guidance about consideration for affected stakeholders to review closure of PIERs/CRPTs whose actions were completed and accepted for closure by the responsible manager. For example, PIERs/CRPTs that describe problems which could have an impact on RAMI, or operation of the WTP, may well be assigned to a responsible manager in Engineering. However, because of RAMI/operational impact, Engineering's acceptance of the corrective actions to address the issue might need to be augmented by O&M review to ensure the corrective actions satisfy RAMI and O&M. The assessors believe PIERs/CRPTs that have a potential adverse impact on RAMI/O&M will likely become more routine as systems/areas are turned over for testing.

Procedures 24590-WTP-GPP-MGT-022 and 24590-WTP-GPP-QA-208 provide no guidance for review and acceptance of closure of PIERs/CRPTs whose stated problem has the potential to adversely affect stakeholders beyond the responsible manager assigned ownership of the PIER/CRPT. This is **Observation D-08-DESIGN-057-O02**.

- f. PIER-06-0092 identified a condition in the field where modifications to a heating, ventilation, and air conditioning (HVAC) system were required because the original design had not considered O&M needs (to access a test port for periodic testing) during design review. The PIER cited two CRPTs (06-217 on Office of Research and Development [ORD] requirements and 06-107 on equipment accessibility), which had been originated by Operations soon after this PIER was written. This PIER was closed based on the extent and adequacy of actions being planned or taken for the two related condition reports. (The assessor considered this resolution appropriate.)
- g. CRPT-06-006 was written because a procedure was needed for CMMS data management. The MAR assessment noted there was no procedural requirement for components requiring preservation and maintenance to be entered into CMMS for tracking of maintenance. In addition, no project plan, procedure, or instruction existed, which governed CMMS data entry and maintenance to ensure data was complete, correct, and consistent with WTP design

and physical configuration. BNI authored 24590-WTP-GPG-CMNT-0003, *Computerized Maintenance Management System - Data Management Guide*, to resolve this problem. A related procedure, 24590-WTP-GPP-CMNT-009, *Maintenance Work Control*, was revised for planners to evaluate source database to ensure equipment information is entered in CMMS accurately and have a second planner verify the correctness of data entered. (The assessor considered this resolution appropriate.)

- h. CRPT-06-039 was listed in error. The assessor verified this CRPT was not related to subcontractor-built facilities. BNI stated this was accidentally included in the “Summary of Deficiencies” list for the MAR. No evaluation was required.
- i. CRPT-06-050 identified some components in CIS that were deleted from InfoWorks, which is the primary repository for retention and linkages of design for CM purposes. The error was caused by the program for the interface job allowing new components to be added to InfoWorks without providing descriptive attribute data to the update. The program’s permission level was revised, and identification and retrofit of all remaining data inconsistencies was completed; thus synchronizing CIS and InfoWorks. A recurring, monthly automated job was created to compare CIS to InfoWorks to identify any new discrepancies that might occur so they can be corrected. (The assessor considered this resolution appropriate.)

Conclusion: Of the nine issues documented by BNI, one did not apply to the MAR, two were inappropriately closed (one by a lack of timely response, the second by inappropriate interpretation of procedure), and six were acceptably resolved. AFI D-06-DESIGN-029-A05 is closed because the issues tracked by the AFI have been either resolved or identified elsewhere. The issues of inappropriate closure of CRPT-06-064 (item #1) and PIER-06-0079 (item #4) will be tracked by AFI D-08-DESIGN-057-A01.

4.1.3 Statement of Issue: D-07-DESIGN-029-F03

D-07-DESIGN-029-F03 states, “Contrary to Contract requirement DE-AC-27-01RV14136, Section C “Statement of Work,” Standard 4, the assessors determined the wiring for MCC-1A 480 Volts Alternating Current (VAC) load center (over current protective relays) was routed incorrectly and would not allow proper function of the over current relays per drawing 24590-CM-HC1-MBFO-00001-00096, Rev. A. No turnover punchlist item or walk-down process could be identified, indicating this was a known open item for the Steam Plant subcontractor. This is considered a Finding against the Contractor, for failure to inspect construction to assure adherence to approved working drawings and specifications.” “

In response to the Finding, BNI issued PIER-MGT-06-552, which resulted in the initiation of CRPT-QA-06-155 to address the Finding.

The actual field conditions were resolved via Construction Deficiency Report (CDR)-CON-06-0152 and verified to be correct by BOF Field Inspection Report (FIR) 24590-BOF-FIR-CON-06-087. The CDR listed components requiring verification of correct overload wiring and provided instructions for rewiring to the proper design configuration if needed (the list included spare breaker by mistake). The subsequent FIR looked at the affected components for proper configuration, but did not list the spare. Discussion with BNI personnel revealed the design of the overload device and its wiring configuration was such that a breaker’s overload device could not be wired unless assigned to a load. (The assessors concluded this resolution was appropriate.)

Because the original CRPT did not address all programmatic concerns, four additional PIERs were initiated (and bundled under CRPT-07-102) to evaluate and enhance the subcontractor acceptance process.

One PIER (07-0318) required development and issuance of two “lessons learned” associated with the condition, and communication to affected personnel. Corrective actions were described under CRPT-07-102-2 and CRPT-07-102-3: The “lessons learned” were developed and placed on the Lessons Learned Website, and e-mailed to affected personnel. (The assessors concluded this issue was appropriately resolved.)

Another PIER (07-0316) required enhancing future walkdowns for subcontractor acceptance by including subject matter experts (SME) from Design Engineering, C&T, O&M personnel, and field electrical engineers. Corrective actions were described under action CRPT-07-102-4: “Revise procedure 24590-WTP-GPP-CON-4103 to include the personnel described in the PIER in acceptance walkdowns.” Revision 1 to the subject procedure “invited” these personnel to acceptance walkdowns, but did not require their participation. The Assessment Team concluded CRPT-07-102-4 was implemented, but did not fulfill the intent of the issue as defined in the corrective action statement. However, this issue was raised and tracked via another ORP Finding D-06-DESIGN-032-F01, which resulted in a commitment by BNI to perform a management assessment (24590-WTP-MAR-CON-07-0084); see Section 4.3 of this report. This MAR made 22 recommendations, which resulted in 6 PIERs associated with acceptance inspections and walkdowns (one of these PIERs was PIER-MGT-07-1676). PIER-MGT-07-1676 also tracks the remaining issue in this Finding, thus allowing closure of Finding D-07-DESIGN-029-F03 with tracking by D-07-DESIGN-032-F01. This ORP Finding (now captured via BNI PIER-MGT-07-1676) will define the timing and process for performing discipline inspections (including the need for personnel to be required to support walkdowns, not just be invited) in support of final subcontractor acceptance. The issue of CRPT-07-102-4 not being properly implemented will be tracked as another example of **AFI D-08-DESIGN-057-A01**, as well as closed for D-06-DESIGN-032-F01.

Conclusion: Finding D-07-DESIGN-029-F03 is closed because it is a duplicate of D-06-DESIGN-032-F01. BNI report 24590-WTP-MAR-CON-07-0084 has been documented in PIER-MGT-07-1676, which will be tracked to closure of D-06-DESIGN-032-F01.

4.1.4 Statement of Issue: D-07-DESIGN-029-F04

D-07-DESIGN-029-F04 states, “Contrary to Contract requirement DE-AC-27-01RV14136, Section C “Statement of Work,” Standard 7, the extent of condition required for Corrective Action Report 24590-WTP-CAR-QA-05-186, dated August 5, 2005, did not complete its extent of condition review after nearly one year. The BNI project Issues Evaluation Report 06-0067 was written to address the lack of timeliness of the extent of condition review, but was closed without addressing the issue. This is considered a Finding, D-06-DESIGN-029-F04, for failure to implement the corrective action program.”

The Contractor’s initial response to this Finding (CCN 146709) was not accepted by DOE because it did not properly address the “timeliness” issue. A subsequent meeting between DOE and the Contractor resulted in a set of agreed-upon actions and a revised response (CCN 148798) to this Finding. One of the actions the Contractor took was to revise PIER-06-067 to address the timeliness issue and the basis for closure of the PIER. The Contractor also incremented the revised PIER, and linked related documents so the “paper trail” was clear and auditable. These

actions adequately addressed the Finding, and were consistent with the agreed-upon actions from the previous meeting between DOE and the Contractor.

BNI noted the cause of inappropriate closure of the subject PIER was the relative newness of the PIER process at that time and staff inexperience with use of the new process. PIER-MGT-06-0406 was originated from a management assessment of the newly implemented PIER process in September/October 2006 and recommended more frequent surveillance/audit of PIER process implementation in its early stages until a high level of confidence is obtained relative to consistent and effective implementation. In its response to the Finding, BNI committed to pursue the broader issue of PIER process implementation through resolution of PIER-06-0406.

This response was originally considered sufficient. However, based on the attempted closure of D-06-DESIGN-29-A05, which determined another CRPT did not have timely closure and did not follow the escalation process for timely resolution, this Finding must remain open until BNI offers a new response to lack of timely closure process other than newness of program and training of personnel.

Conclusion: This Finding was considered closeable based on the BNI initial response; however, due to failure to close CRPT-06-064 in a timely manner, the Finding will remain open until the timeliness process is re-addressed.

4.1.5 Statement of Issue: D-07-DESIGN-029-O02

D-07-DESIGN-029-O02 stated, "Cable numbers and termination numbers were not provided as CM submittals to BNI for the 480VAC non-safety distribution loads because the approved design specification did not require the subcontractor to provide cable numbers or termination labeling for the work. This information is needed to provide CM to support test, operations, and maintenance efforts for the system."

The Contractor's response indicated numbers or labels for three-phase power conductors and terminations for 480 volts alternating current (VAC) non-safety distribution loads are not necessary because of the standard color-coding of phases used in other WTP facilities. This position was acceptable to the BNI C&T organization and would support future testing, operations, and maintenance.

C&T indicated, while not required by any codes or standards, power cables for 480 VAC motor control center (MCC) in other WTP facilities are tagged with unique identification numbers to facilitate system inspection, test, and turnover. Hence, BNI initiated QAIS-06-1073 to consider whether the subcontractors would provide cable numbers, or whether BNI would have to perform the work. A review of QAIS-06-1073 determined that the subcontractors were unwilling to provide cable numbers and schedules. Therefore, BNI developed Trend 06-2835 to obtain approval of funds for this activity. This Trend had originally been packaged with others, which complicated its consideration by the Engineering Trend Board (the Board). Recently, the item was broken out as a separate Trend, and is planned for separate presentation to the Board.

In addition to the original response, the assessors had a discussion with knowledgeable BNI electrical design engineers who indicated BNI had expanded the extent of condition (EOC) of this issue beyond the two facilities (Steam Plant, Cooling Towers) ORP inspected in the original Design Oversight. This was based on these additional facilities having also been designed and constructed by subcontractors. The revised Trend addressed this EOC. Furthermore, the Trend also considered MCCs and distribution panels at voltages other than 480 VAC for the need

to identify and label cables with unique numbers. The assessors also concluded this Trend should provide for CM requirements for terminations other than power terminations (e.g., instrumentation and connection to other loads), which would require the labeling of terminations as well as cable numbers of CM.

Conclusion: Until the Board disposes the subject Trend, there is no guarantee that this request will be funded. Observation D-07-DESIGN-029-002 is closed based on BNI providing an adequate response. If further examples of inadequate CM are found following system turnovers in the future, ORP will consider them Findings for inadequate work completion.

4.2 OBJECTIVE 2: Evaluate Contractor's Closure of Issues identified in Design Assessment Report D-07-DESIGN-032

4.2.1 Statement of Issue: D-07-DESIGN-032-F01

D-07-DESIGN-032-F01 stated, "BNI did not properly follow their procedure for the demobilization of subcontractors." BNI issued CRPT-QA-07-175 to address the finding, and is in the process of completing corrective actions (CA)."

The EOC evaluation for CRPT-QA-07-175 appeared to be limited to subcontracts associated with the BOF typically designed and installed as commercial grade (Cooling Towers, Steam Plant, BOF Field Erected Tanks, BOF Pump Houses, and Pipe Rack Foundations); i.e., "turnkey subcontracts." The assessors also reviewed 24590-WTP-MAR-CON-0084, *Subcontract Acceptance and Closeout*, (which is discussed in more detail in Section 4.3 of this report) that documented 22 recommendations catalogued into 6 PIERs (3 assigned to Construction, 1 to Engineering, and 2 to Subcontracts). While none of these issues were characterized as a deficiency in the MAR, it is management's requirement to document them via the PIER process, which requires the assigned individual to provide responses but no corrective steps unless transferred to a CRPT. Each recommendation had been assigned a PIER number (with one exception, which will be discussed in Section 4.3) and response dates pending in early December 2007. The Assessment Team met with members of Quality Assurance (QA), Construction management, and the Lead Assessor for the report to understand who was assigned responsibility for addressing the issues and what the responses to the PIERs would be. At the time, no responses had been provided to the issues nor was it clear that corrective actions would be taken. This precluded the Assessment Team from making a determination on the effectiveness of BNI's subcontractor closeout process.

The assessors review was also unable to find data indicating the subcontractors were actually reviewed by the MAR. The assessors concluded the assessment dealt more with the procedures and process of subcontracting than actual review of specific subcontract data for subcontractors that had been either completed or demobilized prior to completion. Hence, the assessors concluded the MAR was not necessarily effective in seeing the effect of demobilization of subcontracts where BNI might have to complete the effort without the presence of the subcontractor. This included facilities or systems where design and installation was shared between BNI and a subcontractor (e.g., FSW).

Conclusion: The Finding D-07-DESIGN-032 cannot be closed at this time because the PIERs originated based on report 24590-WTP-MAR-CON-0084 had response due dates in early December 2007. Therefore, it is unclear what, if any, actions will be taken to address these recommendations.

4.2.2 Statement of Issue: D-07-DESIGN-032-A01

D-07-DESIGN-032-A01 stated, “ORP will confirm the Design Verification Report is being completed prior to quality system turnovers in a future assessment.”

BNI issued PIER-MGT-07-0627 to address this AFI by developing a process by which the “confirmation of DVR completion prior to system turnover” will be required. This requirement was made part of the Design Completion Punchlist in new procedure 24590-WTP-3DP-G04T-00916, *Design Completion for Turnover to Startup*, effective September 25, 2007. This procedure recognizes that design completion for turnover supports transfer of structures, systems, and components (SSC) custody within a defined boundary from construction to startup.

Conclusion: The procedure has been changed to accomplish design verification reports (DVR) prior to turnover. AFI D-07-DESIGN-032-A01 is closed.

4.2.3 Statement of Issue: D-07-DESIGN-032-A02

D-07-DESIGN-032-A02 stated, “ORP will verify the Requirements Verification process is being conducted at system turnover in accordance with BNI procedures in a future assessment.”

BNI issued PIER-MGT-07-0628 to address this AFI, but in this case, appeared to have closed it with no action. However, the assessor noted the Design Completion Punchlist in new procedure 24590-WTP-3DP-G04T-00916 included issuance of an up-to-date Requirements Verification Matrix (RVM) for system turnover, which provided for analysis and inspection verification activities and demonstration and test verification activities required at turnover per the RVM to be complete at turnover.

The new procedure’s list of interfacing references does not include 24590-WTP-GPP-CON-1602, *System and Area Completion and Turnover*, effective September 19, 2007, which describes the process for turnover of SSC custody from Construction to Startup. Likewise, there is nothing in 24590-WTP-GPP-CON-1602 that requires completion of actions by Design under 24590-WTP-3DP-G04T-00916 prior to completing turnover of custody from Construction to Startup. Because these procedures are not “linked,” there is a potential for a system to be “turned over” from Construction to Startup without Engineering having performed its turnover requirements. However, BNI did note that a single individual has been assigned as project manager to develop and document an over-arching process that integrates and sequences all activities necessary to perform system turnover from Construction to Startup. At the time of this assessment, a draft “Turnover for Startup” flowchart was under discussion within BNI that will become the framework for development of this over-arching process that will govern turnover.

From a review of the draft flowchart, the assessors concluded the issue noted above will be resolved through completion of this “project” (i.e., process for governing turnover).

Conclusion: AFI D-06-DESIGN-032-A02 is closed. However, **Observation D-08-DESIGN-057-O03** was initiated to observe the need for the integrated project turnover procedure to provide for completion of subcontractor work per 24590-WTP-GPP-CON-4103 and design completion per 24590-WTP-3DP-G04T-00916 prior to construction turnover to startup per 24590-WTP-GPP-CON-1602.

4.2.4 Statement of Issue: D-07-DESIGN-032-A03

D-07-DESIGN-032-A03 stated, “Design Engineering staff did not exhibit a good understanding of the design verification and requirements verification processes associated with the completion

and verification of the safety and functional adequacy of a system design, although they had completed the associated required reading.”

DOE noted this would ordinarily require a Finding, but did not cite one due to BNI’s ongoing effort to improve overall project training via the Nuclear Safety and Quality Imperative (NSQI). D-07-DESIGN-032-A03 was initiated to reassess this area in a future assessment following BNI’s implementation of NSQI training-related corrective actions.

The assessor reviewed training-related action items from CRPT-05-331, which was the condition report that documented the broad-based culture problems that resulted in origination of the NSQI initiative. None of these were specific to the knowledge deficiencies documented in the DOE oversight report, with the exception of action 64 that implemented classroom training on fundamental Design Engineering processes (inputs, production, review, and change) for new hires. Although it was possible for the assessor to interview a small set of design engineers to determine the extent of their knowledge in the previously identified areas of deficiency, this was not done because it would not have provided a broad enough sample, and all training-related corrective actions under the NSQI initiative had not yet been evaluated for effectiveness (typically about 6 months after closure of the CRPT).

Conclusion: This AFI is not acceptable for closure at this time until CRPT-05-331 is closed by the completion of the NSQI effectiveness review.

4.2.5 Statement of Issue: D-07-DESIGN-032-F02

D-07-DESIGN-032-F02 stated, “BNI does not have a discretely defined list of design inputs documented and traceable to completion of the Design Verification Report (DVR).”

BNI issued CRPT-QA-07-181 to address the finding, and is in the process of completing corrective actions (CA).

- The first CA will create links in the Design Criteria Database (DCD) between criteria and system designators to facilitate searches by system and provide the capability in the DCD to generate a system-specific requirements report (due date January 31, 2008).
- The second CA will develop or update draft Part 1 system descriptions (SD), or verify current requirements in previously approved SDs (due date April 30, 2008).
- The last CA will add actions for Engineering disciplines to approve draft/updated Part 1 SDs developed in the second CA, and complete these last actions by June 30, 2008.

Once the above CAs are complete, Part 1 of the SDs will be populated with design inputs/requirements obtained from the DCD using the new “system linkage” tool and validated to be complete and accurate. Persons who perform design verifications in the future will use the SD as a support document. This will ensure that all applicable design requirements/inputs are traceable to the DVR.

Conclusion: Finding D-07-DESIGN-032-F02 cannot be closed until the closure of CRPT-QA-07-181 and a system specific report is produced for review.

4.2.6 Statement of Issue: D-06-DESIGN-032-O01

D-06-DESIGN-032-O01 documented ORP’s concern that the Contractor’s present approach may not be sufficiently comprehensive to ensure the plant can meet its performance requirements,

particularly during and after operational transients. BNI issued PIER-07-0624 to address this issue.

The corrective action specified under PIER-07-0624 was to perform a lower-tier management assessment to evaluate whether WTP facilities would meet requirements during and after operational transients. 24590-WTP-MAR-ENG-07-0022, *Verification That the Plant Will Perform as Required During and After Operational Transitions*, was performed in October 2007. The assessment considered as operational transients those periods of WTP operation where the process was not “steady state” (operating parameters were not constant – they varied). In this assessment, BNI compared the scope of its engineering processes against existing design requirements (including those associated with production, safety, immobilized product quality, operations and maintenance, permitting, and external interfaces) to assess the adequacy of the processes and controls for verifying WTP would perform as required during and after operational transients. BNI found engineering processes in place adequate to ensure WTP facilities would meet contractual and design requirements during and after operational transients, and approved closure of PIER-07-0624 on that basis. However, the review did point out that the adequacy is based on the design being able to meet contractual performance requirements during and after transient conditions. No computerized model exists at this time allowing transient analysis modeling.

Conclusion: The assessor reviewed the PIER and associated MAR and considered these effectively addressed the issue described in the original Observation. Consequently, D-06-DESIGN-032-O01 is closed.

4.3 OBJECTIVE 3: Review 24590-WTP-MAR-CON-07-0084 and Determine Effectiveness of Contractor Oversight by Verifying If Issues were Properly Identified, Documented, and Tracked for Closure

4.3.1 Results of Assessment

The assessors reviewed the CRPT-QA-07-175 and determined it committed to the actions to perform the 24590-WTP-MAR-CON-07-0084. The assessors’ review of the MAR determined a series of PIERS were written to cover the report’s recommendations. The assessors reviewed PIERS 24590-WTP-PIER-MGT-07-1676 through 07-1681, interviewed the lead assessors, and discussed this report with BNI construction management. In addition, the assessors reviewed the original scope lines of inquiry prior to the beginning of the assessment. The primary objective of this review was to determine if issues were properly identified and documented in the CA program, and the responses adequately addressed the issues.

24590-WTP-MAR-CON-07-0084, Section 4 “Assessment Results,” subsection B “Current Issues Affecting Acceptance and Closeout Still Requiring Resolution,” included a recommendation to “provide further instructions and quality expectations in subcontractor Exhibit “T” or other subcontract Exhibits as may be appropriate with the corresponding WTP right to withhold payment for the continued late re-submittal of corrected acceptance documents.” The assessor’s review of Section 4D (which contained Exhibit “T”) determined the section provided a series of recommendations (14 – 22), which were based on lessons learned from Section 4A and resolved these problems for future contracts. However, the assessors concluded Section 4D did not identify or resolve issues created from past or present subcontracts in any recommendation but implied by Section 4A that all these issues had been identified and resolved by engineering actions. Based on past ORP assessments and the incomplete status of

BOF systems, the assessors concluded the extent of the subcontractor closeout problem is not presently visible due to the existence of an inadequate subcontractor closure process. This process should provide adequate procedures, sufficient subcontractor staff, SME involvement in walkdowns, and other issues as defined in Section 4A. Hence, the assessment failed to identify the total scope of the issues dealing with the historical problems in subcontract administration, which will not be possible until the construction turnover program processes these systems and equipment (via the punchlist process). At that time, it is the assessors belief additional problems will surface which could be BNI or subcontract issues, but it will be difficult to hold subcontracts responsible for the ultimate performance of the system due to the modification of the subcontracts and the lack of warranty. The failure to identify BOF turnkey subcontractor work completion problems such as the cooling tower, steam plant, etc. in MAR-CON-07-0084 is captured as **AFI D-08-DESIGN-057-A01**.

Of the 22 recommendations documented in 6 PIERs, the assessors reviewed the wording in the MAR to see if the PIERs accurately represented the conditions provided in the report. In most cases, the transcription was accurate; however, in some cases they were not. For example,

- 24590-WTP-MAR-CON-07-0084 provided a recommendation to prepare and issue a guide to follow for commercial closeout of construction and provided specific criteria for this. However, PIER-MGT-07-1679 did not provide the specific requirements as detailed in the MAR. Although the CA program may only require describing an issue and not the criteria, the assessors considered the criteria inherent to the issue. This is considered failure to accurately report a condition into the CA process, since the recommendation was specific on requirements needing to be met.
- PIER-MGT-07-1680 reported the above recommendation in item 3, "Identification of specific or targeted turnaround time by the Subcontractor" when the wording in 24590-WTP-MAR-CON-07-0084 reads, "Identification of specific or targeted turnaround time by the SC (BNI subcontractor coordinator) for Quality Verification Review Package (QVRP) record review." The PIER appears to provide different information. The MAR indicated the problem was with the BNI subcontract coordinator's need for timely review of the QVRP but the PIER indicates the problem is with the subcontractor).

These examples of failure to accurately report a condition into the CA process will be added to **AFI D-08-DESIGN-057-A01**.

The Assessment Team also noted in 24590-WTP-MAR-CON-07-0084, Section 4, "Results," subsection c, "Review of Procedure for Adequacy and Compliance," that the MAR concluded the procedure 24590-WTP-GPP-CON-4103 was consistent with BNI Corporate requirements (as a statement of adequacy) with no issue noted. However, this appears to be inconsistent with the 22 recommendations and 6 PIERs, which were written to upgrade the subcontractor closeout process for adequacy at WTP. **AFI D-08-DESIGN-057-A04** will track this apparent discrepancy relative to the process being adequate for corporate needs but not adequate for use at WTP. Based on the MAR results and recommendations, the procedure 24590-WTP-GPP-CON-4103 appears inadequate for implementation due to lack of detail for execution, which in turn caused subcontractor closeouts without CM and technical acceptance prior to demobilization. This results in subsequent rework for BNI at additional cost to the project.

Part of the scope of 24590-WTP-MAR-CON-07-0084 involved reviewing past issues affecting acceptance and closeout of subcontracts that were already addressed. One such issue was

captured under CRPT-06-214, which stated that subcontractor-supplied equipment was not being maintained in accordance with approved vendor recommendations for the BOF Cooling Towers and Steam Plant. CA #4 of CRPT-06-214 required revision of procedure 24590-WTP-GPP-CON-4103 by addition of a requirement to verify that the Preservation Maintenance Group had the necessary information to develop preservation maintenance activities, before allowing the subcontractor to stop performing maintenance. The Actions Taken section of the CA cited Section 2.3.3 of 24590-WTP-GPP-CON-4103, Rev. 0, contained language that met the intent of the specified CA. QA originally rejected the CA because the procedural wording did not match that described in the "Action to be implemented" section of the CA; however, QA subsequently accepted the cited wording. The assessor reviewed the latest revision of the procedure (Rev. 1) and could find no statements relating to the condition that was to be resolved (e.g., ensuring BNI had sufficient preservation information from the subcontractor to enable development of preservation maintenance prior to acceptance of subcontractor work by BNI).

Notwithstanding acceptance by the responsible manager on February 16, 2007, to close this CRPT, the assessors concluded this issue was not closed appropriately for reasons cited above. This is another example under **AFI D-08-DESIGN-057-A01**.

Conclusion: 24590-WTP-MAR-CON-07-0084 was completed and identified recommendations, which were documented in PIERs. If these PIERs are properly responded to and implemented, it will be useful in the correction of issues noted in D-06-DESIGN-032-F01. However, some discrepancies are noted in the report's conclusion that procedure 24590-WTP-GPP-CON-4103 was adequate from a BNI Corporate point of view but needs substantial rework to be effective for WTP. The MAR objective was to evaluate the effectiveness of the subcontractor process for WTP, not for BNI Corporate needs. Some additional problems with the MAR results included:

1. Issues considered "already addressed" in Section 4A of the MAR provide insight (based on the poor subcontractor technical requirements in the contracts; lack of sufficient subcontractor coordinators and SMEs for walkdowns; lack of records to review and field engineering staff to review; and a flawed demobilization process) to future problems yet to be identified but that will be discovered when the subcontractor closure process provides an adequate turnover punchlist and staff to walkdown for subcontractor closeout. The issue of poor maintenance has been properly addressed after ORP intervention and the issue of turnover is progressing. Hence, the report does not provide insight to problems that will be discovered when the system turnover process begins. This should have been identified in the report as a recommendation to complete these systems in a timely fashion and turn them over such that subcontractor issues can be addressed now and not lost. Therefore, this issue was not reported per the CA process via PIERs.
2. A closed CRPT evaluated under the MAR was not identified as having been closed without addressing the issues for which it was originated.
3. Some recommendations were not properly transferred to PIERs in the same fashion as written in the MAR.

4.4 OBJECTIVE 4: Review Turnover Process Procedures to Verify Procedures Exist to Define Various Organizations Responsibilities and Deliverables to Effect Turnover from Construction to Startup

The Assessment Team reviewed the turnover procedures approved by the project, observed turnover punchlist meetings, interviewed BNI management responsible for the development of the integrated turnover process, and reviewed a turnover punchlist.

4.4.1 Procedure Review

The assessors reviewed procedures 24590-WTP-3DP-G04T-00916, *Design Completion for Turnover to Startup*, as well as 24590-WTP-GPP-CON-1602, *System and Area Completion and Turnover*, and 24590-WTP-GPP-CON-4103, *Subcontract Surveillance, Acceptance, and Closeout*. The assessors noted:

- There were only two definitions in the 00916 procedure – “Exception Items” and “Punchlist Items.” Terms like “design complete” and “as-built” are not used or defined in the procedure. However, the procedure focuses on the preparation of a Design Completion Checklist, which includes verifying there are no planned or in-process design changes, and so by inference, establishes “design complete” for items within the turnover boundaries. Although the term “as-built” is not used, verification that items within the turnover boundary meet design requirements, those that do not are under documented “temporary modifications,” and post-turnover design changes must be performed under “design change packages” appears to establish a configuration-controlled, “as-built” status for the scope of turnover.
- The “reference” section in the 00916 procedure lists, among many others, 24590-WTP-GPP-CON-1601, *Control of Punchlist Items*, but does not cite 24590-WTP-GPP-CON-1602 and 24590-WTP-CON-4103 as interfacing references. These procedures are interlinked with Design Completion for turnover and should at least be cited as references with their interfaces discussed.
- The 00916 procedure is clear that the design completion for turnover process applies to subcontractor/supplier completed design. In addition, the Design Completion List includes items such as Supplier Design Drawings, Other Supplier Submittals, etc.
- BNI was in the process of revising some of the procedures associated with turnover from Construction to Startup as a result of lessons learned from turning over the FSW as a “test case.” For example, BNI Subcontracts provided the assessors with a draft document, “Process for Contractual Turnover of Subcontractors Completed Work,” which BNI considered using for turnover of the FSW, and is successful, as written, for inclusion in the applicable turnover procedure.

Until BNI finalizes the turnover to startup process flow map, incorporates the flowdown details in applicable procedures, and revises affected procedures for lessons learned from the “test case” turnover of the FSW, ORP cannot assess the adequacy of procedures for performing the turnover process.

4.4.2 Punchlist Meeting

On November 11, 2007, the assessors observed a turnover punchlist meeting for the Fire Service Water System (FSW) where BNI personnel discussed punchlist items for turnover of system FSW-B-01. This system is the first to be turned over from Construction to Startup and is being performed as a “test case.” Some of the punchlist items being worked by Construction for turnover to Startup are associated with subcontractor, RTG. The assessor selected a few punchlist items at random for detailed review:

- CDR-CON-07-0173 (originated April 25, 2007, by Construction) documented a condition in which the firewater pump house sprinkler system had been hydrostatically tested and flushed by the subcontractor RTG using its own procedure that had not been submitted for review and approval by BNI, as contractually required, prior to use. A previous CDR identifying this as a punchlist item had been “inadvertently closed.” Upon review, the procedure was found to be deficient, causing the test results to be inconclusive. The procedure was to be rewritten, approved by BNI, and the system tested again using the new procedure.
- CDR-CON-07-0375 (originated October 10, 2007, by C&T) documented a condition in which the FSW diesel battery racks did not meet configuration requirements of National Fire Protection Association (NFPA) allowing space and access for maintenance. This had been a previous punchlist item that was closed with a basis stating, “the design was correct and any changes would be nice to do in order to make the job easier.” In addition, the CDR noted the batteries had not been assigned a component identifier. The CDR was dispositioned with a recommendation for Design Engineering to re-design the battery racks and for Construction to install them in place of the ones installed. Documented resolution of this item was that BNI approved the installed design based on its meeting requirements for a “maintenance free” battery. Further discussion with those responsible for this issue revealed Engineering will be re-designing and changing the as-built configuration to better allow access to the batteries for maintenance/change-out.

In addition, the batteries do not have unique component identifiers or equipment tags in the field or on the associated drawings, demonstrating that this aspect of the CDR has not yet been addressed.

- CDR-CON-06-0075 (originated April 5, 2006, by Field Engineering) documented a condition in which firewater pump house control panels supplied by subcontractor RTG were missing Nationally Recognized Testing Laboratory (NRTL) inspection and testing, listing and labeling. The disposition added these panels to a larger list of components to be independently certified for NRTL compliance by a qualified third party under a different subcontract to BNI Design Engineering (the “WTP global NRTL effort”).

BNI was asked if the RTG subcontract was technically closed out with Construction acceptance – the answer was “not yet.” Although this appeared to be a violation of BNI procedures associated with subcontractor closeout and turnover of systems to Startup, a review of the subject procedures revealed that turnover (technical closure and acceptance) of subcontracted systems/components to Construction prior to construction turnover to startup was not a documented requirement of any procedure but appeared to be a management expectation.

This lack of formal turnover of subcontracted work from the subcontractor to Construction (prior to Construction turnover to Startup) has a number of potential adverse impacts, including:

- Not knowing what all the outstanding punchlist items are and when they are due, to not having completed a walkdown/inspection of the subcontractor's work
- Not having completed all appropriate documentation and records, possibly impacting warranty by the subcontractor
- Having to do more work to status and complete what the subcontractor should have done, and the financial impact of such work

4.4.3 Management Interviews

The assessors interviewed various managers who were responsible for either developing or implementing the turnover program. One topic of particular importance is the successful turnover of subcontractor work to BNI prior to Construction turnover to Startup. This includes such things as performing the necessary preservation maintenance on subcontractor-supplied equipment in advance of acceptance of subcontractor work, walkdown of the work by construction via 24590-WTP-GPP-CON-4103, *Subcontractor Surveillance, Acceptance, and Closeout*, review of the as-built condition of the work by Field Engineering, and acceptance by Design Engineering, etc. All parties agreed these things need to be accomplished and, to some degree, adequately covered in the procedure presently in place. However, some procedure modifications have been identified as a result of both ORP and BNI oversight:

- The completion of the turnover "A" level punchlist items should be sufficient to allow C&T to begin the commissioning program for a system. There should not be extended periods of time between the turnover of a system and the start of testing by the Startup organization. C&T and the turnover coordinator agreed with this and acknowledged the FSW is unique due to lack of test acceptance criteria for this system from design, which would normally be an A level turnover item.
- Design Engineering should be able to declare a system design complete and implement the design change procedure (which in essence is a design freeze until the design change package [DCP] is approved by the testing organization). Although the BNI Design organization presently defines design freeze differently, BNI agrees the DCP process is initiated prior to system turnover and ends the design change flowdown process presently in place.

Conclusion: The assessors concluded the turnover program was in its infancy with BNI trying to establish a program via the turnover of a sample system. In addition, a project for developing over-arching procedures for controlling turnover is ongoing with a final set of comprehensive procedures still pending. This area will be reviewed following the completion of the turnovers in more detail.

5.0 OPEN ITEMS

5.1 Findings

No new findings are introduced by **AFI D-08-DESIGN-057-A01**, which tracks issues that are considered findings but cited by a different assessment.

5.2 Assessment Follow-Up Items and Observations

5.2.1 Assessment Follow Up Items

- **D-08-DESIGN-057-A01:** Instances were noted in which BNI did not appear to process PIERs/Condition Reports in accordance with established procedures for corrective actions or closure activity. In addition, instances were noted in which BNI did not identify some issues as PIERs, or did not accurately document issues in the PIER system from management assessments. These type of issues had been previously documented under Findings A-07-ESQ-RPPWTP-009-F01, F02, and F03. This AFI will track the closure of these Findings relative to resolution of the BNI Corrective Action Program.

Specifically, the WTP problems observed by this assessment were:

- CRPT-06-064 required the development and proceduralization of process details for facility walkdowns to inspect and accept subcontractor work. One of the CA (due June 30, 2007) was to revise procedure 24590-WTP-GPP-CON-4103 to define the requirements for a walkdown of completed subcontracted work. The assessors' review of these documents determined the CA was not yet completed per the CRPT closure record, and so was overdue by about 4 months with no new due date assigned. The assessors concluded this was an example of untimely corrective action.
- PIER-06-0079 identified the CMMS Data Import Function process was flawed because it depended on BNI Field Engineering to update TeamWorks to indicate a component had been installed. The PIER was closed based on a discussion of the current process for verifying quantities of BNI scope work via TeamWorks was adequate. The response indicated BNI field engineers were responsible for updating TeamWorks for quantities of work, including installation of individual components. This closure basis simply reiterated the problem described by the originator of the PIER, which was not a sufficient basis for taking no action.
- PIER-07-0316 required enhancing future walkdowns for subcontractor acceptance by including SMEs from Design Engineering, C&T, O&M personnel, and field electrical engineers. Corrective actions were described under CRPT-07-102-4: Revise procedure 24590-WTP-GPP-CON-4103 to include the personnel described in the PIER in acceptance walkdowns. Revision 1 to the subject procedure "invited" these personnel to acceptance walkdowns, but did not require their participation. Notwithstanding, the responsible manager for the CA reviewed and approved it as described in the CAR without recognizing that the action taken would not effectively address the "condition adverse" for which it was developed. The assessors concluded CA CRPT-07-102-4, as implemented, would not effectively resolve the original problem described in the subject CRPT.
- CRPT-06-214 stated that subcontractor-supplied equipment was not being maintained in accordance with approved vendor recommendations for the BOF Cooling Towers and Steam Plant. CA #4 of the CRPT required revision of procedure 24590-WTP-GPP-CON-4103 to add a requirement to verify that the Preservation Maintenance Group has the necessary information to develop preservation maintenance activities before allowing the subcontractor to stop performing maintenance. The Actions Taken section of the CA cited Section 2.3.3 of 24590-WTP-GPP-CON-4103, Rev. 0, contained language that

met the intent of the specified CA. The assessors reviewed the latest revision of the procedure (Rev. 1) and could find no statements relating to the condition that was to be resolved (e.g., ensuring BNI had sufficient preservation information from the subcontractor to enable development of preservation maintenance prior to acceptance of subcontractor work by BNI).

- 24590-WTP-MAR-CON-07-0084, Section 4 “Assessment Results,” subsection B “Current Issues Affecting Acceptance and Closeout Still Requiring Resolution,” included a recommendation to “provide further instructions and quality expectations in subcontractor Exhibit “I” or other subcontract Exhibits as may be appropriate with the corresponding WTP right to withhold payment for the continued late re-submittal of corrected acceptance documents.” The assessor’s review of Section 4D (which contained Exhibit “I”) determined the section provided a series of recommendations (14 - 22), which were based on lessons learned from Section 4A and resolved these problems for future contracts. However, the assessors concluded Section 4D did not identify or resolve issues created from past or present subcontracts in any recommendation and implied by Section 4A all these issues had been identified and resolved. The assessors concluded, based on past ORP assessments and the fact that work in these BOF systems is not yet complete sufficient to turnover the systems, the extent of this problem is not presently visible due to inadequate subcontractor closure process, which required adequate procedures, sufficient subcontractor staff, SME involvement in walkdowns, and other issues as defined in Section 4A. Hence, the assessment failed to identify the total scope of the issues dealing with the historical problems in subcontract administration. This will not be possible until the turnover program processes these systems and equipment via the punchlist process that will identify issues, which could be BNI or subcontract issues but will be difficult to hold subcontracts responsible for the ultimate performance of the system per the initial subcontracts and will have no warranty. At that time, the total scope of issues caused by the BOF subcontractor issue will be identified.
- The MAR provided a recommendation to prepare and issue a guide to follow for commercial closeout of a construction closeout and provided specific criteria for this. However, PIER-MGT-07-1679, which was written for this issue, did not provide the specific requirements as detailed in the MAR. Although the CA program may only require describing an issue and not the criteria, the assessors considered the criteria inherent to the issue.
- PIER-MGT-07-1680 reported the above recommendation in item 3, “Identification of specific or targeted turnaround time by the Subcontractor” when the wording in 24590-WTP-MAR-CON-07-0084 reads, “Identification of specific or targeted turnaround time by the SC (BNI subcontractor coordinator) for Quality Verification Review Package (QVRP) record review.” The PIER appears to provide different information. The MAR indicated the problem was with the BNI subcontract coordinator’s need for timely review of the QVRP but the PIER indicates the problem is with the subcontractor.
- **AFI D-08-DESIGN-057-A04:** Based on the management assessment 24590-WTP-MAR-CON-07-0084 results, procedure 24590-WTP-GPP-CON-4103 appears inadequate for implementation due to lack of detail for execution, which causes subcontractor closeouts without CM and technical acceptance prior to demobilization. This AFI tracks the BNI PIERS to closure that were initiated based on this management assessment.

5.2.2 Observations

- **Observation D-08-DESIGN-057-O02:** Procedures 24590-WTP-GPP-MGT-022 and 24590-WTP-GPP-QA-208 provide no guidance for review and acceptance of closure of PIERs/CRPTs whose stated problem has the potential to adversely affect stakeholders beyond the responsible manager assigned ownership of the PIER/CRPT.
- **Observation D-08-DESIGN-057-O03:** The project is now in need of an integrated project turnover procedure to provide for completion of subcontractor work per 24590-WTP-GPP-CON-4103 and design completion per 24590-WTP-3DP-G04T-00916 prior to construction turnover to startup per 24590-WTP-GPP-CON-1602.

6.0 CLOSED ITEMS

D-06-DESIGN-029-A01, A05, F03, and O02

D-06-DESIGN-032-A01, A02, and O01

7.0 PERSONNEL CONTACTED AND REFERENCES

7.1 Personnel Contacted

Persons Interviewed

G. Babbit	M. Delamar
R. Harshberger	T. Hughes
J. Hummer	G. Jager
D. Kammenzind	K. Law
G. Lucke	T. Minor
B. Turnbow	W. White
J. Wilkins	K. Williams
J. Wright	

7.2 References

10 CFR 830.122 (c) Criterion 3, "Quality Improvement," *Code of Federal Regulations*, as amended

WTP Project Construction Completion and Turnover Punchlist, Open Items for the Selected Startup System -- FSW-B-01, November 6, 2007 need full number?

24590-BOF-3YD-FSW-00001, *System Description for the Fire Protection Systems of Building 84A and 84B and the Fire Service Water System*, Rev. 1, October 25, 2007

24590-BOF-FIR-CON-06-087, *LVE-MCC-85001A & LVE-MCC-85001B, Steam Plant Facility*, December 14, 2006

24590-BOF-M6-FSW-00003, *P&ID 84B Fire Water Pumphouse System FSW*, Rev. 4, October 18, 2007

24590-CM-HC1-MPGP-00001, *BOF Pump House Facilities Process and Instrumentation Diagram Fire Water Pump House Bldg. 84B Sheet 2 of 2*, Rev. 6, September 7, 2007

24590-WTP-3DP-G03B-00044, *Standard Component Numbering*, Rev. 6, August 28, 2006

24590-WTP-3DP-G04T-00916, *Design Completion for Turnover to Startup*, Rev. 0, dated September 25, 2007

24590-WTP-3DP-G06B-00002, *Subcontracts*, Rev. 6, August 17, 2007

24590-WTP-3PS-M0000-T0014, *Engineering Specification for Labeling Permanent Plant Components*, Rev. 0, dated September 7, 2004

24590-WTP-ATS-QAIS-06-1073, *Labeling of Cables*, November 8, 2006

24590-WTP-CAR-QA-05-186, *Components on subcontractor as-built drawing are not entered in the Component Information System*, Rev. 0, August 11, 2005

24590-WTP-CAR-QA-05-331, *Nuclear Safety & Quality Imperative*, Rev. 0, December 20, 2005

24590-WTP-CDR-CON-06-0075, *NRTL Inspections for Subcontract 24590-CM-HC1-MPGP-00001 Supplied Control Panels*, November 9, 2007

24590-WTP-CDR-CON-06-0152, *Bldg. 85 – Wiring for Overload Relay Devices*, December 18, 2006

24590-WTP-CDR-CON-07-0173, *Firewater Pumphouse Sprinkler System Tests*, November 9, 2007

24590-WTP-CDR-CON-07-0375, *FSW Diesel Battery Racks*, November 9, 2007

24590-WTP-CRPT-QA-05-180, *Components on subcontractor as-built drawing are not entered in the Component Information System*, Rev. 0, August 5, 2005

24590-WTP-CRPT-QA-06-006, *Procedure Needed for CMMS Data Management*, Rev. 0, August 1, 2006

24590-WTP-CRPT-QA-06-021, *procedure clarifications/training (A-06-AMWTP-RPPWTP-003-F03b)*, Rev. 0, August 8, 2006

24590-WTP-CRPT-QA-06-039, *Design change control*, Rev. 0, August 17, 2006

24590-WTP-CRPT-QA-06-050, *Components USED in CIS are DELETED in InfoWorks*, Rev. 0, August 23, 2006

24590-WTP-CRPT-QA-06-064, *Need Process Detail for Facility Walkdown*, Rev. 0, August 30, 2006

24590-WTP-CRPT-QA-06-077, *Design Guide not Current with Procedure*, Rev. 0, September 7, 2006

24590-WTP-CRPT-QA-06-089, *Supplier submittals that require revision by design change or by reference*, Rev. 0, September 12, 2006

-
- 24590-WTP-CRPT-QA-06-116, *Components are misidentified in design contrary to 24590-WTP-3DP-G03B-00044*, Rev. 1, October 10, 2006
- 24590-WTP-CRPT-QA-06-117, *Subcontractor drawings for facilities turned over to Construction are not as-built*, Rev. 0, October 10, 2006
- 24590-WTP-CRPT-QA-06-117, *Subcontractor drawings for facilities turned over to Construction are not as-built*, Rev. 0, October 10, 2006
- 24590-WTP-CRPT-QA-06-118, *FWS Drawing Inconsistent with Subcontractor P&ID*, Rev. 0, October 10, 2006
- 24590-WTP-CRPT-QA-06-130, *Inadequate configuration control of subcontractor built facilities*, Rev. 0, October 18, 2006
- 24590-WTP-CRPT-QA-06-155, *MCC-1A480 VAC load center*, Rev. 0, November 13, 2006
- 24590-WTP-CRPT-QA-06-214, *BOF Cooling Tower and Steam Plant*, Rev. 0, February 22, 2006
- 24590-WTP-CRPT-QA-07-102, *Vendor Instruction Manual for Siemens 3UF5 Semicode DP System Motor Protection & Control Device*, Rev. 0, March 20, 2007
- 24590-WTP-CRPT-QA-07-175, *Demobilization of Subcontractors*, Rev. 0, May 17, 2007
- 24590-WTP-CRPT-QA-07-181, *Documentation of Design Inputs*, Rev. 0, May 22, 2007
- 24590-WTP-CRPT-QA-07-185, *Preserve/Maintain Equipment*, Rev. 0, May 23, 2007
- 24590-WTP-GPG-CMNT-0003, *Computerized Maintenance Management System - Data Management Guide*, Rev. 0, dated March 28, 2007
- 24590-WTP-GPP-CMNT-009, *Maintenance Work Control*, Rev. 4, dated September 20, 2007
- 24590-WTP-GPP-CON-1602, *System and Area Completion and Turnover*, Rev. 0, September 19, 2007
- 24590-WTP-GPP-CON-4103, *Subcontract Surveillance, Acceptance, and Closeout*, Rev. 1, August 13, 2007
- 24590-WTP-GPP-COPS-020, *Plant Equipment Labeling*, Rev. 0, June 2007
- 24590-WTP-GPP-MGT-022, *Project Issue Evaluation Reporting*, Rev. 2, September 27, 2007
- 24590-WTP-GPP-QA-208, *Management of Corrective Action*, Rev. 4, September 27, 2007
- 24590-WTP-MAR-CON-07-0084, *Subcontract Acceptance and Closeout*, Rev. 0, dated October 31, 2007
- 24590-WTP-MAR-ENG-06-0009, *Subcontractor Built Facilities Component Identification Rev. 9 of August 18, 2006*
- 24590-WTP-MAR-ENG-07-0022, *Verification That the Plant Will Perform as Required During and After Operational Transitions*, Rev. 0, October 24, 2007
- 24590-WTP-PIER-MGT-06-0052, *two valves in Steam Plant facility not shown on subcontractor P&ID – believed to be due to lack of detail for joint inspection of contractor work prior to acceptance and closeout*, Rev. 0, July 31, 2006

- 24590-WTP-PIER-MGT-06-0056, *components in subcontractor built facilities turned over to Construction not identified in design with unique component tag numbers*, Rev. 1, July 31, 2006
- 24590-WTP-PIER-MGT-06-0063, *components in subcontractor design documents not in CIS*, Rev. 0, July 31, 2006
- 24590-WTP-PIER-MGT-06-0067, *CAR-05-186 did not have extent defined after nearly one year*, Rev. 2, July 31, 2006
- 24590-WTP-PIER-MGT-06-0068, *provide advance notice of planned engineering procedure changes to end user community*, Rev. 0, July 31, 2006
- 24590-WTP-PIER-MGT-06-0070, *BOF facilities designed and installed by subcontractors have labels that do not meet BNI Engineering Specification for labeling permanent plant equipment*, Rev. 1, July 31, 2006
- 24590-WTP-PIER-MGT-06-0079, *weakness in CMMS data input function for subcontracted installations*, Rev. 0, July 31, 2006
- 24590-WTP-PIER-MGT-06-0090, *align SLD with as built panel schedules*, Rev. 0, July 31, 2006
- 24590-WTP-PIER-MGT-06-0092, *rework required due to weak emphasis on operations and maintenance during design review*, Rev. 0, July 31, 2006
- 24590-WTP-PIER-MGT-07-0627, *ORP confirm design verification is completed prior to quality system turnovers*, Rev. 0, May 15, 2007
- 24590-WTP-PIER-MGT-07-0629, *reassess BNI training program for improvements resulting from the NSQI*, Rev. 0, May 15, 2007
- 24590-WTP-PIER-MGT-07-1102, *FSW valves not shown on P&IDs, as-built vendor drawings, and vendor manual*, Rev. 0, August 10, 2007
- 24590-WTP-PIER-MGT-07-1248, *recommendations and observations from external independent evaluation of the turnover process*, Rev. 0, August 30, 2007
- 24590-WTP-PIER-MGT-07-1676, *PIER 1 of 6 resulting from MAR 24590-WTP-MAR-CON-07-0084*, Rev. 0, November 1, 2007
- 24590-WTP-PIER-MGT-07-1677, *PIER 2 of 6 resulting from MAR 24590-WTP-MAR-CON-07-0084*, Rev. 0, November 1, 2007
- 24590-WTP-PIER-MGT-07-1678, *PIER 3 of 6 resulting from MAR 24590-WTP-MAR-CON-07-0084*, Rev. 0, November 1, 2007
- 24590-WTP-PIER-MGT-07-1679, *PIER 4 of 6 resulting from MAR 24590-WTP-MAR-CON-07-0084*, Rev. 0, November 1, 2007
- 24590-WTP-PIER-MGT-07-1680, *PIER 5 of 6 resulting from MAR 24590-WTP-MAR-CON-07-0084*, Rev. 0, November 1, 2007
- 24590-WTP-PIER-MGT-07-1681, *PIER 6 of 6 resulting from MAR 24590-WTP-MAR-CON-07-0084*, Rev. 0, November 1, 2007
- 24590-WTP-PL-ENG-06-0005, *Plan for Completing 24590-WTP-CAR-QA-05-186*, Rev. 0, Action Item 4, Rev. 0, September 29, 2006

24590-WTP-RCA-OP-07-0001, *Root Cause Analysis – Preservation of Equipment*, Rev. 1, September 10, 2007

24590-WTP-RITS-QAIS-06-770, *Redraw Subcontractor One Line Diagram*, July 21, 2006

CCN 146709, letter, from C. M. Albert, BNI, to J. R. Eschenberg, ORP, “*Response to U. S. Department of Energy (DOE), Office of River Protection (ORP) Design Oversight Report: Review of Subcontractor Configuration Management (D-06-DESIGN-029)*”, dated November 26, 2006

CCN 148757, memorandum, from P. J. Townsend to J. B. Monahan, *Action No. CRPT-QA-06-130-1 Submittal*, dated January 24, 2007

CCN 148798, letter, from C. M. Albert, BNI, to J. R. Eschenberg, ORP, “*Contract No. DE-AC27-01RV14136- BNI Replacement Response to Finding F04 ORP Design Oversight Report: Review of Subcontractor Configuration Management (D-06-DESIGN-029)*”, dated March 13, 2007

CCN 149219, E-mail memorandum from D. Simpson to J. Pumroy, *FW: CRPT 06-130 Action Item #2*, dated February 12, 2007

CCN 152395, E-mail memorandum from D. Simpson to M. Stewart, J. Wright, S. Neubauer, *CRPT 06-130 Action Item #2*, dated March 12, 2007

CCN 152934, E-mail memorandum from D. Simpson to M. Stewart, J. Wright, S. Neubauer, *CRPT 06-130 Action Item #2*, dated March 8, 2007

CCN 154298, E-mail memorandum from D. Simpson to M. Stewart, J. Wright, S. Neubauer, *CRPT 06-130 Action Item #2*, dated March 17, 2007

CCN 155921, E-mail memorandum from D. Simpson to J. Monahan, *CRPT 06-130 Action 130-9*, dated May 15, 2007

CCN 157219, letter, from C. M. Albert, BNI to J. R. Eschenberg, ORP, *BNI Response to Finding F02 of ORP Design Oversight Report; WTP Engineering Division Assessment of the Design/ Construction Completion Process for System Turnover (D-07-DESIGN-032)*, dated July 9, 2007

CCN 159965, letter, from C. M. Albert, BNI to J. R. Eschenberg, ORP, *BNI Response to Finding F01 of ORP Design Oversight Report; WTP Engineering Division Assessment of the Design/ Construction Completion Process for System Turnover (D-07-DESIGN-032)*, dated July 20, 2007

CCN 163942, E-mail memorandum from K. Lookabill to D. Higgins, *CRPT 06-130 Subcontract Field Inspection Action Tracking Log*, dated September 13, 2007

DOE O 414.1C, *Quality Assurance*, U.S. Department of Energy, Office of Environment, Safety and Health, June 15, 2005

Draft document entitled, “Process for Contractual Turnover of Subcontractors Completed Work”

Draft process flow map, “Turnover to Startup”

ORP M 220.1, *Integrated Assessment Program*, Rev. 5, U.S. Department of Energy, Office of River Protection

TN-24590-06-02835, *BOF Subcontractor Cable & Term Schedules*, July 2, 2007; *BOF Subcontractor Cable Identification ENG-0673*, November 8, 2007

Appendix A. **DESIGN OVERSIGHT PLAN**

DESIGN OVERSIGHT PLAN

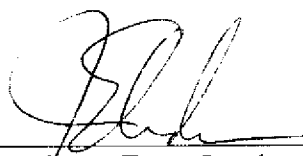
**THE WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP)
ENGINEERING DIVISION (WED) DESIGN OVERSIGHT OF
CONTRACTOR CORRECTIVE ACTIONS FOR ASSESSMENTS
ASSOCIATED WITH CONFIGURATION MANAGEMENT AND
DESIGN CONTROL**

November 2007

Design Oversight: D-08-DESIGN-057

Team Lead: James E. Adams

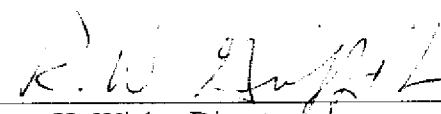
Submitted by:



James E. Adams, Team Lead
WTP Engineering Division

Date _____

Concurrence:



James H. Wicks, Director
WTP Engineering Division

Date 2/4/08

1.0 BACKGROUND, PURPOSE AND OBJECTIVES

1.1 Background

The Waste Treatment and Immobilization Plant (WTP) Engineering Division (WED) has primary responsibility for design oversight of the WTP and performed oversight for both design control and configuration management in Fiscal Year 2007. The Contractor has implemented corrective actions in an effort to correct issues identified to them and has indicated readiness to close these issues.

1.2 Purpose

This design oversight will focus on the verification of corrective actions associated with configuration management and design control issues identified in FY 07 and prior to determine the effectiveness of the identified corrective actions and the program changes implemented to prevent future problems in these areas.

1.3 Objectives

The following are the specific objectives of this oversight:

1. Evaluate the Contractor's closure of issues identified in the design assessment report D-06-DESIGN-029 *Review of Subcontractor Configuration Management*.
2. Evaluate the Contractor's closure of issues identified in the design assessment report D-07-DESIGN-032 *WED Assessment of the Design/Construction Completion Process for System Turnover*.
3. Review the Contractors Management Self Assessment 24590-WTP-MAR-CON-07-0084 *Subcontractor Closeout* to determine the effectiveness of the Contractor oversight and verify that issues identified were properly identified, documented, and tracked for closure to assess process effectiveness.
4. Review the turnover process procedures to verify procedures exist to define the various organizations responsibilities and deliverables to effect turnover from construction to startup.

2.0 PROCESS

This oversight shall be conducted within the guidelines of ORP M 220.1 and the WED Desk Instruction DI 220.1 Rev. 1 as revised January 13, 2006, "Conduct of Design Oversight."

2.1 Scope

This oversight will include the review of closure documentation, verification by field observations and interview with Contractor personnel, as well as review of Contractor assessments oriented toward identification and resolution of issues associated with design control and configuration management.

2.2 Preparation

1. Identify the assessment team involved in the review of assessments.
2. Obtain the plans, procedures, and metrics identified and rational for the metrics.
3. Request interviews of key personnel in the organization collecting and analyzing metrics.
4. Review all data in preparation for entrance and field interviews.

2.3 Review

The assessment will combine a series of reviews including weekly field observations, review of contractor closure documentation for ORP assessment issues, and interviews with Contractor management for results of Contractor management self assessments.

The assessment lead will de-brief Contractor and ORP management periodically, as required. A draft report that summarizes the activities, the results, conclusions and recommendations of the assessment will be prepared and reviewed for factual accuracy by the Contractor prior to issue of the final report.

3.0 SCHEDULE OF ACTIVITIES

Table 2 summarizes the schedule for completion of this oversight.

4.0 DOCUMENTATION

The final report of this task shall contain the sections and content as summarized in ORP DI 220.1 Rev. 1 draft as revised March, 2006, "Conduct of Design Oversight."

The issues identified in this oversight shall be listed in the final report. Each issue shall be assigned a type of issue and an item number for tracking to resolution through the Consolidated Action Reporting System (CARS).

5.0 CLOSURE

The Team Lead with concurrence of the Director shall confirm that the items from this oversight are adequately resolved.

Table 1 – Initial Information Requirements

1.	Closure package information for assessments D-06-DESIGN-029 and D-07-DESIGN-032
2.	Copies of the Contractor Management Self Assessment 24590-WTP-MAR-CON-07-0084
3.	Schedule interviews with the team lead of the Contractor MAR-07-0084.
4.	Schedule interview with the Contractor responsible for the turnover program, including the individuals responsible for the construction, design, and commissioning and test program inputs to the turnover.

Table 2 – Schedule

Activity Description	Responsibility	Complete By
Develop Design Oversight Plan.	Adams	11/05/07
Identify Team members.	Adams/Cooper	11/05/07
Obtain approved plan.	Eschenberg/Wicks	11/12/07
Obtain initial information defined in Table 1 above to support review and provide to team members	Adams	11/05/07
Qualify Team members-Attachment 9.1	Adams	11/05/07
Kick-off meeting with team to outline objectives, scope, schedule, and establish points of contact.	Team	11/12/07
Review documents from ORP and provide oversight strategy, lines of inquiry, and interview requests to team lead.	Team	11/12/07
Perform closure of previous assessments	Cooper	11/05/07- 11/16/07
Prepare Draft Design Oversight Report Notes.	Cooper	11/23/07
ORP Exit Briefing.	Team and WED Management	11/30/07
Draft Report	Adams	12/11/07
Resolve comments and place Final Report into concurrence including factual accuracy review with Contractor.	Adams	12/28/07
Issue Final Report	Adams	12/31/07

Task# ORP-WTP-2007-0320

E-STARS[®] Report
Task Detail Report
02/04/2008 0917

TASK INFORMATION

Task#	ORP-WTP-2007-0320		
Subject	(Concur 07-WTP-324) TRANSMITTAL OF THE U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION (ORP) DESIGN OVERSIGHT REPORT: CONTRACTOR CORRECTIVE ACTIONS FOR CONFIGURATION MANAGEMENT AND DESIGN CONTROL IN SUPPORT OF DESIGN/CONSTRUCTION COMPLETION PROCESS FOR SYSTEM TURNOVER (D-08-DESIGN-057)		
Parent Task#		Status	CLOSED 02/04/2008
Reference		Due	
Originator	Licht, Sarah (Licht, Sarah)	Priority	High
Originator Phone	(509) 376-6611	Category	None
Origination Date	12/18/2007 1416	Generic1	
Remote Task#		Generic2	
Deliverable	None	Generic3	
Class	None	View Permissions	Normal
Instructions	<p>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.</p> <p>bcc: MGR RDG file WTP OFF file WTP RGD file M. K. Barrett, AMD T. M. Williams, AMD J. E. Adams, WTP J. R. Eschenberg, WTP R. W. Griffith, WTP J. H. Wicks, WTP</p>		

ROUTING LISTS

1	Route List	Inactive
	<ul style="list-style-type: none"> ● Adams, Jim E - Review - Cancelled - 02/04/2008 0917 <i>Instructions:</i> ● Wicks, James H - Review - Cancelled - 02/04/2008 0917 <i>Instructions:</i> ● Eschenberg, John R - Approve - Approved with comments - 02/04/2008 0703 <i>Instructions:</i> 	

ATTACHMENTS

Attachments	<ol style="list-style-type: none"> 1. 07-WTP-324.JEA.Attach.D-08-DESIGN-057.doc 2. 07-WTP-324.JEA.Elkins.doc
-------------	--

COLLABORATION**RECEIVED**

FEB 04 2008

DOE-ORP/ORPCC

Task# ORP-WTP-2007-0320**COMMENTS****Poster** Eschenberg, John R (Perez, Anez) - 02/04/2008 0702

Approve

Pete Furlong signed for John E. 2/3/2008

TASK DUE DATE HISTORY*No Due Date History***SUB TASK HISTORY***No Subtasks**-- end of report --*

Task# ORP-WTP-2007-0320

E-STARS[®] Report
 Task Detail Report
 12/18/2007 0219

TASK INFORMATION			
Task#	ORP-WTP-2007-0320		
Subject	(Concur 07-WTP-324) TRANSMITTAL OF THE U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION (ORP) DESIGN OVERSIGHT REPORT: CONTRACTOR CORRECTIVE ACTIONS FOR CONFIGURATION MANAGEMENT AND DESIGN SYSTEM CONTROL IN SUPPORT OF DESIGN/CONSTRUCTION COMPLETION PROCESS FOR SYSTEM TURNOVER (D-08-DESIGN-057)		
Parent Task#		Status	Open
Reference		Due	
Originator	Licht, Sarah (Licht, Sarah)	Priority	High
Originator Phone	(509) 376-6611	Category	None
Origination Date	12/18/2007 1416	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 M. K. Barrett, AMD T. M. Williams, AMD J. E. Adams, WTP J. R. Eschenberg, WTP R. W. Griffith, WTP J. H. Wicks, WTP		
ROUTING LISTS			
1	Route List	Active	
	<ul style="list-style-type: none"> • Adams, Jim E - Review - Awaiting Response - Due Date <i>12/20/07/4 Feb 08</i> <i>Instructions:</i> • Wicks, James H - Review - Awaiting Response - Due Date <i>8 Jan 07 / 30 Jan 08</i> <i>Instructions:</i> • Eschenberg, John R - Approve - Awaiting Response - Due Date <i>Instructions:</i> 		
ATTACHMENTS			
Attachments	1. 07-WTP-324.JEA.Attach.D-08-DESIGN-057.doc 2. 07-WTP-324.JEA.Elkins.doc		
COLLABORATION			
COMMENTS			
No Comments			

Record 12/18/07
 Rec'd 1/18/08
 1/20/08

Comments 1/10

OFF 3 Feb 08

Task# ORP-WTP-2007-0320

TASK DUE DATE HISTORY

No Due Date History

SUB TASK HISTORY

No Subtasks

-- end of report --