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United States Government

Department of Energy

Office of River Protection

memorandum

DATE:

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REPLY TO

WTP:JWM 07-WTP-109

SUBJECT:

TRANSMITTAL OF THE WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) INDEPENDENT ASSESSMENT OF OPERATIONS AND COMMISSIONING TEAM (OCT) CONSTRUCTION OVERSIGHT PROGRAM A-07-AMWTP-RPPWTP-012

TO:

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

The U.S. Department of Energy, Office of River Protection (ORP) AMWTP has completed an independent assessment of the Construction Oversight Program in compliance with ORP M 220.1, Rev. 4, ORP M 432.1, Rev. 0, and ORP M 243.1 Rev. 0. Report A-07-AMWTP-RPPWTP-012 is attached. This assessment was the first-of-its-kind relative to evaluating the performance of the OCT Construction Oversight Program. The assessment focused primarily on oversight performance from 2005 to the present. Implementation of the program is in general compliance with the governing instructions, with the exception of issues identified in the report. Improvements are needed in: 1) the approach used for selecting construction activities for inspection, 2) consistently characterizing issues as Assessment Follow-up Items, Non-cited Findings, or Findings, 3) sharing of inspection insights within and outside of OCT, and 4) documenting in inspection notes whether or not effectiveness reviews will be performed after issues are closed.

Overall, OCT implementation of the Construction Oversight Program was effective in identifying issues of significance that, once adequately addressed by the Contractor, improved Contractor safety and quality performance.

If you have any questions, please contact me, (509) 373-8501.

Sincerely,

ABruggeman, Acting Lead

Operations and Commissioning Team

Attachment

INDEPENDENT ASSESSMENT OF WTP OPERATIONS AND COMMISSIONING TEAM (OCT) CONSTRUCTION OVERSIGHT PROGRAM

MARCH 19-30, 2007

A-07-AMWTP-RPPWTP-012

SUBMITTED:

Submitted:

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Date: 4/26/07

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EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE), Office of River Protection (ORP) Waste Treatment and Immobilization Plant (WTP) Commissioning and Operations Team (OCT) conducted an independent assessment of its Construction Oversight Program to verify it complied with ORP implementing documents¹. In addition, the assessor reviewed the implementation of the oversight process including identification, transmittal, tracking, and closure of issues, both to the WTP Contractor (Bechtel National, Inc. [BNI]), and internal to OCT based on a review of selected construction oversight reports (and the inspection notes on which they were based) from early 2005 to the present. Specifically, the following were assessed:

- 1. Compliance of selected inspection reports and assessments with governing instructions.
- 2. Verification that follow-up items (Assessment Follow-up Items [AFI], Non-cited Findings, and Findings) were identified and appropriately transmitted to BNI for a response.
- 3. Adequacy of the program to track inspection and assessment issues, including placement of such issues in the Consolidated Action Reporting System (CARS) (or another acceptable database) for assuring visibility of issues requiring BNI actions and timely reviews by OCT for acceptance.
- 4. OCT acceptance of Contractor actions to ensure the actions were effective in resolving the issues being tracked, and that documentation in the database properly reflected issue closure.

Several Observations and Findings were identified as a result of this assessment and are summarized in the following paragraphs. Overall, OCT implementation of the Construction Oversight Program was effective in identifying issues of significance that, once adequately addressed by the Contractor, improved Contractor safety and quality performance.

Program Compliance

The assessor concluded implementation of the Construction Oversight Program at WTP was generally in accordance with ORP instructions. Several discrepancies with the qualification records of OCT personnel were identified; the correction will be tracked by **Observation A-07-AMWTP-RPPWTP-012-001**.

ORP M 432.1 WTP Construction Oversight Manual, does not provide any guidance for selecting construction activities for inspection. The ad hoc manner in which areas to inspect were selected may be reasonable at this time of limited site activity, but may not be effective when full construction activities resume. A systematic approach to selection of subjects for inspections and assessments is needed to ensure that OCT resources provide construction oversight for the most significant and important activities. This will be tracked by **Observation A-07-AMWTP-RPPWTP-012-O02**. Also, the assessor concluded the relationship among the Operational

¹ ORP M 220.1, Integrated Assessment Plan, Rev. 4; ORP M 432.1, WTP Construction Oversight Manual, Rev. 0; and ORP M 243.1, Operational Awareness Oversight Database, Rev. 0.

Awareness (OA) database, the Construction Inspection Program inspection notes, and the CARS database was not clearly described in ORP instructions, but needed to be. At the time of this assessment, the Construction Inspection Lead had developed an initial draft of an integrated assessment program instruction that may address some of these issues.

A minor, administrative problem was identified with the approval of several recent inspection reports, and was corrected during this assessment. Inspection notes were very well written, but some inconsistencies in content were identified. Inconsistencies were also identified with characterization of "issues" as AFIs, Non-cited Findings, and Findings. **Observation A-07-AMWTP-RPPWTP-012-O03** was opened to track actions OCT will take to address this issue. Overall, performance issues summarized in inspection reports and their cover letters were well supported by inspection notes, and appropriate to highlight to BNI management.

Sharing of inspection results within and outside OCT was not effectively implemented. For example, OCT inspection information was not communicated to WTP Engineering Division personnel who were performing an oversight assessment in a related area, thereby preventing them from considering this information in drawing assessment conclusions. This was documented in **Finding A-07-AMWTP-RPPWTP-012-F04**. However, since the second quarter 2006, the Construction Inspection Lead has provided a quarterly construction performance summary report to the Assessment Program Committee to assist in their determining whether changes to the Fiscal Year Oversight Assessment Schedule in the construction area were warranted; this was not required by procedures and was considered a "good practice."

Transmittal of Issues to Contractor

Inspectors routinely discussed issues with BNI counterparts at the time the inspections notes were written so BNI had a clear understanding of the issues, their likely characterizations, and their bases; the assessor considered this a "good practice." In addition, the OCT-BNI interface was working well, and OCT discussed issues at the "right" levels, including BNI senior management when necessary. The Construction Inspection Lead discussed the content of quarterly inspection reports with BNI at exit meetings, and the reports were sent to BNI by formal management letter. In general, the reports and letters accurately characterized "issues" and were timely communicated to BNI. The assessor identified one exception in which the mischaracterization of an issue in multiple inspection reports as area/equipment-specific AFIs resulted in continuation of a programmatic problem over several years before it was adequately addressed.

Tracking of Issues to Resolution

Tracking of issues and their status was performed in accordance with procedural requirements, and was effective in monitoring open items and managing issues to closure. Open items were closed in a timely manner commensurate with the timeliness goals established by procedures.

Attachment 07-WTP-109

Independent Assessment of WTP Operations and Commissioning Team (OCT) Construction Oversight Program A-07-AMWTP-RPPWTP-012

Adequacy of Issue Closure

AFIs and Findings were appropriately closed via inspection notes that typically cited BNI records, which described corrective actions completed by BNI and reviewed for adequacy by OCT personnel. Decisions to perform or not perform effectiveness reviews after closure of AFIs and Findings were not always documented in inspection notes as required by ORP M 432.1. This was documented in **Finding A-07-AMWTP-RPPWTP-012-F05**.

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Appendix A - Oversight Plan

 $\begin{array}{c} \text{Independent Assessment of WTP Operations and Commissioning Team (OCT) Construction Oversight Program} \\ \text{A-07-AMWTP-RPPWTP-012} \end{array}$

LIST OF ACRONYMS

AFI	Assessment Follow-up Item
AI	Acceptance Inspector
APC	Assessment Program Committee
BNI	Bechtel National, Inc.
BOF	Balance of Facilities
CAR	corrective action report
CARS	Consolidated Action Reporting System
CY	calendar year
DOE	U.S. Department of Energy
ESQ	Environmental Safety and Quality
FR	Facility Representative
HV	high-voltage
IS&H	Industrial Safety and Health
LAW	Low-Activity Waste
LOTO	Lock Out/Tag Out
NEC	National Electrical Code
NSQI	Nuclear Safety and Quality Imperative
OA	Operational Awareness
OCT	Operation and Commissioning Team
ORP	Office of River Protection
QC	Quality Control
WED	WTP Engineering Division
WTP	Waste Treatment and Immobilization Plant

1.0 INTRODUCTION

A major component of the U.S. Department of Energy (DOE), Office of River Protection (ORP) mission is the design and construction of the Hanford Tank Waste Treatment and Immobilization Plant (WTP) in the 200 East Area of the Hanford Site. The design and construction contractor for the WTP is Bechtel National, Inc. (BNI; i.e., Contractor). As part of its oversight responsibilities, ORP performs various assessments of BNI's activities during the design and construction phases. One type of assessment is the Construction Oversight Program inspection performed by the Operations and Commissioning Team (OCT) at the WTP site. The Construction Oversight Program is defined in ORP 432.1, WTP Construction Oversight Manual, and is based on ORP M 220.1, ORP Integrated Assessment Program. A component of the Construction Oversight Program, called Operational Awareness Oversight, is defined in ORP M 243.1, Operational Awareness Oversight Database.

As part of this oversight, a consultant performed an independent assessment to verify the OCT Construction Oversight Program complied with the primary implementing documents ORP M 220.1, ORP M 432.1, and ORP M 243.1. In addition, the assessor reviewed the implementation of the Construction Oversight process of identification, transmittal, tracking, and closure of issues, both to the Contractor, and internal to ORP based on selected inspection reports and assessments from 2005 to the present. The assessor reviewed open follow-up items from inspection notes and reports to determine if responses were timely and acceptable, and to compare actual status to that recorded on various status tracking documents.

2.0 BACKGROUND

The OCT staff have primary responsibility for oversight of Contractor construction activities at the WTP site, and have been actively performing this oversight since late 2001. During this period, assessment plans were executed with reports issued and actions tracked to provide active oversight of site activities ensuring the Contractor is properly designing, procuring, and installing the WTP facilities. Assessments are of two main types: (1) construction-related inspections and (2) focused assessments in a topical area or program. This independent assessment evaluated the results of construction oversight performed by OCT since early 2005 to the present in order to focus more heavily on recent inspection and assessment issues, and how the issues were managed to closure. The assessment evaluated the extent to which construction inspections and focused assessments were performed in accordance with primary implementing procedures (ORP M 243.1, ORP M 220.1, and ORP M 432.1), were properly transmitted to the Contractor for action, and were followed to resolution in a timely, traceable and recoverable manner, and resolved effectively.

3.0 OBJECTIVES, SCOPE, AND APPROACH

3.1 OBJECTIVES

ORP conducted this assessment as part of its responsibility for compliance with the requirements of ORP M 220.1, Section 6.2.5 "Management Assessment Conduct," which requires direct reports to the manager to assess their management processes, and to identify and correct

problems that hinder their organizations from achieving their objectives. The specific objectives of this assessment are listed in Appendix A, "Independent Assessment of WTP Operations and Commissioning Team (OCT) Construction Oversight Program," and repeated below:

- 1. Evaluate compliance of the inspections and assessments to governing instructions.
- 2. Review select inspections and assessments performed since early 2005 to determine issues identified and whether they were appropriately transmitted to the Contractor.
- 3. Review the adequacy of the program for tracking of inspection and assessment issues, including placement of such issues in the Consolidated Action Reporting System (CARS) (or another acceptable database) for assuring visibility of issues requiring Contractor actions and timely reviews by OCT for acceptance.
- 4. Evaluate OCT acceptance of Contractor actions to assure these were effective in resolving the issues being tracked, and that documentation in the database properly reflects issue closure.

3.2 SCOPE

The scope of this assessment covered the period from January 2005 to the present, and included inspection reports A-05-AMWTP-RPPWTP-001 through A-06-AMWTP-RPPWTP-004 and the inspection notes on which these reports were based. Both closed and open items from these reports were reviewed to determine if closures were timely, and to determine if open items were being tracked and managed to closure in a timely manner. Actual status of selected issues was compared to the status reflected in tracking databases to determine if they were consistent. Finally, selected issues that were previously closed were reviewed to determine if OCT's acceptance of these issues for closure had an adequate basis.

This assessment focused exclusively on construction oversight as performed under the Construction Inspection Program. Inputs to this program come primarily from (1) Acceptance Inspectors (AI) (specialists who inspect construction activities and equipment installations to ensure BNI's compliance with applicable industry codes and standards) and (2) Facility Representatives (FR) (generalists who inspect construction activities to assure safety, quality and other programmatic requirements are being effectively implemented by BNI). Results of oversight are documented either in inspection notes, or in the Operational Awareness (OA) database (currently being populated by FRs).

3.3 APPROACH

This assessment was conducted within the guidelines of ORP M 220.1. The assessor collected information from various BNI and DOE documents and conducted interviews with OCT staff (see Section 6.0 for a full listing of reviewed documents and persons contacted). The approved oversight plan, "Independent Assessment of WTP Operations and Commissioning Team (OCT) Construction Oversight Program" is provided in Appendix A.

The assessor initiated the following steps to obtain information required to meet the assessment objectives. The order of review and depth of each step was left to the assessor's discretion.

- 1. The assessor reviewed the construction oversight process as described in ORP M 432.1 and ORP M 243.1 and compared it to the process actually being implemented by OCT personnel, as well as to the documented oversight inspections and assessments. This was done to determine if inspections and assessments were being performed and documented in accordance with the governing instructions.
- 2. The assessor reviewed selected construction oversight reports and the supporting inspection notes completed over the period January 2005 to the present. This was done to identify follow-up items within the reports/notes and how they were characterized; whether transmittal letters from ORP requested responses to them; and whether these items were accurately entered and statused in required tracking databases. Closed items were reviewed to determine if they contained sufficient evidence of closure for follow-up items.
- 3. The assessor interviewed OCT personnel and management to determine their understanding of the Construction Oversight process, as well as management's expectations for implementing it. In addition, interviews discussed the status of individual follow-up items and whether the documented status was consistent with the actual status. Interviews also focused on the timeliness and adequacy of Contractor responses to these items.
- 4. The assessor reviewed various ORP reports and databases, as well as manual lists on conference room boards that contained the status of OCT construction oversight items to determine whether they were accurate, consistent, complete, and whether closures of issues were timely.
- 5. The assessor reviewed inspection notebooks to determine if documentation in them was accurate and complete, and consistent with CARS information and status reports.
- 6. The assessor reviewed inspection notes that documented closure of Assessment Followup Items (AFI) and Findings, and the bases for their closure, to determine if they were acceptable for closure.

4.0 RESULTS

The assessment results are presented in the following four areas:

- 1. Compliance of the Construction Oversight Program with governing instructions
- 2. Transmittal of issues to Contractor
- 3. Status reporting and tracking of inspection and AFIs
- 4. Adequacy of OCT acceptance of actions to close follow-up items

4.1 COMPLIANCE OF THE CONSTRUCTION OVERSIGHT PROGRAM WITH GOVERNING INSTRUCTIONS

The Construction Oversight Program was for the most part implemented in accordance with governing instructions.

4.1.1 Qualifications of OCT Inspection Personnel

ORP M 432.1 discusses the qualification requirements for Construction Oversight personnel. Distinct and separate requirements exist for the Construction Inspection Lead, FRs, AIs, and other personnel. FRs must meet specific qualification requirements to assume the responsibilities of an FR. AIs must have substantial experience and knowledge inspecting various construction activities, as well as possess related national inspection accreditation credentials in their specialty areas (welding, civil, electrical, etc.). However, FRs, AIs, and the Construction Inspector Lead must also meet additional requirements specified in ORP M 432.1, Attachment 10.1, "Construction Oversight Personnel Qualification Checklist," to ensure they are knowledgeable of contract and safety requirements prior to functioning independently as oversight personnel at the WTP site. The assessor reviewed qualification records to determine if the Construction Inspection Lead, FRs, and AIs had qualification records demonstrating that they met the additional requirements of Attachment 10.1 (or an equivalent record document).

The current OCT organization is staffed with four AIs, five FRs (one of whom is acting as the OCT Lead), and one Construction Inspection Lead. A review of the qualification records revealed the following:

- No qualification records were available for one AI and three FRs.
- With two exceptions for the records that were available, most of the original qualifications occurred between 2002 and 2004. The other two occurred in 1998 and 2007. Only the qualification record for the FR qualified in 2007 used the ORP M 432.1 form. It appeared to the assessor the forms used for those who qualified in 2004 and earlier were from the Inspector Qualification Program procedure A-109, and the people who were qualified did so while in the Environmental Safety and Quality (ESQ) or other ORP organizations. The focus of these qualification documents was not on site safety and construction oversight. Hence, at the time of their qualification, these individuals were not required to acquire WTP site safety orientation or Occupational Safety and Health Administration (OSHA) Construction Safety Inspection training. In addition, many of the current construction-related procedures (ORP M 432.1, BNI Industrial Health and Safety Plan, ORP M 220.1, etc.) were not specified as required reading, and in fact, may not have existed at the time of their qualification.

Based on the above, it appeared the records for personnel qualified while in ESQ or other ORP organizations did not meet the intent of ORP M 432.1. This was discussed with the Construction Inspection Lead, who stated these persons could not be functioning in their current positions without having received site safety orientation, or read and become familiar with current DOE and BNI procedures relating to personnel and industrial safety. The assessor suggested the Construction Inspection Lead obtain the training records that demonstrate OCT personnel attended the subject orientation and OSHA safety courses, as well as update the list of procedures and instructions they read to familiarize them with current site safety processes.

• One of the FR qualification records indicated the individual was to qualify as an Assessment Team Leader. Several of the required elements were initialed as complete by the qualifying FR, but were not dated. In addition, the supervisor did not fill in two areas of the form under the topic of "additional training requirements" to specify what was required or whether these should have not been applicable. Finally, the supervisor did not sign and date the record indicating the FR was qualified.

Correction of the above discrepancies is being tracked under **Observation A-07-AMWTP-RPPWTP-012-O01**.

4.1.2 Selection of Contractor Activities for Oversight

ORP M 432.1 states the OCT Team Lead is responsible for providing guidance for routine surveillance activities, as well as submitting a proposed WTP site assessment schedule for inclusion in the ORP Assessment Schedule. The FRs assist the Construction Inspection Lead in establishing the recommended frequency and areas of coverage for Acceptance Inspection services required to evaluate compliance of construction activities to contract requirements. However, ORP M 432.1 does not provide any guidance about how to select activities for inspection by OCT personnel. Nevertheless, the assessor reviewed how this was done in OCT to determine if resources were being used effectively.

With the slowdown of quality-related construction on site, the targets of opportunity for construction oversight have been somewhat reduced. Nevertheless, OCT personnel were focusing on activities in the Low-Activity Waste (LAW) Facility and Balance of Facilities (BOF) to ensure they were being done safely and in accordance with design. In addition, AIs ensured certain owner inspector requirements associated with piping, concrete, and fire protection activities were met via their inspection activities.

The assessor, through interviews, discussed how resources were assigned to inspection areas. In practice, selection of inspection "targets" was driven primarily by "first time" activities, the hazard level of activities, and the types of activities planned for performance in the near future (e.g., the following week). There was no process or guidance for planning inspections well into the future, or for ensuring inspection resources were assigned to the most significant and important activities.

The assessor reviewed the inspection record over calendar year (CY) 2006 to determine if inspection resources were used in the most effective manner. Two examples were identified where it appeared that inspection resources were not used effectively:

Over the third and fourth quarters 2006, 10 inspection notes were written for observation of hydrostatic pressure tests of various system piping and ductwork; some notes involved multiple pressure tests. Every one without exception concluded BNI accomplished the testing in accordance with established requirements and cited no problems. Based on BNI's "perfect" performance over this 6-month period, the assessor believed OCT could have decreased the frequency and number of pressure test observations and used the resource savings elsewhere.

• Another example of less-than-effective inspection resource utilization involved the inspection of National Electrical Code (NEC) implementation for temporary power, temporary facilities, and BOF equipment. The details of this are discussed more fully in Section 4.2, in that the assessor believed the characterization of the issue was the primary cause of its languishing uncorrected for a period of several years. However, hundreds of electrical inspection hours were expended over several years when a different approach, had it been used, may have resulted in an accelerated resolution and the opportunity to apply electrical inspection resources elsewhere.

The assessor concluded the Construction Oversight Program was generally using its inspection resources on construction activities that had merit. However, two areas were identified where use of inspection resources could have been more effective. Development and implementation of a systematic approach to selection and assignment of subjects for inspections and assessments will be tracked by **Observation A-07-AMWTP-RPPWTP-012-O02**.

4.1.3 Initiation and Approval of Inspection Notes

Inspection notes were initiated by OCT personnel, and included evidence that issues were discussed with BNI personnel, including the likely characterization (AFI, Finding, etc.). The notes were reviewed by the Construction Inspection Lead, and approved by the OCT Lead with the following exception:

• ORP M 432.1, Attachment 10.2 states "inspection notes should be reviewed by the Construction Inspection Lead and approved by the OCT Lead." However, several examples were found where inspection notes were not approved (A-06-AMWTP-RPPWTP-003-14, 17, 26, 32, 33, 35, 38, 42, and 44).

This minor administrative problem was corrected before the end of the assessment.

4.1.4 Inspection Note Content

ORP M 432.1 provided guidance on the structure of inspection notes, but not on their content. From a review of over 230 inspection notes, the assessor concluded the majority was very well written, with content that supported the conclusions. However, the assessor identified the following "content issues" (the title describes the type of content issue):

• Downgrading a Finding to an AFI without complete documentation:

A-06-AMWTP-RPPWTP-003-52, Drawing review for installation of grounding at
Cooling Tower Buildings 83 and 83S, was performed in September 2006. The inspector
identified a minor violation of electrical standards concerning wrapping the conductor
with yellow tape; the drawing required wrapping the conductor at only its termination
points (versus along its full length) to identify it as an isolated ground conductor. BNI's
resident Design Engineer agreed the drawing needed a design change so the installation
would meet the required electrical standards. The inspector noted this would have been a
Finding; however, it was of minor significance and BNI agreed to correct it.
Consequently, it was "downgraded" to an AFI.

ORP M 432.1, Attachment 10.2 provides guidance for downgrading such issues. In order to downgrade a Finding to an AFI, the issue must be of minor significance and have been entered into the Contractor's corrective action system or have already been corrected by the Contractor. The subject inspection note should have referenced a BNI corrective action document drafted to specifically track and correct the issue, in lieu of relying on the Contractor's promise to correct it.

Closing a Finding without referencing or reviewing corrective actions from the BNI CAR or the BNI response letter: A-06-AMWTP-RPPWTP-004-16, Follow-up review for previous Finding involving BNI's failure to enter Industrial Safety and Health (IS&H) issues into its Corrective Action (CAR) system, was performed in October 2006. This inspection note cited many corrective action reports (CAR), BNI trend reports, and other requirements documents as having been reviewed by the author, and discussed BNI's corrective action reporting in areas of IS&H, externally identified CARs, and trend reports. The author concluded based on the evidence presented that the Finding could be closed. This conclusion may have been adequate from the standpoint of performance to date, but may not have been adequate from the standpoint of BNI's maintaining their performance to prevent recurrence over the long-term.

The assessor noted for a Finding, the Contractor must provide a written response to ORP and enter the Finding into its CAR system for evaluation, tracking, and resolution. Although the author of the inspection note reviewed many documents and provided his basis for closing the Finding, he did not cite (and may not have reviewed) either the CAR (24590-WTP-CAR-QA-05-324) or the BNI letter response (CCN: 134100) to ORP. Because of this, it is unclear to the assessor whether BNI completed all committed actions to address the Finding, and whether or not actions were taken to prevent recurrence.

• Occurrence reviews concluded BNI actions would prevent recurrence without discussing causes of events:

- A-06-AMWTP-RPPWTP-004-26, Severing of a live electric line by a scissors lift. The note provided extensive detail about corrective actions taken, but did not discuss the causes so a reader could understand whether all causes were addressed. Consequently, the assessor could not determine whether corrective actions to prevent recurrence were acceptable.
- A-06-AMWTP-RPPWTP-004-44, Near miss while filling a Vac truck from a fire hydrant. The note provided very little detail about the causes or corrective actions that addressed them, yet concluded the corrective actions were sufficient to prevent recurrence.
- A-06-AMWTP-RPPWTP-004-27, Tractor/truck backed over PVC conduit containing live wires. The note provided some detail about corrective actions taken, but did not discuss the causes so a reader could understand whether all causes were addressed.

Consequently, the assessor could not determine whether corrective actions to prevent recurrence were acceptable.

The assessor noted other inspection notes reviewing occurrences did cite causes of events, as well as corrective actions that addressed them. This level of detail would be sufficient for the inspector, as well as any reader, to conclude corrective actions were sufficient to prevent recurrence.

- Inappropriate inspection note conclusion: A-06-AMWTP-RPPWTP-004-26, Facility Representative follow-up to Occurrence Report EM-RP-BNRP-RPPWTP-2006-0026, was performed in November 2006. This note included extensive details about BNI's and the subcontractor's corrective actions to the event, which appeared to be extremely comprehensive. The note's Conclusion section stated an updated occurrence report had been submitted in early December 2006 with additional corrective actions having a completion date of January 31, 2007. The author did not appear to have made a determination of acceptability of the Contractor's actions in the note's Conclusion section, as required by Section 7.2.3.b and Attachment 10.2 of ORP M 432.1.
- Closure of previous Finding based on overly narrow_actions: A-06-AMWTP-RPPWTP-003-59, Review of BNI CAR for closure of a previous Finding, was performed in September 2006. The previous Finding was issued for failure of the Contractor to document in a construction deficiency report substantial machining of a vessel nozzle prior to proceeding with rework. CAR 24590-WTP-CAR-QA-06-112 was issued by BNI to address the Finding. In the CAR, BNI stated the reason for the Finding was the "act of proceeding with work when a concern existed." Although the work was being performed by personnel in the Welding organization, the cause described above would require corrective actions to be implemented across all Project personnel onsite (or at least some non-manual and all manual personnel). The CAR indicated BNI initiated and distributed a Quality Bulletin that discussed the "event" as well as the expectation that people must not work past a situation where a concern about workmanship or quality had been expressed. The CAR further stated this bulletin was not only distributed to non-manual personnel on July 31, 2006, but also read to manual personnel on August 1, 2006. The bulletin was also presented at a Welding Department all-hands meeting and at various craft meetings around the WTP job site. Based on this, the CAR appropriately addressed corrective actions to a broad audience across the WTP site, since the cause of the originating problem was applicable to anyone doing work and proceeding when a concern existed.

The inspection note, on the other hand, credited the Contractor with issuing the bulletin to only field welding engineers, and bringing it up for discussion at a meeting of welding engineers. Closing the Finding based on this information in the inspection note would not appear acceptable, given the cause would require discussing this event and performance expectations with a much larger audience at the WTP site (which in fact, had been done).

4.1.5 Characterization of Issues

ORP M 432.1, Section 10.2 discussed characterization of issues. The procedure recognized two types of issues: (1) AFIs for which more information was necessary to determine if an "issue" existed, and (2) Findings, which described conditions in which the Contractor failed to comply with the contract or Authorization Basis, or was not performing to its own specified requirements. The assessor reviewed many AFIs and Findings in inspection notes and identified some inconsistencies relative to their characterizations:

- A-06-AMWTP-RPPWTP-003-17, BNI High-Voltage (above 600V) activities. The note was performed in July 2006 and included in OCT's third quarter inspection report of September 2006. The inspectors concluded BNI's high-voltage (HV) program was inadequate to protect personnel from the hazards associated with working on 13.8 kV transformers and related systems. This was based on inadequate training and qualification of personnel, inadequate equipment design, lack of appropriate tools, and inadequate HV procedures and processes. Based on this, the assessor considered this to represent a programmatic weakness, which would have at least warranted a Finding and possibly issuance of a limited stop work order. Instead, the issue was characterized as an AFI. A second AFI was also issued to track and follow up on BNI's commitment to hire an HV expert to review their HV training, procedures, and hardware. Discussions with the author of the inspection note and the OCT Lead at the time revealed that the OCT Lead significantly revised and re-characterized the issue from a Finding to an AFI because (1) DOE Richland Operations Office, not BNI, performed the HV work to isolate the transformer; and (2) there was no violation of the Lock Out/Tag Out (LOTO) program. However, the BNI work package allowed BNI to perform HV work, even though they did not do so at that time. On February 1, 2007 (seven months after issuance of the inspection note), the WTP Project Director issued a letter to BNI requiring them to curtail all HV work at the site until the HV expert performed his assessment, and an HV control program was developed and successfully implemented. The letter was necessary because BNI had not taken any actions to address the issue. Although a Finding may or may not have forced BNI to act sooner, the characterization of this issue as an AFI appeared inappropriate and inconsistent with ORP 432.1. The characterization minimized the issue and allowed the potential for HV work to be performed at risk should HV work have been needed in the seven months until the work curtailment letter was issued. The assessor concluded the issuance of the curtailment letter seven months after identification of the issue supported the view it should have been characterized as a Finding when it was originally identified.
- A-06-AMWTP-RPPWTP-003-37 discussed an issue wherein BNI electricians identified a problem with the LOTO for replacing two switches on the rebar roller machine during testing just prior to LOTO placement. Inspectors concluded (1) the work package had not adequately implemented the proper controls per the Hazardous Energy Work Control Procedure; (2) the responsible Field Engineer and responsible Superintendent failed to adequately identify the appropriate equipment and hazards associated with the work; and (3) the LOTO Tagging Authority had not performed an adequate independent review of

the proposed LOTO boundaries. The BNI Field Engineer Manager stated actions would be taken to improve work planning as a result of this issue. Although the note stated inspectors would continue to attend pre-job briefings and monitor BNI's process for controlling hazardous energy work activities, it was not characterized as an AFI, Non-cited Finding, or Finding. The assessor considered this inappropriate and contrary to ORP M 432.1.

• A-06-AMWTP-RPPWTP-003-55 was a programmatic review of BNI's Lessons Learned Program. It also was a follow-up to a 2005 inspection note that documented a similar assessment in which four weaknesses were identified: (1) incorporating lessons learned into BNI processes; (2) acquiring lessons learned from construction site workers; (3) using lessons learned during the work planning process; and (4) using metrics to evaluate program effectiveness. The 2006 assessment concluded, with the exception of the first weakness, the other three weaknesses still existed and had not been adequately addressed. The note stated the Contractor's action to address these issues would be tracked by an AFI. The assessor concluded an additional AFI, or Finding, was warranted for BNI's ineffective corrective actions to previously identified problems in the 2005 inspection note. Furthermore, since the Lessons Learned Program is part of the Authorization Basis for WTP (and not simply part of the Integrated Safety Management System process), the original observations in 2005, and the later AFI in 2006 should have been Findings. Characterization of this issue was inconsistent with ORP 432.1.

OCT needs to ensure the characterization of issues as AFIs, Non-cited Findings, Findings, or none of these is consistent with ORP M 432.1, and that the optimum communication vehicle is used to get the Contractor's attention to facilitate timely and effective resolution.

Observation A-07-AMWTP-RPPWTP-012-O03 was opened to track actions OCT will take to address this issue.

4.1.6 Summarization of Performance Issues in Quarterly Inspection Reports

Each quarter, inspection notes were summarized in inspection reports that included cover letters, which communicated OCT's most significant concerns or performance observations to BNI management. The assessor reviewed two quarterly reports (A-06-AMWTP-RPPWTP-003, and -004) as well as the numerous inspection notes on which the reports were based. The fourth quarter 2006 report (A-06-AMWTP-RPPWTP-004) highlighted a potentially broad-based concern over BNI allowing suppliers to deviate from necessary quality requirements, which was based on a Finding involving a single supplier. The third quarter 2006 report (A-06-AMWTP-RPPWTP-003) highlighted welding problems that had the potential to have a significant impact on construction. The issues discussed in the cover letters were well supported by inspection notes and appropriate to highlight to BNI management. In addition, the books in which the reports and notes were kept were well maintained and contained all pertinent documentation related to the reports (e.g., BNI letter responses to Findings).

4.1.7 Liaison Activities

The assessor interviewed several OCT personnel to determine the extent to which OCT shared significant issues it identified with other ORP personnel and organizations. This topic was discussed because it was specifically required in the procedure for Construction Oversight (e.g., Section 7.3.4, "Liaison Activities"). From these interviews, sharing of information appeared to occur most frequently at the management level through meetings and distribution of reports, but not very often at the staff level. The assessor identified one example where not sharing OCT inspection notes with WTP Engineering Division (WED) personnel who were performing an oversight assessment prevented consideration of this information in forming performance conclusions:

- ORP M 432.1, Section 7.3.4.b states, "Lead Construction Inspector discusses inspection issues at daily ORP WTP staff meetings and provides related inspection notes to ORP Subject Matter Experts (SME), or other staff as appropriate, to keep them well informed of construction issues related to their areas of expertise."
 - Contrary to this, two inspection notes performed in the fall 2006 involving implementation of BNI's Nuclear Safety and Quality Imperative (NSQI) in the Construction organization were not provided to WED staff:
 - A-06-AMWTP-RPPWTP-004-07 performed in October 2006 Corrective actions for an issue regarding BNI employees working outside of established controls unknowingly, resolution for which BNI credited the NSQI program.
 - A-06-AMWTP-RPPWTP-003-60 performed in September 2006 Corrective actions to correct a weakness in workplace culture that made events more likely to occur, resolution for which BNI credited the NSQI program.

Information and conclusions in these inspection notes were directly pertinent to the January 2007 WED oversight assessment of NSQI metrics and implementation, but were not considered by WED assessors because they had no knowledge of them. This is considered a **Finding**, A-07-AMWTP-RPPWTP-012-F04.

On the other hand, the assessor identified a good practice in this area. Although not procedurally required, the Construction Inspection Lead provided a quarterly Construction performance summary report to the Assessment Program Committee (APC) to assist in their determining whether changes to the Fiscal Year Oversight Assessment Schedule in the Construction area were warranted. This practice began in the second quarter 2006.

4.1.8 Operational Awareness Database

ORP M 432.1, Section 7.6 discussed the Operational Awareness (OA) database – a relatively new tool used by the FRs to document oversight observations that do not meet the threshold of Findings or Observations and as such required to be documented in assessment reports. The OA database and its use were described in ORP M 243.1, Operational Awareness Oversight Database. The OA procedure has only been effective since June 2006. The advantage of the

OA database was its facilitation of information retrieval for trending and historical recall. In addition, it was also intended to provide data for making decisions about where to use resources to perform Construction oversight. During interviews, the assessor noted the Construction Inspection Lead had been entering inspection notes into the OA database since early 2007; this was not required by procedure. The Construction Inspection Lead was doing this to ensure the OA database included information from assessments so that this information, coupled with day-to-day monitoring information, would provide a complete performance "picture." The assessor considered this a good practice; it ensured the monthly analysis of OA data considered all performance information over the month, and not just data in the OA database, making the analysis more apt to identify valid performance trends.

ORP M 243.1, Section 5.2.d required the OCT Lead have a routine (at least monthly) database review performed to identify trends, and to publish summary results with copies distributed to the ORP Manager, WTP Project Manager, and the ESQ Director. The OCT Lead had already recognized this as not having been done since OA database inception; it was done for the first time in January/February 2007. The assessor reviewed the OCT monthly report with the following observations:

- OCT's analysis of the data drew conclusions about whether observations were consistent with the types of activities ongoing at the WTP site, and where OCT oversight was focusing its inspection resources. However, there was no analysis about BNI's performance within specific categories. For example, the assessor reviewed the seven OA inputs under the Hazard Communications "safety" category to determine if there was any theme or trend, and found that four of them were unrelated to one another (air sample results from a sample pump on a welder performing shielded metal arc welding, implementation of the revised STARRT card, prejob for installation of stairs at the Pretreatment Building, and Pipefitter's daily Plan of the Day). However, the other three OA inputs involved BNI personnel misunderstanding the use of specific types of tags and misapplying them in the field (danger tags used inappropriately to prevent the use of metal scaffold planks; incorrect use of a caution tag on a temporary propane valve; inappropriate use of red Danger tape to protect fresh paint on floors). The assessor noted these three OA entries were characterized as "Observations," which did not require follow up by OCT. This should have been identified as a potential trend in the analysis report and discussed from the standpoint of what additional actions may be appropriate; e.g., a separate inspection note pulling this together as a Finding or AFI so BNI could enter and resolve it through its corrective action system may have been appropriate.
- The analysis discussed in detail several non-compliances and issues. The assessor considered the level of detail to be excessive, and there was no actual conclusion drawn about what the non-compliances and issues meant relative to the Contractor's performance, or relative to decisions about the future use of OCT inspection resources.
- The analysis summarized 22 finalized inspection notes but provided no analysis of them either from a Contractor performance standpoint, or from an inspector resource utilization standpoint.

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The assessor noted the OA database contained a "followup" section, which required follow up for items characterized as non-compliances and issues. Because these were not contained in inspection notes under the Construction Inspection Program, they were not entered into CARS and formally tracked to completion. In addition, these were not routinely discussed at the weekly meeting where the Construction Inspection Lead discussed the status of open items. However, the acting OCT Lead stated he had recently reviewed individual follow-up items in the OA database with the FRs and encouraged them to take action to address and close them.

The assessor noted ORP M 243.1 included the use of "significance levels" when documenting items in the OA database. The assessor considered these significance levels could be applied to issues documented in inspection notes under the Construction Inspection Program (as described in ORP M 432.1). The significance level of an issue could be used to drive the schedule for resolving it, whereas all "issues" currently in inspection notes have the same level of importance because no significance levels are applied.

4.1.9 Conclusion

The assessor concluded implementation of the Construction Oversight Program at WTP was generally in accordance with ORP instructions. Several discrepancies with the qualification records of OCT personnel were identified, the correction of which will be tracked by **Observation A-07-AMWTP-RPPWTP-012-O01**.

The ad hoc manner in which areas to inspect were selected may be reasonable at this time of limited site activity, but may not be effective when full construction activities resume. A systematic approach to selection of subjects for inspections and assessments is needed to ensure that OCT resources provide Construction oversight for the most significant and important activities. This will be tracked by **Observation A-07-AMWTP-RPPWTP-012-O02**.

A minor, administrative problem was identified with the approval of several recent inspection reports, and was corrected during this assessment. Inspection notes were very well written, but some inconsistencies in content were identified. Inconsistencies were also identified with characterization of issues as AFIs, Non-cited Findings, and Findings. **Observation A-07-AMWTP-RPPWTP-012-O03** was opened to track actions OCT will take to address this issue. Overall, performance issues summarized in inspection reports and their cover letters were well supported by inspection notes, and appropriate to highlight to BNI management.

Sharing of inspection results within and outside OCT was not effectively implemented. An example was identified where OCT inspection information was not communicated to WED personnel who were performing an oversight assessment in a related area, thereby preventing them from considering this information in drawing assessment conclusions. This was documented in **Finding A-07-AMWTP-RPPWTP-012-F04**. Since the second quarter 2006, the Construction Inspection Lead has provided a quarterly construction performance summary report to the APC to assist in their determining whether changes to the Fiscal Year Oversight Assessment Schedule in the construction area were warranted; this was not required by procedures and was considered a good practice.

The assessor concluded the relationship among the OA database, the Construction Inspection Program inspection notes, and the CARS database was not clearly described in ORP instructions, but needed to be. In addition, performance analysis in the OCT monthly report needed to be better defined and executed so the end-product was more useful to ORP management for its intended purpose. At the time of this assessment, the Construction Inspection Lead had developed an initial draft of an integrated assessment program instruction that may address some of these issues.

4.2 TRANSMITTAL OF ISSUES TO CONTRACTOR

The assessor reviewed many inspection notes and interviewed several of the authors to identify whether inspection results were discussed with BNI in a timely manner. In addition, the assessor interviewed the BNI Quality Control (QC) Manager, who acts as the primary interface for initial communication of inspection issues between OCT and BNI Construction.

Interviews confirmed inspectors routinely discussed issues with BNI counterparts at the time the notes were written. The assessor considered this to be a good practice, as opposed to communicating the issues to BNI for the first time at quarterly exit meetings. In addition, the BNI QC Manager indicated he ensures BNI Construction personnel (1) are aware of inspection notes and issue characterization; (2) are placing issues into a BNI corrective action system; and (3) are working to understand and address the issue early in the process. The QC Manager also maintains a spreadsheet to track issue status, which he compares weekly with OCT status to ensure they are aligned and accurate. The QC Manager stated OCT personnel routinely discuss contentious issues with all levels of the Construction organization, including issues with the Construction Manager. Contentious issues are typically those for which the facts are not in dispute but interpretation of requirements surrounding them is, and the potential impact to the project may be significant. The QC Manager indicated OCT's focus on temporary construction/ power and BOF areas was not something on which BNI focused a lot of attention early in the project, even though some of the activities in these areas involved industrial/personnel safety. Subsequently and based on OCT inspection insights, BNI has improved performance in these areas; still, on occasion, "old behaviors" resurface, resulting in repeat problems.

The assessor also reviewed CY 2005 and 2006 inspection reports for each of the eight quarters to determine whether issues were appropriately characterized and transmitted to BNI. With the one exception discussed below, performance in this area was acceptable.

OCT did not appropriately characterize an issue concerning NEC violations as one that was broad-based or programmatic, but rather as a series of AFIs over many calendar quarters that were symptomatic of the broader problem. This resulted in closure of individual AFIs that was not effective in addressing the broader issue or its causes; this led to more inspections and more AFIs over more quarters. Had the issue been characterized in its early stages as a programmatic one requiring BNI to identify causes and implement corrective actions to prevent recurrence, it may have been resolved and closed much sooner, resulting in a significant savings of inspection resources. The details follow:

- In 2004 and 2005, there were a large number of inspections and inspection notes written on NEC violations. Although many of the issues were of a minor nature, as well as involving temporary power and BOF equipment, this was still a safety concern. In addition, if the Contractor continued this type of performance when later installing important-to-safety permanent plant equipment, it would cause major problems with safety, quality, and schedule.
- In the first quarter 2005, the quarterly inspection report highlighted this in its cover letter as an ORP concern; this was supported by an AFI involving multiple violations in the Fuel Oil Pump House and the Fire Water Pump House Buildings (A-05-AMWTP-RPPWTP-001-A05). The inspection report write up also included a substantial paragraph that cited 19 inspection notes documenting examples of 12 types of NEC violations, but did not characterize this in any way (e.g., no AFI or Finding).
- This problem was again highlighted as a continuing concern in the second quarter 2005 inspection report, but not in the cover letter; three additional equipment/area-specific AFIs (A-05-AMWTP-RPPWTP-002-A08, -A10, and -A16) were originated to document 25 different NEC violations. The exit notes for that inspection period stated, "Electrical installation issues continue to be identified. Also, disagreements between BNI staff and DOE inspectors regarding NEC violations indicate formal periodic discussions of contentious issues between DOE and BNI are needed to attempt to achieve understanding and/or agreement."

OCT's characterization of the issue as equipment-specific AFIs allowed BNI to respond to them in the same way, resulting in continuation of the same problem. BNI's actions to address multiple NEC violations documented in each of the AFIs were focused only on resolving the individual violations, which appeared to be symptoms not the cause of the continuing violations. Until the Construction Inspection Lead had a management meeting with the newly appointed Construction Manager, the issued continued to be largely unaddressed. The new Construction Manager agreed to focus management attention on the programmatic issue. After that meeting, BNI's performance relative to complying with the NEC finally started to turn around over a period of several months. This improvement was noted in the first quarter 2006 inspection report and discussed in the exit notes. It was unclear what the Construction Manager did to improve performance, and in particular, whether or how he identified the causes of the continuing problems and instituted actions to prevent recurrence.

4.2.1 Conclusion

Inspectors routinely discussed issues with BNI counterparts at the time the inspection notes were written so BNI had a clear understanding of the issues, their likely characterizations, and their bases. The assessor considered this to be a good practice. In addition, the OCT-BNI interface was working well, and OCT discussed issues at the appropriate levels, including with BNI senior management when necessary. The Construction Inspection Lead discussed the content of quarterly inspection reports with BNI at exit meetings, and the reports were sent by formal

management letter to BNI. In general, the reports and letters accurately characterized issues and were timely communicated to BNI.

The assessor identified one exception in which the mischaracterization of an issue in multiple inspection reports as area/equipment-specific AFIs resulted in continuation of a programmatic problem over several years before it was adequately addressed. This delay might have been prevented by initially characterizing the issue as a programmatic problem that required a written BNI response, including stating its causes and corrective actions to prevent recurrence. This may have allowed an inspection moratorium while the corrective actions were being implemented, resulting in a resource savings to OCT and the ability to focus those resources elsewhere on the project. After the corrective actions were implemented for a sufficient period, several inspections could have been done to confirm the adequacy of BNI's corrective actions to prevent recurrence.

4.3 STATUS REPORTING AND TRACKING OF INSPECTION AND ASSESSMENT FOLLOW-UP ITEMS

The assessor reviewed the open items list on the OCT Conference Room board as of March 19, 2007, a March 19, 2007 ORP CARS printout of open items, and related quarterly inspection reports and supporting inspection notes. This was done to determine if the open items were consistent among these lists relative to their descriptions and status. In addition, the assessor attended weekly OCT meetings in which open items and their status were discussed, and discussed several open items with OCT personnel during interviews.

ORP M 432.1, Section 7.3.1.e states in part, "Inspection items are entered into and tracked via the ORP CARS. Managing these items is done by discussing them at the weekly construction meeting to determine the status of Contractor actions to address the related issues, and discussing inspector plans to close the items." The Construction Inspection Lead held a weekly meeting with the AIs, the FRs, BNI representatives, and a Washington State Department of Ecology representative to discuss inspection open items, current site activities, scheduled assessments that were coming due, and new potential performance issues. The assessor attended two of these meetings and concluded they were well run and effective. However, the assessor identified the following minor issues:

- Two open inspection items in CARS were not on the OCT Conference Room board, and as such were not discussed at the March 19, 2007, meeting:
 - A-06-AMWTP-RPPWTP-003-F03, Follow-up on Contractor actions to address a finding for not following BNI's Corrective Action procedure regarding Lock Out/Tag Out (open).
 - A-06-AMWTP-RPPWTP-004-N04, Inadequate BNI oversight of the quality programs at Paxton & Vierling Steel Company (open).

After further review, the assessor determined these items were recently closed by inspection notes A-07-AMWTP-RPP-001-05 and -35, respectively. The assessor noted the list on the OCT Conference Room board contained a few other previously open

inspection issues that were "lined out" (in lieu of not shown at all) due to having recently been closed. The assessor concluded this was a minor issue caused by the Lead Construction Inspector not being consistent in reflecting recently closed open items on the "board" and had no adverse impact relative to managing open issues to closure.

• One open item (A-06-AMWTP-RPPWTP-003-A08, BNI Lessons Learned program weaknesses) from inspection notes/quarterly inspection reports listed on the OCT Conference Room board and discussed at the OCT weekly meeting on March 19, 2007, had not been entered into CARS, and was not reflected in the CARS database printout dated March 19, 2007. This minor issue was discussed with the person responsible for entering inspection items into CARS, who explained that he simply "missed it." This minor problem was corrected the day it was identified.

The assessor reviewed AFIs and Findings closed in CY 2006 inspection reports to determine how timely they were closed. ORP M 432.1, Section 7.3.1.e. states in part, "ORP has a goal of closing items within 2 years of when the items were open. However, these items should be inspected and closed well before this date; typically soon after the Contractor completes any needed corrective actions." Over this one-year period, 37 items were closed, of which 15 (41%) were closed within the next quarter, and an additional 18 (48%) were closed within the next year. The remaining four items (11%) were closed within a year and a half of the time they were originated. Based on this data, the assessor concluded OCT is timely closing items in accordance with their documented goals.

4.3.1 Conclusion

Tracking of issues and their status was performed in accordance with procedural requirements, and was effective in monitoring open items and managing issues to closure. Open items were closed in a timely manner commensurate with the timeliness goals established by procedures.

4.4 ADEQUACY OF OCT ACCEPTANCE OF ACTIONS TO CLOSE FOLLOW-UP ITEMS

4.4.1 Adequacy of Closure

The OCT organization closed issues by inspecting them, and documenting acceptance in inspection notes. Inspection reports listed AFIs and Findings closed in the applicable quarter. The ORP employee who controls the CARS database reviewed each OCT quarterly inspection report, noted the issues closed, and recorded that information in CARS, closing the CARS item. This process ensured a clear closure trail.

The assessor selected several issues closed in the fourth quarter CY 2006 (with the basis for acceptance documented in inspection notes) to review for technical adequacy. This was done by reviewing BNI's letter responses to the Findings, as well as the closed CARs (or other corrective action implementing documents) that supported them, and comparing this to the inspection notes written by the authors who closed them. The issues evaluated were:

- A-06-AMWTP-RPPWTP-001-F10 (inspection note 004-39)
- A-06-AMWTP-RPPWTP-001-F12 (inspection note 004-33)
- A-06-AMWTP-RPPWTP-003-F04 (inspection note 004-40)
- A-06-AMWTP-RPPWTP-001-F11 (inspection note 003-59)
- A-06-AMWTP-RPPWTP-002-A014 (inspection note 003-53)

Closure of the issues was adequately justified by the cited inspection notes based on BNI's completed actions as described in formal letters, CARs, and other corrective action implementing documents. The assessor did not identify any problems in this area.

4.4.2 Effectiveness Reviews

The assessor discussed a specific procedural requirement with the Construction Inspection Lead that involved how to decide and document when an "effectiveness review" was needed after closure of an AFI or Finding. ORP 432.1 had very specific requirements about documenting the decision NOT to perform an effectiveness review, as well as documenting the follow-up action in CARS (and citing the CARS number in the inspection note) when such a review was to be performed. The assessor reviewed inspection notes from the third and fourth calendar quarters 2006 to determine if the procedural requirements were met, with results as follows:

• ORP M 432.1, Section 7.3.1.f states, "Lead Construction Inspector discusses with the inspectors, Findings and Assessment Followup Items being closed and jointly makes a decision regarding the need to perform an effectiveness inspection of the issues at some time in the future (usually less than 6 months after closure of the item). In the inspection notes documenting closure of the issues, the final decision regarding performing an effectiveness review will be documented with justification should the review not be necessary. Should a review be deemed necessary, the Lead Construction Inspector obtains and documents in the closure inspection note the new CARS item assigned to track the effectiveness review."

Contrary to this, none of the 15 inspection notes that closed AFIs and Findings in the third and fourth quarters 2006 included statements about performing or not performing an effectiveness review, nor did they reference a CARS item for those reviews that would be performed.

The assessor reviewed over 230 inspection notes, 8 quarterly inspection reports, and the cover letters forwarding them to the Contractor. From this review, the assessor concluded OCT implementation of the Construction Oversight Program was effective in identifying issues of significance that, once adequately addressed by the Contractor, improved Contractor safety and quality performance.

4.4.3 Conclusion

AFIs and Findings were appropriately closed via inspection notes that typically cited BNI records, which described corrective actions completed by BNI and reviewed for adequacy by OCT personnel. Decisions to perform or not perform effectiveness reviews after closure of AFIs

and Findings were not always documented in inspection notes as required by ORP M 432.1. This was documented in **Finding A-07-AMWTP-RPPWTP-012-F05**.

OCT implementation of the Construction Oversight Program was effective in identifying issues of significance that, once adequately addressed by the Contractor, improved Contractor safety and quality performance.

5.0 OPEN ITEMS

5.1 FINDINGS

A-07-AMWTP-RPPWTP-012-F04: ORP M 432.1, Section 7.3.4.b states, "Lead
Construction Inspector discusses inspection issues at daily ORP WTP staff meetings and
provides related inspection notes to ORP Subject Matter Experts (SME), or other staff as
appropriate, to keep them well informed of construction issues related to their areas of
expertise."

Contrary to this, two inspection notes performed in the fall 2006 involving implementation of BNI's NSQI in the Construction organization were not provided to WED staff. Information and conclusions in these inspection notes were directly pertinent to the January 2007 WED Oversight Assessment of NSQI metrics and implementation, but were not considered by WED assessors because they had no knowledge of them.

A-07-AMWTP-RPPWTP-012-F05: ORP M 432.1, Section 7.3.1.f states, "Lead Construction Inspector discusses with the inspectors, Findings and Assessment Followup Items being closed and jointly makes a decision regarding the need to perform an effectiveness inspection of the issues at some time in the future (usually less than 6 months after closure of the item). In the inspection notes documenting closure of the issues, the final decision regarding performing an effectiveness review will be documented with justification should the review not be necessary. Should a review be deemed necessary, the Lead Construction Inspector obtains and documents in the closure inspection note the new CARS item assigned to track the effectiveness review."

Contrary to this, none of the 15 inspection notes that closed AFIs and Findings in the third and fourth quarters CY 2006 included statements about performing or not performing an effectiveness review, nor did they reference a CARS item for those reviews that would be performed.

5.2 OBSERVATIONS

• A-07-AMWTP-RPPWTP-012-O01: This observation documented problems with qualification records of OCT personnel, and will track actions to ensure these problems are adequately resolved.

- A-07-AMWTP-RPPWTP-012-O02: This observation documented problems indicating a need for a systematic approach for selection of construction activities for oversight to ensure resources are assigned for inspection of the most significant and important activities, and will track actions to ensure this problem is adequately resolved.
- A-07-AMWTP-RPPWTP-012-O03: This observation documented problems with characterization of issues in inspection notes (as AFIs, Non-cited Findings, Findings, or nothing) and will track actions to ensure this problem is adequately resolved.

6.0 REFERENCES AND PERSONNEL CONTACTED

6.1 REFERENCES

- 05-WTP-069, ORP letter, R. Schepens to J. Henschel, BNI, "Inspection Report A-05-AMWTP-RPPWTP-001 On-Location Inspection Report for Construction Performance of the WTP for the Period December 16, 2004, Through March 31, 2005," dated April 01, 2005.
- 05-WTP-132, ORP letter, R. Schepens to J. Henschel, BNI, "Inspection Report A-05-AMWTP-RPPWTP-002 On-Location Inspection Report for the Period April 1, 2005, Through June 30, 2005," dated July 13, 2005.
- 05-WTP-227, ORP letter, R. Schepens to J. Henschel, BNI, "Inspection Report A-05-AMWTP-RPPWTP-003 On-Location Inspection Report for the Period July 1, 2005, Through September 30, 2005," dated October 19, 2005.
- 06-WTP-001, ORP letter, R. Schepens to J. Henschel, BNI, "Inspection Report A-05-AMWTP-RPPWTP-004 On-Location Inspection Report for the Period October 1, 2005, Through December 30, 2005," dated January 12, 2006.
- 06-WTP-038, ORP letter, R. Schepens to J. Henschel, BNI, "Inspection Report A-06-AMWTP-RPPWTP-001 On-Location Inspection Report for the Period January 2, 2006, Through March 31, 2006," dated April 17, 2006.
- 06-WTP-086, ORP letter, R. Schepens to W. Elkins, BNI, "Inspection Report A-06-AMWTP-RPPWTP-002 On-Location Inspection Report for the Period April 1, 2006, Through June 30, 2006," dated July 13, 2006.
- 06-WTP-142, ORP letter, J. Eschenberg to C. Albert, BNI, "Inspection Report A-06-AMWTP-RPPWTP-003 On-Location Inspection Report for the Period July 1, 2006, Through September 30, 2006," dated October 10, 2006.
- 07-WTP-006, ORP letter, J. Eschenberg to C. Albert, BNI, "Inspection Report A-06-AMWTP-RPPWTP-004 On-Location Inspection Report for the Period October 1, 2006, Through December 31, 2006," dated January 17, 2006.

- 07-WTP-020, ORP letter, J. Eschenberg to C. Albert, BNI, "Curtailment of All High Voltage (Greater Than 600 Volts) Work at the Waste treatment and Immobilization Plant (WTP) Construction Site," dated February 01, 2007.
- 24590-WTP-CAR-QA-06-104, Corrective Action Report, Electrical deficiencies LAW glovebox, Rev. 0, Bechtel National, Inc., Richland, Washington.
- 24590-WTP-CAR-QA-06-112, Corrective Action Report Nozzle weld preparation, Rev. 0, Bechtel National, Inc., Richland, Washington.
- 24590-WTP-CAR-QA-06-113, Corrective Action Report Nozzle wall thickness exceeds the pipe wall thickness, Rev. 0, Bechtel National, Inc., Richland, Washington.
- 24590-WTP-CDR-CON-06-0042, Construction Deficiency Report, BOF Fire Water Pump Maintenance, Bechtel National, Inc., Richland, Washington.
- BNI's AMWTP Status of Open Items Excel Spreadsheet, dated February 28, 2007.
- CCN: 138411 BNI letter, W. Elkins to R. Schepens, ORP, "Response to Inspection Report A-06-AMWTP-RPPWTP-001 On-Location Inspection Report for the Period January 2, 2006, Through March 31, 2006," dated June 9, 2006.
- CCN: 139423, BNI letter, J. Henschel to R. Schepens, ORP, "Human Performance Improvement Review," dated May 23, 2006.
- CCN: 143148, BNI letter, W. Elkins to R. Schepens, ORP, "Bechtel National, Inc. Response to ORP Comments Regarding Finding F12 Identified in Inspection Report A-06-AMWTP-RPPWTP-001," dated August 9, 2006.
- CCN: 146721, BNI letter C. Albert to J. Eschenberg, ORP, "Response to Inspection Report A-06-AMWTP-RPPWTP-003- On-Location Inspection Report for the Period July 1, 2006 Through September 30, 2006," dated November 22, 2006.
- Construction Inspection Lead's Input for Quarterly Assessment Program Committee (APC) Meeting, second and fourth quarters CY 2006.

Inspection Notes A-06-AMWTP-RPPWTP-001-01 through -64

Inspection Notes A-06-AMWTP-RPPWTP-002-01 through -62

Inspection Notes A-06-AMWTP-RPPWTP-003-01 through -65

Inspection Notes A-06-AMWTP-RPPWTP-004-01 through -45

OCT Personnel Qualification Records

- Operational Awareness (OA) Database Printouts for Functional Area: SAFETY, Trend Code: HAZCOM, dated March 26, 2007.
- Operational Awareness (OA) Database Printouts for Functional Area: SAFETY, Trend Code: EW/FO, dated March 26, 2007.
- Operational Awareness (OA) Database Printouts for Functional Area: SAFETY, Trend Code: LO/TO, dated March 26, 2007.
- ORP Consolidated Action Reporting System (CARS) WTP Operations and Commissioning Team Report Printout as of March 19, 2007.
- ORP FY2007 Oversight Assessment Schedule, status as of March 1, 2007.
- ORP M 220.1, *Integrated Assessment Program*, Rev. 4, U.S. Department of Energy, Office of River Protection, Richland, Washington.
- ORP M 243.1, *Operational Awareness Oversight Database*, Rev. 0, U.S. Department of Energy, Office of River Protection, Richland, Washington..
- ORP M 432.1, 2006, Waste Treatment and Immobilization Plant (WTP) Project Construction Oversight Manual, Rev. 1, U.S. Department of Energy, Office of River Protection, Richland, Washington.
- ORP OCT Monthly Report for January February 2007

6.2 PERSONNEL CONTACTED

- J. Bruggeman
- J. Christ
- M. Ensminger, BNI
- J. Eschenberg
- M. Evarts
- B. Harkins
- J. McCormick-Barger
- M. Thomas
- D. Wallace

Attachment 07-WTP-109

 $\begin{array}{c} \text{Independent Assessment of WTP Operations and Commissioning Team (OCT) Construction Oversight Program} \\ \text{A-07-AMWTP-RPPWTP-012} \end{array}$

Appendix A - Oversight Plan

OVERSIGHT PLAN

INDEPENDENT ASSESSMENT OF WTP OPERATIONS AND COMMISSIONING TEAM (OCT) CONSTRUCTION OVERSIGHT PROGRAM

MARCH 19-30, 2007

Oversight Report: A-07-AMWTP-RPPWTP-012

	Submitted by:		
,	<u> </u>	Date	<u> </u>
- (Richard W. Cooper, II, Assessment Lead		
1	Independent Consultant to ORP		
Seeall	Concurred By:		
a Hachray	0011011110112,	Date	
Original C	Jim McCormick-Barger, Construction Inspection	on Lead	
` ` \	Operations and Commissioning Team		
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	Approved By:		
- 1			
		Date	
(Jeff Bruggeman, Acting Lead		
	Operations and Commissioning Team		
	\ '		

2007-04-26 11:04

OVERSIGHT PLAN

INDEPENDENT ASSESSMENT OF WTP OPERATIONS AND COMMISSIONING TEAM (OCT) CONSTRUCTION OVERSIGHT PROGRAM

MARCH 19-30, 2007

Oversight Report: A-07-AMWTP-RPPWTP-012

Submitted by:	Date _3/19/07
Richard W. Cooper, II, Assessment Lead	77
Independent Consultant to ORP	
Concurred By: Jim McCormick-Barger, Lead Construction Inspect Operations and Commissioning Team	Date 0/21/07
Approved By:	
Jeff Bruggeman, Acting Lead	Date 3/21/07

Operations and Commissioning Team

1.0 BACKGROUND, PURPOSE, AND OBJECTIVES

1.1 BACKGROUND

The OCT staff has primary responsibility for oversight of Contractor construction activities at the WTP site and has been actively performing this oversight since late 2001. During this period, assessment plans were executed with reports issued and actions tracked to provide active oversight of site activities ensuring the Contractor is properly designing, procuring, and installing the WTP facilities. Assessments are of two main types: (1) construction related inspections and (2) focused assessments in a topical area or program. This independent assessment evaluates the results of construction oversight performed by OCT since early 2005 to the present in order to focus more heavily on recent inspection and assessment issues and how they were managed to closure. The assessment will evaluate the extent to which construction inspections and focused assessments were performed in accordance with governing procedures (ORP M 243.1, ORP M 220.1, and ORP M 432.1), were properly transmitted to the Contractor for action, followed to resolution in a timely, traceable and recoverable manner, and resolved effectively.

1.2 PURPOSE

This independent assessment is being done to determine the extent to which OCT is implementing its oversight program, and whether the program is providing effective Contractor oversight at the WTP site. Such an assessment has not been done before; hence, this assessment will establish baseline performance such that future assessments may provide insights on OCT performance trends.

1.3 OBJECTIVES

The following are the specific objectives of this oversight:

- 1. Evaluate compliance of the inspections and assessments to governing instructions.
- 2. Review select inspections and assessments performed since early 2005 to determine issues identified and whether they were appropriately transmitted to the Contractor.
- 3. Review the adequacy of the program for tracking of inspection and assessment issues, including placement of such issues in the Consolidated Action Reporting System (CARS) (or another acceptable database) for assuring visibility of issues requiring Contractor actions and timely reviews by OCT for acceptance.
- 4. Evaluate OCT acceptance of Contractor actions to assure these were effective in resolving the issues being tracked, and that documentation in the database properly reflects issue closure.

A-07-AMWTP-RPPWTP-012

2.0 PROCESS

This oversight shall be conducted within the guidelines of governing instructions and implementing procedures.

2.1 SCOPE

This independent assessment will include review of selected issues identified in OCT inspection and assessment reports from early 2005 to the present.

2.2 PREPARATION

- 1. Identify the OCT or OSR authors involved in the performance and review of inspections and assessments.
- 2. Obtain the list of inspections and assessments performed from 2005 to the present and obtain copies of the reports and transmittal letters to the Contractor. Select several inspections and assessments for detailed review and followup.
- 3. Obtain copies of the database used to track issues from inspection and assessment reports, and any correspondence (inspection notes, internal ORP memoranda, letters from Contractor, etc.) that documented completed actions sufficient to close the issues.
- 4. Obtain information (in database or letters) indicating review and acceptance by OCT of Contractor actions for closure of issues. Independently review documentation reflecting the basis for issue closure that was acceptable to OCT to determine whether this was effective in resolving the issue.
- 5. Notify OCT (and Contractor) personnel of interviews required to assess their knowledge of Contractor corrective actions taken for issues raised in inspection and assessment reports.

2.3 REVIEW

This independent assessment will confirm inspection and assessment issues were properly transmitted to the Contractor for action and, for issues dispositioned to date; the assessment will evaluate the adequacy of the disposition and the proper recording of it in OCT records. In addition, this assessment will determine if any issues identified in inspections and assessments were not communicated to the Contractor or if Contractor responses were delinquent, and will provide this listing to the OCT for action by responsible personnel.

Debrief WTP Project management periodically, as required. Prepare a draft report summarizing the activities, results, conclusions, and recommendations from the assessment. Issue the draft assessment report for review and comment by WTP Project management and Contractor personnel, if necessary. The final report will resolve comments received on the draft report.

3.0 SCHEDULE OF ACTIVITIES

Table 2 summarizes the schedule for completion of this independent assessment.

4.0 DOCUMENTATION

The final report of this task shall contain the sections and content as summarized in the OCT governing instruction.

The issues identified in this independent assessment 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 CARS (or another acceptable database).

5.0 CLOSURE

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

Table 1 - Initial Information Requirements

1.	Copies of all OCT inspection and assessment reports since early 2005, and associated WTP Project correspondence forwarding inspection and assessment results to the Contractor (and particularly issues requiring resolution by the Contractor).
2.	BNI response letters to OCT identifying corrective actions to be taken for inspection and assessment issues.
3.	Status tracking information/databases for inspection and assessment report issues (whether requiring Contractor actions or not).
4.	Copies of Contractor letters to OCT that describe actions being taken or completed to resolve issues from inspections and assessments, as well as OCT documentation providing the basis for acceptance of Contractor actions for issue closure.
5.	Copies of meeting minutes involving discussions about actions needed or completed for resolution of OCT inspection and assessment issues.

Table 2 – Schedule

Activity Description	Responsibility	Complete By
Develop Oversight Assessment Plan	Cooper	03/8/07
Identify Assessment Lead	Eschenberg	03/8/07
Obtain approved plan	Bruggeman/McCormick- Barger	03/13/07
Obtain initial information defined in Table 1 above to support review and provide to Assessment Lead (or assure the availability of information on site)	McCormick-Barger	03/13/07
Qualify Assessment Lead -Attachment 9.1	Eschenberg	03/13/07
Kick-off meeting with OCT to outline objectives, scope, schedule, and establish Point of Contact	Bruggeman, McCormick-Barger, Cooper	03/19/07
Review documents from OCT and provide oversight strategy, lines of inquiry, and interview requests to Point of Contact	Соорег	03/19/07
Perform independent assessment	Cooper	03/19/07- 03/30/07
Prepare Draft Independent Assessment Report Notes	Cooper	04/06/07
WTP Project Exit Briefing	Cooper and WTP Project Management	04/20/07
Draft Report	Cooper	04/25/07
Resolve comments and place Final Report into concurrence including factual accuracy review with Contractor (if necessary)	Cooper	05/04/07
Issue Final Report	Cooper	05/11/07

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E-STARS

Task# ORP-WTP-2007-0117

E-STARS[™] Report Task Detail Report 04/27/2007 0859

TASK DUE DATE HISTORY

	ON		
「ask#	ORP-WTP-2007-0117		
Subject	(Concur 07-WTP-109) TRANSMITTAL OF THE WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) INDEPENDENT ASSESSMENT OF OPERATIONS AND COMMISSIONING TEAM (OCT) CONSTRUCTION OVERSIGHT PROGRAM A-07-AMWTP-RPPWTP-012		
Parent Task#		Status	CLOSED
Reference		Due	
Originator	Licht, Sarah	Priority	High
Originator Phone	(509) 373-0068	Category	None
Origination Date	04/16/2007 1308	Generic1	
Remote Task#		Generic2	
Deliverable	None	Generic3	: !
lass	None	View Permissions	Normal
	bcc: MGR RDG file WTP OFF file WTP RGD file R. M. Cooper, WM		
ROUTING LISTS	bcc: MGR RDG file WTP OFF file WTP RGD file		
OUTING LISTS	bcc: MGR RDG file WTP OFF file WTP RGD file R. M. Cooper, WM J. M. Bruggeman, WTP J. R. Eschenberg, WTP		Inactive
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	bcc: MGR RDG file WTP OFF file WTP RGD file R. M. Cooper, WM J. M. Bruggeman, WTP J. R. Eschenberg, WTP J. W. McCormick-Barger, WTP Route List Mccormick-Barger, James W - Review - Ca Instructions: Bruggeman, Jeffrey M - Approve - Approve		7 0857
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Task# ORP-WTP-2007-0117				
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SUB TASK HISTORY				
No Subtasks				

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Task# ORP-WTP-2007-0117

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TASK INFORMATIO	ON		
Task#	ORP-WTP-2007-0117		
Subject	(Concur 07-WTP-109) TRANSMITTAL OF THE WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) INDEPENDENT ASSESSMENT OF OPERATIONS AND COMMISSIONING TEAM (OCT) CONSTRUCTION OVERSIGHT PROGRAM A-07-AMWTP-RPPWTP-012		
Parent Task#		Status	Open
Reference		Due	
Originator	Licht, Sarah	Priority	High
Originator Phone	(509) 373-0068	Category	None
Origination Date	04/16/2007 1308	Generic1	
Remote Task#		Generic2	
Deliverable	None	Generic3	1 1 1 1
Class	None	View Permissions	Normal
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No Subtasks				

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