



U.S. Department of Energy
Office of River Protection

P.O. Box 450
Richland, Washington 99352

04-ESQ-011

Mr. J. P. Henschel, Project Director
Bechtel National, Inc.
2435 Stevens Center
Richland, Washington 99352

Dear Mr. Henschel:

CONTRACT NO. DE-AC27-01RV14136 – ASSESSMENT REPORT A-04-ES-RPP-WTP-002
– ASSESSMENT OF THE CONTROL OF DOCUMENTS AND RECORDS FOR
JANUARY 12 THROUGH 15, 2004

This letter forwards the results of the U.S. Department of Energy, Office of River Protection, assessment of the Bechtel National, Inc. (BNI), control of documents and records for the Waste Treatment and Immobilization Plant (WTP) during the period January 12 through 15, 2004. The assessment team (Team) identified three findings (Attachment 1). Details of the assessment are documented in the attached assessment report (Attachment 2).

The Team found BNI had established an infrastructure of procedures, data processing equipment, and personnel to control documents and records. The Team identified several noncompliances associated with the maintenance of drawings and in one instance found construction craftsmen using an outdated drawing. These Findings appear to be a repeat of similar issues that ORP had documented in Inspection Reports IR-02-014 and IR-A-030-OSR-RPPWTP-005. While BNI implemented actions to correct the causes of the Findings, those actions appear not to have been extensive enough to correct the root-cause. As these Findings have recurred, it also suggests a weakness in corrective action verification effectiveness.

These Findings are significant because they identify conditions that can lead to errors in the construction of the WTP. I look forward to reviewing the BNI submittal describing the comprehensive actions you plan to implement to correct these problems.

Mr. J. P. Henschel
04-ESQ-011

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If you have any questions, please contact me, or your staff may call Robert C. Barr, Director, Office of Environmental Safety and Quality, (509) 376-7851.

Sincerely,

ESQ:DHB

Roy J. Schepens
Manager

Attachments: (2)

cc w/attachs:

G. T. Shell, BNI

W. R. Spezialetti, BNI

Notice of Finding

Section C, “Statement of Work,” Standard 7, “Environment, Safety, Quality, and Health,” of the Contract¹, defined Bechtel National, Inc.'s (BNI) (the Contractor) responsibilities under the Contract as they related to conventional non-radiological worker safety and health; radiological, nuclear, and process safety; environmental protection; and quality assurance.

Standard 7, Section (d) of the Contract required the Contractor to develop and implement an integrated, standards-based, safety management program to ensure that radiological, nuclear, and process safety requirements are defined, implemented, and maintained. The Contractor was required to conduct work in accordance with the Contractor-developed and U.S. Department of Energy (DOE)-approved Safety Requirements Document (SRD). The Contractor’s SRD was defined in 24590-WTP-SRD-ESH-01-001-02, Revision 2h, dated June 25, 2003.

Standard 7, Section (e)(3) of the Contract required the Contractor to develop and implement a Quality Assurance (QA) program, supported by documentation that describes the overall implementation of QA requirements. The documentation shall identify the procedures, instructions, and manuals used to implement the Contractor’s QA program within the Contractor’s scope of work. For radiological, nuclear, and process safety, QA is to be conducted in accordance with 10 CFR 830.120. The Contractor’s QA program was documented in 24590-WTP-QAM-QA-01-001, “Quality Assurance Manual (QAM),” Revision 4b, dated November 26, 2003.

During performance of an assessment of BNIs programs for control of documents and records, conducted January 12 through 15, 2004, at BNI’s offices, DOE; Office of River Protection (ORP) identified three Findings.

A-04-ESQ-RPP-WTP-002-F01 – The document control process did not assure that correct documents were employed at the Waste Treatment and Immobilization Plant (WTP) work sites as required by the BNI QA manual.

Requirements:

- a. QAM Policy Q-06.1, “Document Control,” Section 3.1.1 stated, “The preparation, issue, and change of documents that specify technical requirements or prescribe activities affecting quality such as instructions, procedures, and drawings shall be controlled to ensure that correct documents are being employed; and
- b. Section 3.3.4 of BNI procedure 24590-WTP-GPP-CON-7107, Revision 5, “Field Project Document Control,” stated “Documents shall be placed on controlled stick files and distributed... within 7 calendar days of their issue date...”

¹ Contract No. DE-AC27-01RV14136, between U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

Discussion:

Contrary to these requirements, controlled drawings at a construction site document release station did not reflect the current change status, and at least one drawing in use at the work site was not the correct revision. Additionally, drawings used for work were not verified daily, and craft personnel were unsure of the requirements for verifying drawing currency. The following examples illustrate this condition:

- Revision 7 to drawing 24590-PTF-DB-S13T-00202 was used for placing wall penetrations in the Pretreatment Facility when Revision 8 was effective;
- Drawings in a work package in use by piping craft for installation of piping in the north tunnel of the Pretreatment Facility had not been reviewed for currency since the package was provided to the craft more than a week before the assessment. BNI procedure 24590-WTP-GPP-CON-7107 required drawings in use to be verified daily;
- A field engineer said he used the Daily Notification Report to verify drawing currency, but this was not one of the verification methods specified by BNI procedure 24590-WTP-GPP-CON-7107;
- A general foreman said that when verifying drawing status he only verified revisions. He did not verify that all field change notices were posted to the drawings and said he did not understand the system;
- In a sample of 10 drawings checked at the T-1 building document release station, two had anomalies. In one case, an effective change posted to the drawing was not properly recorded on the drawing, and in the other case a superceded drawing was not removed from the station as required by BNI procedure 24590-WTP-GPP-CON-7107;
- In an unrelated activity during this assessment, an ORP inspector found a drawing at the T-1 document release station that did not have all effective changes posted;
- A piping craft supervisor said he depended on the field engineer to notify craft personnel if changes were issued to any drawings they were using. BNI procedure 24590-WTP-GPP-CON-7107 required both craft personnel and craft supervision to verify every day that drawings they were using were current; and
- Procedure 24590-WTP-GPP-CON-7107 only required craft personnel and supervision to verify drawings in use were the correct revision. It failed to require them to verify design change notices and other design change vehicles were incorporated.

A-04-ESQ-RPP-WTP-002-F02 – BNI and its subcontractors were not controlling environmental conditions for radiographs maintained as records.

Requirements:

- a. QAM Policy Q-17.1, “Document Control,” Section 3.6.1 stated, “Records shall be stored in facilities, containers, or a combination thereof, constructed and maintained

in a manner which minimizes the risk of damage or destruction from the following...
[e]nvironmental conditions such as high and low temperatures and humidity.”

Discussion:

BNI monitored temperature and humidity for radiographic film maintained as record material, but employees were not provided with a means to control humidity when it varied from the established range. Additionally, a BNI subcontractor maintaining exposed radiographic film as record material did not monitor environmental conditions or control humidity at the container where the film was stored. The assessors found the following:

- In the file rooms at the Hills Street facility and in the T-1 building, relative humidity was measured at 22%. The humidity range established in BNI procedures was 30% – 50%, but file room personnel were not provided with an effective method for controlling humidity. When humidity was outside the range, file room personnel were directed to keep the container doors closed as much as possible. However, there was no way of knowing if humidity within the container was within the correct range; and
- CBI Services, Inc., was storing radiographs in a trailer with no specific environmental monitoring and no humidity controls.

A-04-ESQ-RPP-WTP-002-F03 – The BNI corrective action management system was ineffective in assuring that corrective actions for significant conditions adverse to quality were corrected.

Requirements:

- a. QAM Policy Q-16.1, “Corrective Action,” Section 3.1.1.C stated, “In the case of significant conditions adverse to quality (a subset of conditions adverse to quality), the cause shall be determined and corrective action taken to preclude recurrence.”

Discussion:

This assessment found errors in maintenance of controlled documents on stick files at document release stations, failure to use a current drawing during construction, and failure to follow document control procedures. These were new examples of problems BNI identified previously. BNI had believed the problems were either corrected or controlled adequately with compensatory measures to permit continuing work. Some of the previous problems were:

- During 2003, BNI found and documented a breakdown in the document control system which they addressed through significant corrective action report (CAR) 24590-WTP-CAR-QA-03-009. A symptom of the breakdown was the presence of outdated drawings on stick files at document release stations. BNI closed the CAR

when they believed they had adequately analyzed root causes and completed all necessary corrective actions. This assessment found more outdated drawings on stick files; and

- Also during 2003, BNI made errors in placing rebar that involved failures to assure that construction work was performed in accordance with the current drawing. Ongoing problems with controlling civil/structural work were documented in CAR 24590-WTP-CAR-QA-03-247. Compensatory measures were established while a root cause analysis was being performed and corrective actions taken. However, the compensatory measures were largely limited to craft, quality control, and field engineering personnel associated with civil/structural work. The assessors found similar problems involving personnel performing piping work.

ORP requests that BNI provide, within 30 days from the date of the letter that transmitted this Notice, a reply to the Findings above. The reply should include: 1) admission or denial of the Findings; 2) the reason for the Findings, if admitted, and if denied, the reason why; 3) the corrective steps that have been taken and the results achieved; 4) the corrective steps that will be taken to avoid further Findings; and 5) the date when full compliance with the applicable commitments in your QAM will be achieved. Where good cause is shown, consideration will be given to extending the requested response time.

U.S. DEPARTMENT OF ENERGY
Office of River Protection
Environmental Safety and Quality

ASSESSMENT: Control of Documents and Records

REPORT: A-04-ESQ-RPP-WTP-002

FACILITY: Bechtel National, Inc.

LOCATION: 3000 George Washington Way
Richland, Washington 99352

DATES: January 12 – 15, 2004

ASSESSORS: David H. Brown, Lead Assessor
Paul R. Hernandez, Assessor

APPROVED BY: Patrick P. Carrier, Team Lead
Quality and Industrial Safety

Executive Summary

Introduction

From January 12-15, 2004, the Office of River Protection (ORP) assessed the implementation of the Waste Treatment and Immobilization Plant contractor's program for controlling documents and records. The assessment team (Team) evaluated the control of documents from generation through use and control of records from generation through archiving.

Significant Issues and Conclusions

The Team found that Bechtel National, Inc. (BNI) had established an infrastructure of procedures, data processing equipment, and personnel to control documents and records and that BNI had made progress in correcting program and implementation weaknesses identified by BNI and external reviewers in 2003. However, the Team identified noncompliances associated with the maintenance of drawings and in one instance found construction craftsmen using an outdated drawing. These weaknesses were similar to those ORP documented in Inspection Reports IR-02-014 and IR-A-030-OSR-RPPWTP-005. While BNI implemented actions to correct the causes of the Findings, those actions appear not to have been extensive enough to correct the root cause. As these Findings have recurred, it suggests a weakness in corrective action verification effectiveness.

The following briefly describe the significant weaknesses documented in this report:

- Document Control

The Team found drawings that were not the current revision at a document release station. Procedures require that drawings be current to assure proper construction of the facility. In a sample of ten drawings, the assessors found a superceded drawing that had not been removed from the station and a drawing change that had not been properly recorded. Coincidentally, an ORP contract inspector also found a drawing at the same document control station that did not have the latest change posted.

The Team found craft personnel installing piping in the Pretreatment Facility using an outdated drawing. In interviews, craft supervision stated they had not verified drawing revision status daily, as required by BNI procedures, and they did not understand the system. In contrast, craft supervision responsible for civil/structural work pulled all work packages back at the end of each day and did not reissue them until all documents had been verified.

- Corrective Action Management

Corrective actions for some significant document control issues, which were identified in 2002 and 2003, were not effective in preventing recurrence. The Team found recurrent weaknesses at a document release station. In this assessment the Team found drawings at a document release station that were not current and in one instance a drawing that was not current being used for construction. In 2003, failure to use the most current approved design drawing resulted in errors in placing rebar. Furthermore, the Team found that some Field Engineers considered it acceptable to allow the performance of fieldwork without a current drawing as long as they believed the work being performed had not been affected by a drawing revision.

- Record Retention and Storage

Some record material, radiographic film was not being maintained within the established humidity range. BNI had applied an allowable range of 30-50% relative humidity, but the humidity indicated at both radiograph storage locations was approximately 20% and had been at that humidity level for extended periods. Also, the subcontractor fabricating waste receiving tanks (CBI Services, Inc.) did not provide environmental monitoring or control for radiographic film record material in their custody.

Control of Waste Treatment and Immobilization Plant (WTP) Contractor Documents and Records for Period of January 12-15, 2004

Assessment Purpose and Scope

During the period of January 12-15, 2004, the U.S. Department of Energy, Office of River Protection (ORP), conducted an assessment of the control of documents and records in the work of the WTP contractor, Bechtel National, Inc. It evaluated the control of documents from generation through use, and it evaluated the control of records from generation through archiving. Requirements for the control of documents and records are specified in 24590-WTP-QAM-QA 01-001, "Quality Assurance Manual" and implementing procedures.

Significant Observations and Conclusions

Overall Conclusions

The Contractor had a coherent set of requirements and procedures for controlling documents and records. It also had the infrastructure of facilities, data processing equipment, and human resources to properly manage the generation, use, and retirement of documents and records.

The assessors found several errors in document status at a construction site document release station. This brought into question the integrity of the document control process. Additionally, the assessors found piping craft personnel using an outdated drawing to place wall penetrations at the Pretreatment Facility. Craft and craft supervision were required to verify drawing revision and change status each day, but piping craft supervision said they did not always do this and did not understand the system. More often, they relied on Field Engineering to notify them of changes. In an interview, a field engineer said he based verifications of drawing status on the Daily Notification Report (DNR), but this was not one of the methods authorized for document status verification. Contractor management has acknowledged that the DNR was unreliable. Only the CONRAD database and the hard copy documents in document release stations were considered reliable.

The assessors did not find any errors in the document control practices of a subcontractor, CBI Services, Inc.

During 2002 and 2003, the Contractor experienced problems in document control. A Significant Corrective Action Report¹ (CAR) identified a breakdown in the quality assurance program with respect to document control. In addition to problems identified by the Contractor, ORP had identified several document control problems.^{2,3} The Contractor performed a root cause analysis

¹ 24590-WTP-CAR-QA-03-009, Rev. 0, *PDC System Breakdown*

² ORP letter 02-OSR-0533, Roy J. Schepens to R. F. Naventi, BNI, *Inspection Report IR-02-014 On-Location Inspection for the Period August 24 Through October 10, 2002*, dated November 4, 2002

³ ORP letter 03-OSR-0030, Roy J. Schepens to R. F. Naventi, BNI, *Inspection Report A-030- OSR-RPPWTP-005 – Document Control and Records Management*, dated February 7, 2003

for the program breakdown, completed corrective actions, and closed the CAR, but the assessors found more problems like those that led to the CAR. Also in 2003, the Contractor placed some rebar that did not conform to the requirements of the latest version of a design drawing. The Contractor imposed compensatory measures while a root cause analysis was performed and corrective action developed. However, the assessors found the conditions for similar errors in piping installation work that were not addressed by the compensatory measures.

The Contractor monitored temperature and humidity in areas where radiographic film was stored as record material, but relative humidity was not maintained in the proper range. No effective provisions were made for assuring humidity levels could be controlled. CBI Services, Inc., also maintained radiographs as record material but did not provide for environmental monitoring or control.

Document Control

- The Project Archives and Document Control (PADC) organization received documents from Engineering at the Hills Street Facility. New documents were identified with a bar code and input into two databases, DocTrack® and CONRAD®. Images of documents were scanned into CONRAD and made available to all potential users. (Assessment Note A-04-ESQ-RPP-WTP-002-04)
- PADC maintained stations that could receive both documents and records at other locations, including the T-1 building, Washington Square, and the Project Office. (Assessment Note A-04-ESQ-RPP-WTP-002-04)
- CONRAD was the baseline for identifying the effective revision and change status of a document. A new database, InfoWorks®, was to supercede CONRAD in the near future. (Assessment Note A-04-ESQ-RPP-WTP-002-04)
- The Contractor maintained document release stations with hard copies of controlled documents. These were referred to as “stick files,” although not all documents were on sticks. (Assessment Note A-04-ESQ-RPP-WTP-002-02)
- The assessors pulled a sample of ten documents from the T-1 building document release station and found two with document control anomalies. One of the drawings had been superceded but had not been removed from the station. The other drawing did not properly reflect a change that was to have been posted to it. These were symptoms of the conditions that should have been corrected under significant CAR 24590-WTP-CAR-QA-03-009. (Assessment Note A-04-ESQ-RPP-WTP-002-02)
- The same day the assessors were verifying documents at the T-1 building document release station, an ORP contract inspector found a drawing at the same release station that did not have the correct changes posted to it. (Assessment Note A-04-ESQ-RPP-WTP-002-03)
- Contractor procedures required craft supervision to verify revision status of every document each day prior to use. Consistent with this requirement, civil/structural craft supervision said they pulled back all work packages at the end of each day and re-verified documents before

re-issuing work packages the following day. (Assessment Note A-04-ESQ-RPP-WTP-002-01)

- Piping craft supervision said they did not re-verify documents daily, but depended on Field Engineering to notify them of changes. (Assessment Note A-04-ESQ-RPP-WTP-002-01)
- A field engineer interviewed by the assessors said that he used the Daily Notification Report to verify drawing revision and change status. This was an unauthorized and unreliable method for this verification. (Assessment Note A-04-ESQ-RPP-WTP-002-01)
- Craft personnel installing piping in the Pretreatment Facility were using an outdated revision of a design drawing. (Assessment Note A-04-ESQ-RPP-WTP-002-01)
- A piping craft general foreman said that when he verified drawing status, he verified drawings were the correct revision. He did not verify the status of design change notices and other change vehicles. (Assessment Note A-04-ESQ-RPP-WTP-002-01)
- All drawings in a sample of controlled drawings used by CBI Services, Inc., checked by the assessors, were current and properly maintained. (Assessment Note A-04-ESQ-RPP-WTP-002-05)

Records

- As with documents, records were brought to PADC stations for acceptance. PADC used the same systems and databases for processing and archiving records they use for documents. Paper records evaluated by the assessors were identified, processed, and stored in accordance with Contractor procedures. (Assessment Note A-04-ESQ-RPP-WTP-002-04)
- PADC's main records storage facility was located at the Hills Street PADC facility. Records were accepted at the same locations where documents were accepted. There was temporary storage of some records at satellite locations such as the T-1 building, Hanford Square, and the PONA building. (Assessment Note A-04-ESQ-RPP-WTP-002-04)
- Access to file rooms was rigorously controlled. File rooms were locked, and all visitors were escorted. Where records were temporarily stored outside of the file rooms, the records were maintained by PADC personnel in locked containers. (Assessment Note A-04-ESQ-RPP-WTP-002-04)
- At all locations visited by the assessment team, records were stored in either dual or single storage. Where single storage was used, records were maintained in fire-rated containers, consistent with Contractor requirements. (Assessment Note A-04-ESQ-RPP-WTP-002-04)
- At the Hills Street facility and the T-1 building where radiographic film was stored as record material, the Contractor provided personnel with instruments for monitoring temperature and relative humidity. A band of 30% to 50% was established for relative humidity, but the assessors found levels at both locations were approximately 20%. The Contractor did not

provide any means for employees to restore relative humidity when it varied from the established range. (Assessment Note A-04-ESQ-RPP-WTP-002-04)

- CBI Services, Inc., maintained radiographic film as record material in a trailer with no environmental monitoring or humidity control. (Assessment Note A-04-ESQ-RPP-WTP-002-05)
- The Contractor maintained computer diskettes as record material in a container at the Hills Street facility. They received the diskettes from BNFL, Inc. when they took over the project, but had not evaluated them to determine if they actually contained records. Diskettes are an unreliable record storage medium. (Assessment Note A-04-ESQ-RPP-WTP-002-04)

List of Items Opened, Closed, and Discussed

Opened

A-04-ESQ-RPP-WTP-002-F01	Finding	The document control process did not assure that correct documents were employed at WTP work sites as required by the Contractor's Quality Assurance manual.
A-04-ESQ-RPP-WTP-002-F02	Finding	The Contractor and its subcontractors were not controlling environmental conditions for radiographs maintained as records.
A-04-ESQ-RPP-WTP-002-F03	Finding	The Contractor's corrective action management system was ineffective in assuring that corrective actions for significant conditions adverse to quality were corrected.
A-04-ESQ-RPP-WTP-002-O01	Observation	The Contractor should consider archiving potential record material on diskettes to a more reliable medium, such as compact disk.

Closed

None

Discussed

None