



U.S. Department of Energy
Office of River Protection

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

06-WTP-038

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

Dear Mr. Henschel:

CONTRACT NO. DE-AC27-01RV14136 – INSPECTION REPORT A-06-AMWTP-RPPWTP-001 – ON-LOCATION INSPECTION REPORT FOR THE PERIOD JANUARY 2, 2006, THROUGH MARCH 31, 2006

This letter forwards the results of the U.S. Department of Energy (DOE), Office of River Protection (ORP) review of Bechtel National, Inc. (BNI) construction performance of the Waste Treatment and Immobilization Plant (WTP) for the period January 2, 2006, through March 31, 2006. There were seven Findings requiring responses by BNI identified during this inspection period. These Findings include: (1) BNI's Confined Space Program procedure lacked adequate detail to implement some 29 Code of Federal Regulations Part 1910 requirements; (2) BNI also failed to ensure FD Thomas confined space program complied with these requirements; (3) Fit-up of piping to nozzle 13 of the Analytical Laboratory Radioactive Liquid Waste Disposal System vessel was not in accordance with engineering specification requirements; (4) once the nozzle weld preparation issues were identified, BNI failed to write a construction deficiency report documenting the non-conforming condition; (5) BNI failed to appropriately document acceptance of cable tray supports including acceptance criteria used; (6) supplier oversight weaknesses at two suppliers (S. A. Robotics and IONEX); and (7) BNI failed to specify electrical inspections on the S. A. Robotics Material Acceptance Plan. The enclosed Notice of Finding (Enclosure 1) describes these issues and contains the instructions for responding.

Notwithstanding the identified Findings, construction performance during this inspection period was good. For example, with the exception of the nozzle fit-up issue described above, welding activities were being conducted in accordance with requirements. Forms, rebar, and embedment installations and concrete placements were being performed in accordance with design and specification requirements. Construction Quality Assurance oversight, the excavation program, and the critical lift program were being implemented in an acceptable manner. Also, improvements continue to be noted in electrical installation performance.

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

Mr. J. P. Henschel
06-WTP-038

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If you have any questions, please contact me, or your staff may call John R. Eschenberg, Project Manager, Waste Treatment and Immobilization Plant Project, (509) 376-3681.

Sincerely,

OPS:JWM

Roy J. Schepens, Manager
Office of River Protection

Enclosures (2):

1. Notice of Findings
2. On-Location Inspection Report

cc w/encls:

D. Kammenzind, BNI
G. Shell, BNI

NOTICE OF FINDING

Section C, “Statement of Work,” Standard 7, “Environment, Safety, Quality, and Health,” of Contract DE-AC27-01RV14136, dated December 11, 2000, between the U.S. Department of Energy (DOE) and Bechtel National, Inc. (BNI), defined BNI’s 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.

Section C, Standard 7, Section (e)(1)(ii) of the Contract required the Contractor to conform to the DOE regulatory program described in ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*.

ORP M 440.1-2, Appendix A, Item 12.a. requires the Contractor to comply with Title 29 Code of Federal Regulations (CFR) Part 1910, *Occupational Safety and Health Standards for General Industry*.

Standard 7, Section (e)(3) of the Contract required BNI 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 BNI’s QA program within BNI’s scope of work. For radiological, nuclear, and process safety, QA is to be conducted in accordance with 10 CFR Part 830.120. BNI’s QA program was documented in 24590-WTP-QAM-QA-01-001, “Quality Assurance Manual (QAM),” Revision 6, dated August 1, 2005.

QAM Policy Q-05.1, Section 3.1.1 states activities affecting quality shall be prescribed by and performed in accordance with documented instructions, procedures, and drawings.

QAM Policy 07.1, *Control of Purchased Items and Services*, subsection 3.7.1 states “The purchaser of items and services shall establish measures to interface with the supplier and to verify supplier’s performance.” Subsection 3.8.3.D states Methods for accepting supplier furnished items shall include one or more of the following: Surveillance or audit of the work.

During performance of assessments of BNI’s construction activities, conducted from January 2, 2006, through March 31, 2006, DOE Office of River Protection (ORP) identified the following Findings:

- 1) 29 CFR Part 1910, Section 146, Paragraph (c)(4) states in part, “If the employer decides that its employees will enter permit spaces, the employer shall develop and implement a written permit space program that complies with this section.”

Contrary to the above requirement, procedure 24590-WTP-GPP-SIND-007, *Confined or Enclosed Spaces* provided insufficient detail and scope to assure compliance. Numerous administrative deficiencies in the closed-out Confined Space Permits were identified during both the BNI annual assessment and the ORP review. Additionally, the procedure failed to cover the alternate process for entering a permit space (**Finding A-06-AMWTP-RPPWTP-001-F05**). (Inspection Note 001-09)

- 2) Section C, Standard 7, Paragraph (b) of the Contract states, “The Contractor shall integrate safety and environmental awareness into all activities, including those of subcontractors at all levels. Work shall be accomplished in a manner that achieves high levels of quality, protects the environment, the safety and health of workers and the public, and complies with all requirements.”

Contrary to the above requirement, BNI failed to ensure FD Thomas implemented a compliant confined space program. BNI safety assurance failed to recognize that FD Thomas was using an alternate entry process that exceeded the scope of FD Thomas’ confined space procedure (**Finding A-06-AMWTP-RPPWTP-001-F01**). (Inspection Note 001-09)

- 3) Waste Treatment and Immobilization Plant (WTP) Contract Section C, Standard 4, paragraph (f)(1)(i and iv) requires the Contractor to develop acceptance test plans that ensures construction workmanship complies with design drawings and specifications.

Contrary to the above, the internal profile of the fit-up of piping to nozzle 13 on the Radioactive Liquid Waste Disposal System vessel did not comply with the configuration required by Specification 24590-WTP-3PS-MV00-T0001, paragraph 3.8.1, and American Society of Mechanical Engineers (ASME) Section VIII Boiler Code, figure UW-13.4 (**Finding A-06-AMWTP-RPPWTP-001-F10**). (Inspection Note 001-16)

- 4) WTP Contract Section C, Standard 4, paragraph (f) requires the Contractor to develop a Construction and Acceptance Testing Program, (24590-WTP-RPT-CN-01-004, Revision 1). This approved program requires the Contractor to write a Construction Deficiency Report when deficiencies are identified (Section 3.3.2.1 of procedure 24590-WTP-GPP-CON-3106-5, *Construction Deficiency Reporting and Control*).

Contrary to the above, the Contractor failed to document the non-conforming condition of the nozzle weld preparation (discussed in item 3 above), performed by the tank supplier, and obtain approval for the necessary re-work of the nozzle (**Finding A-06-AMWTP-RPPWTP-001-F11**). (Inspection Note 001-16)

- 5) Section C, Standard 4(f) of the Contract requires BNI to maintain an adequate construction inspection system and requires BNI to develop and submit to DOE an integrated Construction and Acceptance Testing Program, (BNI Contract Table C.5-1.1, Deliverable 4.4). Paragraph 3.2 of BNI’s submittal, Construction and Acceptance Testing Program, states that inspection documentation includes the item/system being inspected/tested and a reference to acceptance criteria. Furthermore, Paragraph 3.2 states field engineering establishes, within installation procedures, the monitoring, verification, and acceptance requirements/processes for River Protection Project -WTP. This section also references 24590-WTP-GPP-CON-7101, the Construction Quality Control Program procedure.

Procedure 24590-WTP-GPP-CON-7101, paragraph 3.4.10, stated; “Inspection documentation shall include, as a minimum (bullet 1) Identification of the item(s) inspected;

(bullet 5) Reference to the acceptance criteria, sampling plan, or reference documents (including revision number(s) and relevant approved change documents) used to determine acceptance.”

Contrary to the above, the Contractor failed to appropriately document cable tray supports and acceptance criteria, including revision level, during inspection of cable trays 20ETFX1234, 20ETFX1235, 20ETFX1236, 20ETFX1237, and 20ETFX1238, (**Finding A-06-AMWTP-RPPWTP-001-F08**). (Inspection Note 001-22)

- 6) Procedure 24590-WTP-GPP-MGT-013, *Acceptance of Procured Material*, Revision 4, dated February 21, 2005, stated the Material Acceptance Plan (MAP) is to be a fully integrated planning document on which all attributes and/or activities required for quality acceptance of procured material are established.

Contrary to the above, BNI failure to specifically establish electrical inspection attributes in the above stated MAP and is a Finding for failure to follow procedures (QAM Policy Q-05.1, Section 3.1.1) (**Finding A-06-AMWTP-RPPWTP-001-F12**). (Inspection Note 001-63)

- 7) Contrary to the above regarding the requirements to verify supplier's performance, six oversight weaknesses were identified regarding: (a) a Supplier using an original equipment manufacture (OEM) to calibrate Measuring and Test Equipment when the OEM was not on its Approved Supplier List (ASL); (b) a Supplier procuring welding electrodes from a sub tier supplier when the sub tier supplier was not on the ASL; (c) a Supplier's weld procedure specifications specifying the wrong minimum weld material thickness ranges; (d) a Supplier failing to obtain the Nondestructive Examination Level III approval of its weld procedures; (e) another Supplier failing to procure weld electrode from a sub tier supplier on its ASL; and (f) a Supplier's weld qualification records failing to indicate what backing media was used to qualify the weld. Weaknesses in BNI's oversight of these two Supplier's quality and welding programs are considered a Finding against QAM Policy Q-07.1, Section 3.8.3.D, regarding performing surveillance or audits of supplier activities (**Finding A-06-AMWTP-RPPWTP-001-F13**). (Inspection Note 001-63 and 001-64)

The ORP Manager requests BNI to provide, within 30 days of the date of the cover 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 Contract and authorization bases 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

INSPECTION: On-location Inspection Report for the Period January 2, 2006, through
March 31, 2006

REPORT NO.: A-06-AMWTP-RPPWTP-001

FACILITY: Bechtel National, Inc. (BNI)

LOCATION: 2435 Stevens Center
Richland, Washington 99352

DATES: January 2, 2006, through March 31, 2006

INSPECTORS: J. McCormick-Barger, Construction Inspection Lead
J. Bruggeman, ORP Facility Representative
S. Pfaff, ORP Facility Representative
B. Harkins, ORP Facility Representative
J. Christ, ORP Facility Representative
M. Evarts, Team Member
D. Wallace, Team Member
R. Taylor, Team Member

APPROVED BY: M. Thomas, Operations and Commissioning Team Leader
Waste Treatment and Immobilization Plant Project

INSPECTION REPORT

Introduction

During the period January 2, 2006, through March 31, 2006, the U.S. Department of Energy (DOE), Office of River Protection (ORP), Waste Treatment and Immobilization Plant (WTP) Project conducted inspections of important-to-safety (ITS) and non-ITS (Balance-of-Plant) activities of the construction of the WTP. These inspections were documented on inspection notes and maintained electronically. There were 64 inspections of various construction activities summarized below. A summary listing of the inspection notes is included in back of this report. Copies of the inspection notes are available upon request.

Significant Observations and Conclusion

- With minor exceptions, BNI had installed forms, reinforcement, and embed steel (FRE), and/or batched, placed, consolidated, tested, and monitored concrete in accordance with engineering specifications and the Safety Requirements Document (SRD). (Inspection Notes 001-11, 001-24, 001-27, 001-28, 001-29, 001-31, 001-32, 001-57, and 001-58)
- Most electrical inspections identified acceptable work; however, some temporary and permanent electrical installation errors were identified. Examples included:
 - (1) Failure to legibly mark disconnection means on Distribution Board DB-1005.
 - (2) Failure to procure UL listed GE Motor Controllers.
 - (3) The Contractor installed two ground rods at GDR-069, but failed to also connect to the building electrode system (building steel, ground ring, etc). The Main Distribution Panel was a sub-panel and, therefore, was not connected to the building electrode system.

Note: With the exception of item (2) above, which is being tracked as assessment follow-up item A-06-AMWTP-RPPWTP-001-A04, the items listed above were corrected prior to the end of the inspection period. (Inspection Notes 001-02, 001-21, 001-56, and 001-60)

- Pneumatic and hydraulic shop and field testing of installed (or to be installed) piping was conducted in accordance with site procedures and specifications, and code requirements. Piping was installed in accordance with design and specification requirements. (Inspection Notes 001-12, 001-13, 001-14, 001-30, 001-35, and 001-50)
- Welding of modular supports, and carbon steel plate to stainless steel pipe stanchions associated with the -18' elevation of the Pretreatment (PT) Facility was performed in accordance with approved drawings and procedures. (Inspection Note 001-03)
- The Contractor adequately repaired a ¾" Radioactive Liquid Waste Disposal System (RLD) pipe, damaged during construction, in accordance with the nonconformance report and American Society of Mechanical Engineers (ASME) B31.3 code requirements. (Inspection

Note 001-04)

- BNI had adequately investigated and had taken appropriate actions to close:

Occurrence Report EM-RP-BNRP-RPPWTP-2005-0010, *Monitoring Data for Chromium Indicated Potential Exceedance of 2004 TLV for Hexavalent Chromium.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-015 *Electrician Cuts Energized 480V Cable While Salvaging Cord Caps.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0018 *Un-Permitted Release of Raw Water to Surface.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0019 *Un-Permitted Discharge of Chilled Water at WTP Batch Plant.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0009 *Fall From Step Ladder Results in Fractured Hip and Femur.*

(Inspection Notes 001-05, 001-06, 001-07, 001-08, and 001-17)

- During a review of BNI's Confined Space Program, a number of issues were identified regarding BNI's compliance with the confined space procedure and 29 Code of Federal Regulations (CFR) Part 1910, Section 146.

A Finding was identified against 29 CFR Part 1910, Section 146, Paragraph (c)(4) which states in part, "If the employer decides that its employees will enter permit spaces, the employer shall develop and implement a written permit space program that complies with this section." Contrary to this requirement, procedure 24590-WTP-GPP-SIND-007, *Confined or Enclosed Spaces* provided insufficient detail and scope to assure compliance. Numerous administrative deficiencies in the closed-out Confined Space Permits were identified during both the BNI annual assessment and the ORP review. Additionally, the procedure failed to cover the alternate process for entering a permit space. These deficiencies and compliance failures did not indicate immediate safety significance; however, the combination of these indicated a lack of thoroughness in developing and implementing a compliant procedure. The confined space entry process requires strict attention to detail – including the documentation (**Finding A-06-AMWTP-RPPWTP-001-F05**). (Inspection Note 001-09)

During this review, a number of issues were also identified with FD Thomas' Confined Space Program. WTP Contract No. DE-AC27-01RV14136, Section C, Standard 7: Environment, Safety, Quality, and Health, Paragraph (b) states, "The Contractor shall integrate safety and environmental awareness into all activities, including those of subcontractors at all levels. Work shall be accomplished in a manner that achieves high

levels of quality, protects the environment, the safety and health of workers and the public, and complies with all requirements.”

However, BNI failed to ensure FD Thomas implemented a compliant confined space program. BNI safety assurance failed to recognize that FD Thomas was using an alternate entry process that exceeded the scope of FD Thomas’ confined space procedure. The process to monitor FD Thomas’ compliance was also informal and resulted in BNI becoming a participant (**Finding A-06-AMWTP-RPPWTP-001-F01**). (Inspection Note 001-09)

- With the exception of a non-compliant fit-up weld profile that was subsequently corrected, the welding activities observed during the installation of the 8” overflow piping to Analytical Laboratory (LAB) Vessel RLD-VSL-00163 had been performed and documented to approved engineering drawings and procedures.

However, failure to adequately fit-up the piping to nozzle 13 on the RLD vessel was considered a Finding against the BNI Specification 24590-WTP-3PS-MV00-T0001, paragraph 3.8.1, and WTP Contract Section C, Modification M047, Standard 4, paragraph (f)(1)(i and iv) (**Finding A-06-AMWTP-RPPWTP-001-F10**).

Also, failure of the Contractor to document the non-conforming condition of the ASME Section VIII vessel nozzle weld preparation, performed by the tank supplier, and obtain approval for the necessary re-work of the nozzle, was considered a Finding for failure to implement the Construction and Acceptance Testing Program, (24590-WTP-RPT-CN-01-004, Revision 1) required by WTP Contract Section C, Modification M047, Standard 4, paragraph (f) (**Finding A-06-AMWTP-RPPWTP-001-F11**). (Inspection Note 001-16)

- The Contractor adequately engineered and prepared the critical lifting procedure for setting door RWH-DOOR-00022 in the PT Facility. (Inspection Note 001-18)
- The Contractor was implementing an acceptable excavation program that complied with applicable requirements of 10 CFR Part 1926.650, Subpart P, *Excavations*. (Inspection Note 001-19)
- Clayton Coatings Assured Grounding program was not being implemented in accordance with the sub-contractor’s Safety and Health Requirements (Exhibit “G” of the sub-contract). Specifically, quarterly inspections had not been completed within the first two weeks of the calendar quarter; quarterly inspections & testing were not being performed on 240 volt cords; and the sub-contractor was unaware of the requirement to test the GFCI receptacles monthly. These problems were addressed in a timely manner. (Inspection Note 001-20)
- The Contractor used the correct materials for installation of cable trays and supports and acceptably installed cable trays and supports in accordance with engineering and Contract requirements except for the following:

The SETROUTE cards used to control and document the installation of cable trays did not

identify the supports that were inspected nor did they reference the drawing used for inspection as required by procedure 24590-WTP-GPP-CON-7101, paragraph 3.4.10, which stated; “Inspection documentation shall include, as a minimum (bullet 1) Identification of the item(s) inspected; (bullet 5) Reference to the acceptance criteria, sampling plan, or reference documents (including revision number(s) and relevant approved change documents) used to determine acceptance.” Without this information, BNI had no verifiable way to show what specific cable tray supports were inspected and what revision level of the support drawings were used. Should an issue be discovered during site construction, such as failure of field engineering to use the correct revision of the cable tray support drawing during inspection, the Contractor would have no verifiable way to show that the issue was isolated, potentially requiring a complete re-inspection of cable tray installations. It is important to note drawing control issues have already been identified in rebar inspections, pipe installations activities, and weld inspections.

The failure to appropriately document the inspections of non-quality cable tray supports violates Contract and Authorization Basis Requirements. BNI Contract No. DE-AC27-01RV14136, Section C, Standard 4(f) requires BNI to maintain an adequate construction inspection system and requires BNI to develop and submit to DOE an integrated Construction and Acceptance Testing Program, (BNI Contract Table C.5-1.1, Deliverable 4.4). Paragraph 3.2 of BNI’s submittal, Construction and Acceptance Testing Program, states that inspection documentation includes the item/system being inspected/tested and a reference to acceptance criteria. Furthermore, Section 3.2 of the above Contract submittal states field engineering establishes, within installation procedures, the monitoring, verification, and acceptance requirements/processes for RPP-WTP. This section references the Construction Quality Control Program procedure discussed above, which was not being followed. Failure to appropriately document cable tray supports and acceptance criteria, including revision level, during inspection of these items is considered a Finding against Section C, Standard 4(f) of the BNI Contract (**Finding A-06-AMWTP-RPPWTP-001-F08**). (Inspection Note 001-22)

- Welding of piping to the LAB Radioactive Liquid Waste Disposal System (RLD) leak detection box nozzle was performed in accordance with approved engineering drawings and procedures and met code requirements. (Inspection Note 001-23)
- The Contractor submitted a Category R occurrence report titled “Hazardous Energy Control Incidents at the WTP (Recurring)” following eight events where workers were exposed to or potentially exposed to hazardous energy. To support the completion of the Category R report, the Contractor commissioned a team to perform a root cause analysis. The Contractor performed a thorough investigation and developed a substantial list of causes and corrective actions. However, the Contractor could have improve the quality of the report through better documentation of the basis for the root causes, better explanation of how the causes were dispositioned with corrective actions, and better proof-reading. Subsequently on February 26, 2006, in letter 06-ESQ-013, BNI was requested to re-perform the root cause analysis to address these and other concerns. (Inspection Note 001-25)

- From a review of BNI's temporary power National Electrical Code (NEC) code compliance inspection reports, several issues were identified regarding the reports vague descriptions of the items being inspected: 1) specific equipment inspected was not identified; 2) design documents with applicable revision were not listed on inspection reports; and 3) multiple inspections were performed and documented, with several different dates, all with the same report number. The Contractor stated they believed the reports met minimum requirements but the quality of future reports could and would be improved. (Inspection Note 001-26)
- The Contractor adequately performed and documented initial insulation resistance (megger) tests on sections of Bus Duct LVE-BUS-20001 & LVE-BUS-20002. This megger testing was performed in accordance with the applicable requirements. (Inspection Note 001-33)
- The Contractor adequately prepared for, off loaded, and set the Low Activity Waste (LAW) Facility Consumable Change-Out Box and Process Bridge Cranes in a safe manner in accordance with the applicable requirements. (Inspection Note 001-34)
- During performance of maintenance of Building T1 Heating, Ventilation, and Air Conditioning (HVAC) systems, all energy sources had not been isolated. A 24 volt fire detection system had not been identified in the work package. The Contractor's investigation and corrective actions to address this HVAC live voltage issue were adequate. (Inspection Notes 001-36 and 001-61)
- LAW Pipe support LAW-CHW-H00145 was installed in accordance with engineering and code requirements. (Inspection Note 001-37)
- Welding of a LAW socket weld on the Instrument Service Air System, field weld number 2 was performed in accordance with engineering and code requirements. (Inspection Note 001-38)
- Grout mixing/placement of Chiller/Compressor Plant Column Base Plates on Line 10, Column A thru Q, was performed in accordance with engineering requirements. (Inspection Note 001-39)
- A number of issues were identified during a site Measuring and Test Equipment (M&TE) calibration program review. However, these issues had already been identified by the Contractor during an earlier BNI assessment and were being addressed. No new concerns were identified. (Inspection Note 001-40)
- Three issues were noted with the installation of the 24" Plant Service Air (PSA) system intake piping associated with the Chiller/Compressor Plant as follows: 1) The Contractor installed pipe supports without painting surfaces that would become inaccessible; 2) The Contractor had not identified a valve numbering error on the piping isometric; and 3) The Contractor failed to notice or document the corrosion caused by incorrect material on a valve packing gland nut (carbon steel nut instead of the required stainless steel).

The Contractor had taken adequate actions to address these issues. However, failure of Construction to take action to address the pipe support coating issue before the support was installed indicated a potential program problem regarding timely identification of construction issues. (Inspection Note 001-41)

- During replacement of a defective 225-amp circuit breaker in Panel DPE at the Simulator Building and performance of LAW Tower Crane Quarterly Electrical Maintenance/Inspection, activities associated with disconnecting power, donning appropriate Personal Protection Equipment (PPE), and performing zero energy checks were performed in accordance with the Lock Out/Tag Out (LOTO) procedure and met the safety requirements of National Fire Protection Agency (NFPA) 70E. (Inspection Notes 001-42 and 001-45)
- From a review electrical drawing 24590-LAB-E1-LVE-00001, *Analytical Laboratory Secondary Unit Substations LVE-LC-60001, 60002 Single Line Diagram*, the LAB single line design drawing met applicable NEC code requirements. (Inspection Note 001-43)
- The Contractor performed an adequate investigation and developed appropriated corrective actions to address a small LAW fire in the northwest area of the +48' elevation. (Inspection Note 001-44)
- Although several issues were noted and corrected during the Qualification audit for the LAW siding installation sub-contractor, such as providing a letter to delegate authority and correcting a drawing found out of revision, the sub-contractor was determined to be prepared to install siding at the LAW Facility. The Contractor also had issues that needed addressed, such as the need to pass down fastener requirements to the sub-contractor. The Contractor had approved for use a sub-contractor drawing, via submittal, where an incorrect manufacturer had been listed for item 85, a self drilling screw. The sub-contractor was to revise and resubmit the drawing to correct the error prior to the start of work. (Inspection Note 001-46)
- The Contractor was found to be adequately implementing its occurrence reporting program. (Inspection Note 001-47)
- On February 16, 2006, an electrical arc was observed, involving a welding lead connected to an eight pack welding unit (unit containing eight welding machines). The Contractor's accident investigation was adequate and corrective actions should prevent recurrence. (Inspection Note 001-48)
- Testing of LAW C3/C5 ductwork and inline components (Inbleed L008) at the -21' elevation verified the workmanship of the ductwork conformed to contract documents and applicable codes. (Inspection Note 001-49)
- From an inspection of Mississippi Tank Company fabrication facilities, the fabricator of the WTP Anhydrous Ammonia Storage/Supply System, concerns were identified with BNI's efforts to Commercial Grade Dedicate the Anhydrous Ammonia Storage/Supply System.

BNI efforts fail short of the intent of Nuclear Quality Assurance (NQA)-1 requirements. BNI temporarily stopped implementing this program and the shipments of any related equipment, wrote a Corrective Action Report documenting concerns in this area, and initiated an independent Commercial Grade Dedication program review to determine the extent of the problems with this program. Follow-up to verify the Commercial Grade Dedication Program issues are addressed will be tracked as assessment follow-up Item A-06-AMWTP-RPPWTP-001-A07.

The Supplier's fabrication program was found to be adequate for a commercial grade supplier of ammonia gas storage and supply systems. Minor issues regarding weld rod control and visual weld inspection qualifications were found and being addressed by the Supplier. (Inspection Note 001-51)

- An offsite assessment of commercial grade material pipe spool Supplier, Shaw Process Inc., in Monroe, Louisiana, was performed to assess the Supplier's quality and welding program and to evaluate BNI's oversight of this Supplier. The Supplier was hired by BNI to produce non-ITS pipe spools for use at the WTP. This supplier was not required to have nor had an NQA-1 quality program. The Supplier was determined to have generally acceptable welding and quality programs to fabricate non-ITS pipe spools. Issues were identified regarding the manner in which some pipe, valves, flanges, and Greyloc quick disconnect pipe connectors were being maintained. Also, issues were identified regarding the Supplier's calibration program implementation. These issues were being addressed at the time the assessment was completed. Since start of fabrication activities, the BNI Supplier Quality Representative (SQR) had identified a large number of quality issues at the site and was onsite nearly full time to ensure quality requirements were being met. (Inspection Note 001-52)
- Welding activities associated with the installation of LAW 6" RLD piping had been performed and documented to approved engineering drawings and procedures. (Inspection Note 001-53)
- LAW metal roof decking was being installed within specifications and in a safe manner. Documented adequate quality oversight was performed by BNI. (Inspection Note 001-55)
- Site Quality Assurance (QA) personnel were verifying the quality of work in progress for compliance with the applicable governing documents. They were identifying and properly documenting conditions adverse to quality and performing surveillances to evaluate the effectiveness of corrective actions. The QA personnel interviewed were technically knowledgeable and adequately independent from the work activities they had evaluated. The site QA program was adequately implementing the requirements of QA Manual Policy 18.2. (Inspection Note 001-59)
- The Contractor was acceptably installing valves in accordance with engineering requirements and the vendor's instruction. (Inspection Note 001-62)

- S. A. Robotics fabrication activities associated BNI WTP purchase orders were generally acceptable. However, two issues were identified regarding: (a) the Supplier using an original equipment manufacture (OEM) to calibrate M&TE when the OEM was not on the Approved Supplier List (ASL); and (b) the Supplier procuring welding electrodes from a sub tier supplier when the sub tier supplier was not on the ASL. These supplier oversight weaknesses are considered a Finding against QAM Policy Q-07.1, Section 3.8.3.D, regarding performing surveillance or audits of supplier activities (**Finding A-06-AMWTP-RPPWTP-001-F13**).

Although the High Level Waste (HLW) Swab and Monitoring System, being fabricated by S. A. Robotics contained a number of electrical components; the Material Acceptance Plant (MAP) did not specify any oversight of the Supplier's fabrication and installation of this equipment. Failure to establish electrical inspection attributes in the MAP is a Finding for failure to follow Procedure 24590-WTP-GPP-MGT-013, *Acceptance of Procured Material* (QAM Policy Q-05.1, Section 3.1.1) (**Finding A-06-AMWTP-RPPWTP-001-F12**). Although the MAP did not specifically call out electrical inspections, there was objective evidence the SQR was performing electrical inspections and had identified several quality issues. (Inspection Note 001-63)

- From a review of IONEX Research Corporation's quality and welding program, a number of issues regarding WPS quality were identified including: (a) welding procedure specifications with wrong thickness ranges specified; (b) lack of Nondestructive Examination Level III approval of procedures; (c) failure to procure weld electrode from a supplier on the Supplier's ASL, and (d) problems with weld qualification records. These issues were continued examples of supplier oversight weaknesses of supplier quality and welding programs discussed in Inspection Note A-06-AMWTP-RPPWTP-001-63 (for an inspection at S. A. Robotics) and will also be tracked as **Finding A-06-AMWTP-RPPWTP-001-F13**. (Inspection Note 001-64)

List of Assessment Items Opened, Closed, and Discussed:

Opened

A-06-AMWTP-RPPWTP-001-F01	Finding	Follow-up on Contractor actions to address FD Thomas' Confined Space Program and procedural issue. (Inspection Note 001-09)
A-06-AMWTP-RPPWTP-001-A02	Assessment Follow-up Item	Electrical Distribution Board Labeling NEC violation. (Inspection Note 001-02)
A-06-AMWTP-RPPWTP-001-A03	Assessment Follow-up Item	Clayton Coatings' assured grounding NEC violation. (Inspection Note 001-20)

A-06-AMWTP-RPPWTP-001-A04	Assessment Follow-up Item	Follow-up on Contractor actions to address UL listing issues with three General Electric Combination Motor Controllers. (Inspection Note 001-21)
A-06-AMWTP-RPPWTP-001-F05	Finding	Follow-up on Contractor actions to address Confined Space Program and procedural issue. (Inspection Note 001-09)
A-06-AMWTP-RPPWTP-001-A06	Assessment Follow-up Item	Finding regarding failure to adequately tie in re-steel around an HVAC opening. (Inspection Note 001-28)
A-06-AMWTP-RPPWTP-001-A07	Assessment Follow-up Item	Follow-up on Contractor actions to address Commercial Grade Dedication Program issues. (Inspection Note 001-51)
A-06-AMWTP-RPPWTP-001-F08	Finding	Follow-up on Contractor actions to address Cable Tray Support inspection documentation issues. (Inspection Note 001-22)
A-06-AMWTP-RPPWTP-001-A09	Assessment Follow-up Item	Grounding conductor NEC violation. (Inspection Note 001-56)
A-06-AMWTP-RPPWTP-001-F10	Finding	Follow-up on Contractor actions to address a failure to properly fit-up piping to nozzle 13 of an RLD vessel. (Inspection Note 001-16)
A-06-AMWTP-RPPWTP-001-F11	Finding	Follow-up on Contractor actions to address failure to document a non-compliant tank nozzle shop weld preparation on a Construction Deficiency Report. (Inspection Note 001-16)
A-06-AMWTP-RPPWTP-001-F12	Finding	Follow-up on Contractor actions to address a failure of the S. A. Robotics' MAP to call out electrical inspections attributes. (Inspection Note 001-63)
A-06-AMWTP-RPPWTP-001-F13	Finding	Follow-up on Contractor actions to address

five oversight weaknesses at suppliers S. A. Robotics and IONEX. (Inspection Note 001-63)

Closed

A-05-AMWTP-RPPWTP-001-A04	Assessment Follow-up Item	Follow-up on Contractor actions to address the use of RFIs to communicate design/specification changes and the failure of WMW to obtain BNI approval of NCRs with “use-as-is” dispositions. (Inspection Note 001-10)
A-05-AMWTP-RPPWTP-002-A02	Assessment Follow-up Item	Follow-up on Contractor actions to address the failure to use AWS D1.1 for acceptance of PTF crane rail beam seats. (Inspection Note 001-54)
A-05-AMWTP-RPPWTP-002-A11	Assessment Follow-up Item	Follow-up on Contractor actions to address Occurrence Report Program problems. (Inspection Note 001-15)
A-05-AMWTP-RPPWTP-003-F04	Finding	Failure of the Contractor to follow procedures regarding the requirement to complete inspections of pipe bending before signing off a pour card. (Inspection Note 001-01)
A-06-AMWTP-RPPWTP-001-A02	Assessment Follow-up Item	Electrical Distribution Board Labeling NEC violation. (Inspection Note 001-02)
A-06-AMWTP-RPPWTP-001-A03	Assessment Follow-up Item	Clayton Coatings’ assured grounding NEC violation. (Inspection Note 001-20)
A-06-AMWTP-RPPWTP-001-A06	Assessment Follow-up Item	Finding regarding failure to adequately tie in re-steel around an HVAC opening. (Inspection Note 001-28)
A-06-AMWTP-RPPWTP-001-A09	Assessment Follow-up Item	Grounding conductor NEC violation. (Inspection Note 001-56)

List of Inspection Notes Issued During the Assessment Period:

<u>Inspection Note Number</u>	<u>Inspection Subject</u>
A-06-AMWTP-RPPWTP-001-01	Closure of A-05-AMWTP-RPPWTP-003-F04.
A-06-AMWTP-RPPWTP-001-02	Electrical - Distribution Board at Combo Shop.
A-06-AMWTP-RPPWTP-001-03	Welding inspection at PTF.
A-06-AMWTP-RPPWTP-001-04	Welding inspection at LAB ¾" RLD piping.
A-06-AMWTP-RPPWTP-001-05	Closure of Occurrence Report 2005-0010.
A-06-AMWTP-RPPWTP-001-06	Closure of Occurrence Report 2005-0015.
A-06-AMWTP-RPPWTP-001-07	Closure of Occurrence Report 2005-0018.
A-06-AMWTP-RPPWTP-001-08	Closure of Occurrence Report 2005-0019.
A-06-AMWTP-RPPWTP-001-09	Confined Space Program review.
A-06-AMWTP-RPPWTP-001-10	Closure of A-05-AMWTP-RPPWTP-001-A04.
A-06-AMWTP-RPPWTP-001-11	Concrete placement inspection LAW Slab 124.
A-06-AMWTP-RPPWTP-001-12	January pressure testing at LAB.
A-06-AMWTP-RPPWTP-001-13	January pressure testing at CCP.
A-06-AMWTP-RPPWTP-001-14	January pressure testing at Balance of Facility (BOF).
A-06-AMWTP-RPPWTP-001-15	Closure of A-05-AMWTP-RPPWTP-002-A11.
A-06-AMWTP-RPPWTP-001-16	Welding inspection of LAB RLD-VSL-00163 tank.
A-06-AMWTP-RPPWTP-001-17	Closure of Occurrence Report 2005-0009.
A-06-AMWTP-RPPWTP-001-18	Installation of PTF door RWH-DOOR-00022.
A-06-AMWTP-RPPWTP-001-19	Excavation program review.
A-06-AMWTP-RPPWTP-001-20	Clayton Coatings Assured Equipment Grounding.
A-06-AMWTP-RPPWTP-001-21	Electrical – BOF combination motor controllers.
A-06-AMWTP-RPPWTP-001-22	BOF cable tray and support inspection.
A-06-AMWTP-RPPWTP-001-23	Welding inspection of LAB leak detection box.
A-06-AMWTP-RPPWTP-001-24	Concrete FRE preplacement inspection.
A-06-AMWTP-RPPWTP-001-25	Hazardous Energy Control Incidents root cause.
A-06-AMWTP-RPPWTP-001-26	BNI's NEC electrical inspection report review.
A-06-AMWTP-RPPWTP-001-27	FRE/concrete placement review of LAW slab 133.
A-06-AMWTP-RPPWTP-001-28	FRE review of LAW Finish Line Rooms.
A-06-AMWTP-RPPWTP-001-29	FRE review of LAW Export slab.
A-06-AMWTP-RPPWTP-001-30	February pressure testing of BOF piping.
A-06-AMWTP-RPPWTP-001-31	FRE/concrete placement LAW-136 slab.
A-06-AMWTP-RPPWTP-001-32	Concrete placement of LAW-125 slab.
A-06-AMWTP-RPPWTP-001-33	Megger testing of LAW Bus Ducts.
A-06-AMWTP-RPPWTP-001-34	Offloading and setting of LAW equipment.
A-06-AMWTP-RPPWTP-001-35	February pressure testing of BOF piping.
A-06-AMWTP-RPPWTP-001-36	Electrical - monthly T1 HVAC maintenance.
A-06-AMWTP-RPPWTP-001-37	Installation and Welding of LAW pipe support.
A-06-AMWTP-RPPWTP-001-38	Welding of LAW instrument air system.
A-06-AMWTP-RPPWTP-001-39	Grouting of CCP column base plates.
A-06-AMWTP-RPPWTP-001-40	Site M&TE Program review.
A-06-AMWTP-RPPWTP-001-41	CCP 24" PSA pipe supports.
A-06-AMWTP-RPPWTP-001-42	Electrical – replacement of 225-amp circuit breaker.
A-06-AMWTP-RPPWTP-001-43	Electrical – design review of electrical drawing.

A-06-AMWTP-RPPWTP-001-44	Follow-up on small LAW fire.
A-06-AMWTP-RPPWTP-001-45	Electrical – LAW tower crane maintenance.
A-06-AMWTP-RPPWTP-001-46	Program review of LAW siding installation.
A-06-AMWTP-RPPWTP-001-47	Program review of Occurrence Reporting.
A-06-AMWTP-RPPWTP-001-48	Electrical arc of LAW eight pack welder unit.
A-06-AMWTP-RPPWTP-001-49	Testing of LAW C3/C5 ductwork
A-06-AMWTP-RPPWTP-001-50	March pressure testing of BOF piping.
A-06-AMWTP-RPPWTP-001-51	Supplier inspection of Mississippi Tank Co.
A-06-AMWTP-RPPWTP-001-52	Supplier inspection of Shaw Process Fabrication.
A-06-AMWTP-RPPWTP-001-53	Welding of LAW RLD piping.
A-06-AMWTP-RPPWTP-001-54	Closure of A-05-AMWTP-RPPWTP-002-A02.
A-06-AMWTP-RPPWTP-001-55	LAW steel roof decking installation.
A-06-AMWTP-RPPWTP-001-56	Electrical – Temp power for water treatment bldg.
A-06-AMWTP-RPPWTP-001-57	Concrete placement LAB walls ACC-0020A and B.
A-06-AMWTP-RPPWTP-001-58	Concrete placement of BOF pipe rack sleeper pads.
A-06-AMWTP-RPPWTP-001-59	Site QA Surveillance activities review.
A-06-AMWTP-RPPWTP-001-60	Electrical – LAW permanent lighting review.
A-06-AMWTP-RPPWTP-001-61	LOTO incident at the T-1 HVAC.
A-06-AMWTP-RPPWTP-001-62	LAW valve installation review.
A-06-AMWTP-RPPWTP-001-63	Supplier inspection at S. A. Robotics.
A-06-AMWTP-RPPWTP-001-64	Supplier inspection at IONEX.