U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

JAN 12 2006

06-WTP-001

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-05-AMWTP-RPPWTP-004 – ON-LOCATION INSPECTION REPORT FOR THE PERIOD OCTOBER 1, 2005, THROUGH DECEMBER 30, 2005

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 October 1, 2005, through December 30, 2005. There were three Findings requiring responses by BNI identified during this inspection period. These Findings include: (1) failure to properly maintain the Centrifugal Air Compressors in accordance with requirements; (2) failure to document Industrial Safety and Health issues in the Corrective Action Program; and (3) failure to implement an adequate Supplier Oversight Program. The enclosed Notice of Finding (Enclosure 1) describes these issues and contains the instructions for responding.

Construction performance during this inspection period was good. Improvements have been noted in welding and 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.

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,

for Roy J. Schepens
Manager

WTP:JWM

Enclosures (2)

cc w/encls:
D. Kammenzind, BNI
G. Shell, BNI

Enclosure 1
06-WTP-001

NOTICE OF FINDING

Contract DE-AC27-01RV14136, dated December 11, 2000, between the U.S. Department of Energy (DOE) and Bechtel National, Inc. (BNI), Section I provides a list of required Federal Acquisition Requirements (FAR). Clause I.88, FAR 52.245-5, section (e) *Property administration,* subsection (2) states "The Contractor shall establish and maintain a program for the use, maintenance, repair, protection, and preservation of Government property in accordance with sound business practice and applicable provisions of FAR Subpart 45.5."

Section C, "Statement of Work," Standard 7, "Environment, Safety, Quality, and Health," of Contract DE-AC27-01RV14136, 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.

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 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 16.1, *Corrective Action*, Section 3.6, *Conditions Adverse to Industrial Safety and Health*, subsection 3.6.2 states "conditions adverse to safety and health shall be documented and reported to appropriate levels of management responsible for the conditions and to the Safety Assurance organization for tracking".

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 3.7.4 states "Verification shall include supplier audits used as a method of evaluation the supplier's performance..."

During performance of assessments of BNI's construction activities, conducted from October 1, 2005, through December 30, 2005, DOE Office of River Protection (ORP) identified the following Findings:

1) Contrary to the above FAR requirement regarding establishing and maintaining a program for the maintenance and preservation of Government property, BNI was not maintaining the Balance of Facility Centrifugal Air Compressors in accordance with 24590-CM-POA-MCCA-00001-10-00010, *Atlas Copco Long Term Storage Procedure WI-108,* Revision 7 (**Finding A-05-AMWTP-RPPWTP-004-F03).** (Inspection Note 004-34.)

2) Contrary to the above QAM Policy regarding the requirement to document conditions adverse to safety and health and report them to appropriate levels of management

responsible for the conditions and to the Safety Assurance organization for tracking, DOE identified issues were not entered in the Corrective Action Report system **(Finding: A-05-AMWTP-RPPWTP-004-F05)**. (Inspection Note 004-18.)

3) Contrary to the above QAM Policy regarding the requirements to establish measures to interface with the supplier and verify supplier's performance, BNI had not adequately assessed the quality assurance performance of Wagstaff, Inc., the High Level Waste/Pretreatment Lidding Equipment Machine fabricator **(Finding A-05-AMWTP-RPPWTP-004-F04)**. (Inspection Note 004-61.)

The Manager, ORP, 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.

Enclosure 2
06-WTP-001
A-05-AMWTP-RPPWTP-004

U.S. DEPARTMENT OF ENERGY
Office of River Protection

INSPECTION:	On-location Inspection Report for the Period October 1, 2005, through December 30, 2005
REPORT NO.:	A-05-AMWTP-RPPWTP-004
FACILITY:	Bechtel National, Inc. (BNI)
LOCATION:	2435 Stevens Center Richland, Washington 99352
DATES:	October 1, 2005, through December 30, 2005
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 October 1, 2005, through December 30, 2005, 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 72 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

- 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 004-11, 004-30, 004-31, 004-41, 004-42, 004-50, and 004-51.)

- Most electrical inspections identified acceptable work; however, some temporary and permanent electrical installation errors were identified. Examples included:

  (1) Gas-Fired Construction Heaters were purchased as re-conditioned equipment but were not an Electrical Testing Laboratory (ETL) listed product. Without the ETL it was indeterminate if the heaters met ANSI Z83.7 standards for construction heaters. Also in some heaters, enclosures were not approved for outdoor use, class 2 power-limited wiring (CMP) appeared to be used for 110 volt circuits, and multiple gas heaters contain cables/conductors that were damaged or brittle.

  The Contractor subsequently replaced these heaters with ETL listed heaters.

  (2) For electrical equipment associated with the Simulator Building, DCN 24590-BOF-VDCN-E-05-00072 depicts a #4 AWG grounding (bonding) conductor routed in two 3" flexible metal conduits (C-023 & C-036) from 112.5 KVA Transformer 03 to Panelboard DPE. The grounding (bonding) jumpers are required to be #1/0 AWG conductors based off of the 500 kcmil phase conductors (2 sets of 250 kcmil conductors). Note: These conductors are not installed at this time.

  The field engineer stated the correct size ground conductor will be installed during this outage and prior to final acceptance a Vendor Document Change Notice (VDCN) will be generated to incorporate this change.

  Verification of installation of the correct sized ground conductor and the processing of the VDCN to change the drawing will be tracked as **Assessment Follow-up Item A-05-AMWTP-RPPWTP-004-A01**.

(3) BNI had not installed a continuous grounding electrode conductor from the electrode to the equipment grounding conductor at the High Level Waste (HLW) Power Distribution Panelboards PDP-001 & PDP002, and General Distribution Rack GDR-060.

(4) A scaffold installed around HLW Power Distribution Rack PDR-014 located on the -21 elevation violated the required working clearance.

(5) The cord (type SO) feeding the HLW Controlled Document Connex was damaged.

Note: With the exception of item 2 above, the items listed above were corrected prior to the end of the inspection period. (Inspection Notes 004-01, 004-04, 004-07, 004-09, 004-10, 004-13, 004-14, 004-19, 004-21, 004-22, 004-24, 004-35, 004-40, 004-45, 004-55, and 004-64.)

- 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 004-32, 004-52, 004-56, and 004-62.)

- BNI was installing structural steel at the Chiller/Compressor Plant (Building 82) to approved design drawings and specifications. (Inspection Note 004-02.)

- Backfill and compaction activities were being performed and tested in accordance with engineering specifications and appropriately referenced standards. (Inspection Note 004-03.)

- BNI adequately investigated a September 19, 2005, Batch Plant Lock Out/Tag Out (LOTO) violation and implemented adequate corrective actions. (Inspection Note 004-05.)

- BNI performed Behavioral Safety reviews on Personnel Protective Equipment (PPE) regularly as part of their Safety Education Through Observations (SETO) program. These reviews consistently showed approximately 98% compliance with PPE requirements. Based upon the observations performed over a month, a Facility Representative verified compliance with PPE requirements was very high. When workers/non-manuals were observed not wearing hearing protection, face or eye protection, or gloves, the response was to thank you for bring it to their attention and they promptly donned the required PPE. (Inspection Note 004-08.)

- Grouting activities for the C5 Exhaust Fan Frame Base Plate, C5V-Fan-00005B, at the -21' elevation of the Low Activity Waste (LAW) Facility had been performed in accordance with engineering requirements. (Inspection Note 004-15.)

- BNI's efforts to address a crane rail support embed plate nonconformance was acceptable. Welding of the new embed plate to the existing anchor bolts in the transfer tunnel of the Pretreatment Facility (PTF) building was performed to engineering specified requirements. (Inspection Note 004-16.)

- Following an incident where pipe fitters cut a 2-inch temporary propane line and a 2-inch temporary argon line without a LOTO in place, the Contractor implemented a number of significant corrective actions to address LOTO issues. Although LOTO activities were restricted at the time of the inspection, corrective actions were extensive and being implemented to address weaknesses in the LOTO program. (Inspection Note 004-27.)

- Concrete piers for utility racks were installed within tolerances and tested per specifications. Oversight of these installations were performed and adequately documented by BNI. (Inspection Note 004-28.)

- BNI failed to capture essential requirements from Safety Bulletins in applicable procedures and/or Job Hazards Analysis' (JHA). After discussing Safety Bulletin issues with BNI, BNI agreed Safety Bulletin requirements regarding warning lines for leading edge work would be placed in a procedure and the welding JHA was revised to require ½ face respirators for stick welding on stainless steel. (Inspection Note 004-29.)

- Procedures for installation of permanent plant electrical cables implemented the standard work process which met the Contract requirements, the Safety Requirements Document (SRD), and the National Electrical Code (NEC) for installing, controlling, documenting, inspecting, and testing permanent plant electrical cables. Cable installations were being performed in accordance with these procedures. (Inspection Note 004-33.)

- A Finding was identified for failure to implement Contract requirements regarding maintaining plant equipment (Contract DE-AC27-01RV14136, Section I.88, FAR 52.245-5, section (e) *Property administration,* subsection (2)). Specifically, BNI was not maintaining lubricating oil heating associated with the BOF Centrifugal Air Compressors in accordance with 24590-CM-POA-MCCA-00001-10-00010, *Atlas Copco Long Term Storage Procedure WI-108,* Revision 7 (**Finding A-05-AMWTP-RPPWTP-004-F03).** (Inspection Note 004-34.)

- BNI had developed and was adequately implementing the Contract required S/CI program at the WTP. (Inspection Note 004-36.)

- Welding activities associated with LAW and Analytical Laboratory (LAB) Radioactive Liquid Waste Disposal Systems were being performed in accordance with engineering specifications, the weld control manual, and the required code. (Inspection Notes 004-37 and 004-48.)

- BNI had adequate concrete procedures, controls, and equipment in place in terms of production, placement, curing, and protection for cold weather concrete. (Inspection Note 004-39.)

- The November 16, 2005, LAW emergency drill was well coordinated and staff performed adequately in their duties. The Personnel Accountability Aid was knowledgeable of his emergency duties, demonstrated good command and control, and kept well informed of the status of protective actions being taken. The post-drill critique included good observations

and comments and the subsequent report reflected these comments and assigned corrective actions as needed. (Inspection Note 004-43.)

- Drawings were being adequately controlled at the WTP construction site. (Inspection Note 004-44.)

- BNI's process for supplying drinking water to site employees was adequate. However, BNI's procedure did not match the current process being used to supply water. (Inspection Note 004-46.)

- LAW Feeder Breaker and Cable Sizing Calculation (24590-LAW-E1C-MVE-00006), Section 7.2, Table 3 used NEC Table 310-20 in determining conductor size. BNI assumed triangular spacing in cable trays. If the cables are installed in a triangular configuration in uncovered cable tray, with a maintained free air space of not less than 2.15 times one conductor diameter of the largest conductor, the ampacity may be determined per Table 310-20. However, if the cable tray configuration does not meet this minimum spacing configuration it would not comply with NEC requirements because the cables were otherwise undersized. The cable tray configuration was indeterminate at this stage of plant design. Therefore, it was not possible to assess the adequacy of the conductors specified on LAW Vitrification Building 480V Switchboard design drawings. (Inspection Note 004-47.)

- BNI notified the Facility Representative of an electrical cord arching event at the LAW in a timely manner. BNI conducted and documented an adequate investigation of the event and took appropriate corrective actions. (Inspection Note 004-49.)

- With the exception of failing to document surveillance activities and track open safety issues, Safety Assurance Representatives (SARs) were found to be actively involved in safety oversight of their assigned facilities. Cooperation between craft, supervision, support staff, and the SARs was good and safety issues were being identified and addressed in a timely and effective manner. Construction Management acknowledged the exception discussed above and was planning to take appropriate actions to address the concerns. Follow-up to track resolution of the concerns will be tracked as assessment follow-up item **A-05-AMWTP-RPPWTP-004-A02**. (Inspection Note 004-53.)

- Crane operators and primary flagmen were being notified of their operation quadrant limits by the Crane Coordinator and any changes to a crane's operation quadrant were communicated to the operator and Primary Flagman as required by procedures. Crane personnel were current on training, required reading, and medical examinations. Crane maintenance was being performed in accordance with procedure requirements and maintenance records were complete and up to date. (Inspection Note 004-54.)

- Two inch prefabricated piping, and piping supports for the LAW Chilled Water System (CHW) had been installed utilizing current revisions of listed drawings. Welders were certified to weld to the procedures listed on the field welding checklists. Welding of the pipe/piping supports was performed in accordance with engineering specifications and code

requirements. (Inspection Note 004-57.)

- BNI's safety processes had in general been effective at reducing the rate of first-aid events over the past two years. The actions taken by BNI construction management resulted in two significant improvements, one in September 2004 and the other in February 2005. BNI's safety processes in general appeared stable and predictive. Although the processes demonstrated stability; they do not necessarily imply that the injury rates are acceptable. Two areas were identified where BNI's attention is recommended. The first area dealt with injuries caused by slips due to cold weather conditions. The second area dealt with the process instability for injuries caused by ergonomic factors. Recent instability may indicate worsening injury rates due to ergonomic factors. (Inspection Note 004-58.)

- BOF Radioactive Waste Transfer Piping was being installed in accordance with engineering specifications and code requirements. (Inspection Note 004-59.)

- BNI's oversight of Oregon Iron Works, Inc. (OIW) was adequate. OIW was generally implementing its Quality Assurance (QA) program during performance of the BNI purchase order in an acceptable manner. Several issues were identified regarding the Supplier: (1) using a Request For Information (rather then the required Supplier Deviation Disposition Request (SDDR)) to obtain approval to deviate from the purchase order (using lithium grease); (2) using Original Equipment Manufacturers (OEMs) to calibrate selected Measuring and Testing Equipment (M&TE) without first placing the OEMs on the approved vendors list; (3) failing to have engineering approved procedures for performing commercial grade upgrade dedication; (4) failing to have a procedure to specify the control of welding materials; (5) failing to ensure drawings show the applicable Weld Procedure Specification (WPS) at the weld symbol or in the notes; (6) failing to specify the correct weld rod on a fabrication drawing; and (7) failing to have a Level III Inspector sign a Non-destructive Examination (NDE) inspector's certification for Magnetic Particle Testing/Liquid Penetrant Testing (MT/PT). These issues were discussed with a BNI representative at the completion of the inspection. Later BNI informed ORP the Supplier committed to address these issues. (Inspection Note 004-60.)

- Wagstaff, Inc., the HLW/PTF Lidding Equipment Machine fabricator, did not have an appropriately implemented NQA-1 program. Two weeks prior to the ORP inspection, BNI had identified a number of the issues described below, and had notified Wagstaff that corrective actions would have to be taken before materials could be shipped to the WTP. BNI stated the additional issues identified during the ORP inspection led BNI to formally issue a SCAR, suspend work, stop shipments, and remove the Supplier from its Approved Supplier List (ASL). In addition, BNI initiated a peer review of Supplier Quality Representative (SQR) inspections performed at the Supplier's site and scheduled a QA audit of the Supplier for early January 2006.

  Problems identified during the ORP inspection included: (1) although the Supplier's M&TE program was generally adequate, the program lacked adequate procedures describing the activities performed by the calibration technician; (2) the Supplier's audit program did not adequately address required elements of their QAM and identified issues were not always

being assigned required CARs or Preventive Action Reports (PARs); (3) engineering had not concurred on the Supplier's Commercial Grade Dedication procedure or otherwise approved the plan for upgrading commercial grade bulk material for Quality (Q) applications; (4) welding and NDE procedures were under a CAR to bring them into compliance with code requirements; (5) the Supplier did not have a weld filler metal material storage and issue procedure; (6) the Supplier had failed to segregate 24 volt and 120 volt AC power; (7) CARs were closed without documenting the completion of the corrective actions taken; (8) record copies of NCRs did not contain all relevant information such as customer approval of use-as-is dispositioned NCRs; (9) welder certifications were under a CAR to bring them into compliance with code requirements; (10) the NDE inspector certification procedure was incomplete and was not approved by the NDE Level III inspector; (11) the Supplier did not have a procedure for qualifying its Quality Control inspectors; and (12) work package control and supporting documentation was confusing and lacked appropriate acceptance criteria.

The problems identified above indicated BNI had not implement an adequate supplier oversight program to ensure Wagstaff, Inc. materials and services complied with appropriate quality requirements. As stated above, BNI identified many of the issues described in this inspection note prior to the ORP staffs' arrival and was taking actions to get them resolved by the Supplier. Furthermore, BNI subsequently initiated actions to address weaknesses in its oversight of supplier quality representative and supplier quality auditors. To ensure this quality breakdown is limited to this Supplier and corrective actions taken by BNI to address oversight issues are effective, ORP plans to increase the frequency of its supplier inspections until ORP has obtained an adequate level of confidence that BNI supplier oversight is acceptable.

Although BNI had taken some actions to address Wagstaff, Inc. performance issues prior to the ORP staff arrival at the Suppliers fabrication facility, the issues identified above are a continuation (more of the same) of issues identified earlier at Eaton Metal Products and Diamond B Constructors, and reported in Inspection Report A-05-AMWTP-RPPWTP-002, dated July 13, 2005 (05-WTP-132). This indicates the corrective actions taken by BNI to address supplier oversight weaknesses have not been effective. Failure to adequately assess Wagstaff, Inc. quality assurance performance is a Finding against QAM Policy 07.1, *Control of Purchased Items and Services,* subsection 3.7.1 regarding the requirement to adequately assess the quality assurance performance of suppliers **(Finding A-05-AMWTP-RPPWTP-004-F04)**.

ORP is closing Assessment Follow-up Items A-05-AMWTP-RPP-002-A03 and A-05-AMWTP-RPP-002-A06, opened to track corrective actions for Diamond B Constructors and Eaton Metal Products respectively, and will track BNI's corrective actions to address these supplier issues along with BNI's efforts to address the Finding discussed above. (Inspection Note 004-61.)

- BNI had adequately investigated and had taken appropriate actions to close the issues associated with the following occurrences:

Occurrence Report EM-RP-BNRP-RPPWTP-2005-021, *Solar Truck Pack model ES 1224 (battery recharging unit) incident (small explosion).*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0006, *Carpenter Cuts Energized 117 V & 220 V Circuit with Power Tool During Repairs to Door Frame.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0002, *Near Miss Fall from Rebar Wall.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0008, *Supplier Quality Representative Auto Accident With Injuries Glasgow Scotland 0530 UTC 18 Feb 05.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0028, *Potential Subcontractor Exposure to Chromium in Excess of ACGIH TLV.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0024, *Electrical Shock While Conducting Assured Grounding Inspection.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0025 *LO/TO Procedure Violated During Cutting of Buried Temporary Argon and Propane Lines.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0026, *Electrical Near Miss During Assured Grounding Activities at HLW.*

Occurrence Report EM-RP--BNRP-RPPWTP-2005-0005, *Knife Slip Severs Tendons in Hand.*

(Inspection Notes 004-12, 004-63, 004-67, 004-68, 004-69, 004-71, and 004-72.)

- BNI welded the RLD-VSL-00004, nozzle 12, field weld number 1, in accordance with requirements except the Contractor issued a WR-25 (weld card) with the wrong WPS which they corrected immediately and issued the wrong size welding electrodes (1/16" weld rod) to the welder which was not used on this weld. However, the other four nozzle welds were welded with this wrong sized welding electrode. This issue was identified by the BNI's third party inspector (Caliber), and BNI issued a Construction Deficiency Report (CDR) and CAR to investigate and address the issue. (Inspection Report 004-65.)

- The LOTO Permit contained in Construction Work Package SEM0003 for accomplishing electrical modifications performed at the Simulator Building did not match the components actually danger tagged in the field. From further review, ORP staff learned the LOTO Permit had been modified by authorized personnel but the new permit had not been updated in the work package. Although procedures had not been violated, the following areas for improvements in the work control process involving LOTO were identified:

    1. If the requested LOTO permit is revised by the Tagging Authority, the changes should be reviewed by the Utility Group for verification the arc flash calculation

hasn't changed, the personal protective equipment is still the same, etc.

2. All deviations should be documented in the work package and initialed and dated by the responsible person.

3. A copy of the LOTO permit should be included in the work package.

4. When the Permit Requestor independently verifies the permit boundary is acceptable and all tags/locks are installed correctly, a block should be added on the permit for his/her acceptance signature, making it very clear this function is performed independently from the Tagging Authority. The same provisions should be added for the Authorized First Worker.

5. If a lock cannot be applied, and a Danger tag is used as the sole means of controlling the isolation device, a requirement should be added in the work package to perform zero energy checks any time the work area is vacated, prior to resuming work where a hazard may exist.

The above improvements were discussed with BNI and they agreed to consider them for inclusion in an upcoming revision to the LOTO procedure. (Inspection Note 004-70.)

List of Assessment Items Opened, Closed, and Discussed:

Opened

A-05-AMWTP-RPPWTP-004-A01	Assessment Follow-up Item	Follow-up on Contractor actions to address Simulator Building grounding conductor sizing issue for Panelboard DPE. (Inspection Note 004-64.)
A-05-AMWTP-RPPWTP-004-A02	Assessment Follow-up Item	Follow-up on Contractor actions to address failure to document Safety surveillance activities and track open Safety issues. (Inspection Note 004-53.)
A-05-AMWTP-RPPWTP-004-F03	Finding	Contrary to Contract DE-AC27-01RV14136, Section I.88, FAR 52.245-5, section (e) *Property administration,* subsection (2), BNI was not maintaining the BOF Centrifugal Air Compressors in accordance with 24590-CM-POA-MCCA-00001-10-00010, *Atlas Copco Long Term Storage Procedure WI-108,* Revision 7 (Inspection Note 004-34.)
A-05-AMWTP-RPPWTP-004-F04	Finding	Follow-up on Contractor actions to address Wagstaff, Inc., Eaton Metal Products, and Diamond B Constructor Supplier issues and overall performance issues associated with the BNI Supplier Oversight Program. (Inspection Note 004-61.)
A-05-AMWTP-RPPWTP-004-F05	Finding	Contrary to QAM Policy Q-16.1, Section 3.6.2, BNI Failed to document IS&H issues in the CAR system (Inspection Note 004-18.)

Closed

A-05-AMWTP-RPPWTP-001-A03	Assessment Follow-up Item	Follow-up on Contractor actions to address Contractor actions to improve Occurrence Report timeliness. (Inspection Note 004-06.)
A-05-AMWTP-RPPWTP-002-A03	Assessment Follow-up Item	Follow-up on Contractor actions to address Diamond B QA issues and the generic concern regarding QA oversight of non-ITS suppliers. (Inspection Note 003-61.)

A-05-AMWTP-RPPWTP-002-A06	Assessment Follow-up Item	Follow-up on Contractor actions to address Eaton Metal Products Company QA issues and the generic concern regarding QA oversight of non-ITS suppliers. (Inspection Note 003-61.)
A-05-AMWTP-RPPWTP-002-A13	Assessment Follow-up Item	Follow-up on Contractor actions to establish and implement preservation and maintenance requirements for the BOF Centrifugal Air Compressors. (Inspection Note 004-34.)
A-05-AMWTP-RPPWTP-003-F02	Finding	Failure of the Contractor to perform welds in accordance with approved weld procedures. (Inspection Note 004-66.)

List of Inspection Notes Issued During the Assessment Period:

Inspection Note Number	Inspection Subject
A-05-AMWTP-RPPWTP-004-01	Electrical inspection of temporary power at HLW.
A-05-AMWTP-RPPWTP-004-02	Chiller/Compressor Building structural steel.
A-05-AMWTP-RPPWTP-004-03	LAW Export Building backfill and compaction.
A-05-AMWTP-RPPWTP-004-04	Electrical LAW temporary power.
A-05-AMWTP-RPPWTP-004-05	LOTO incident at the Batch Plant.
A-05-AMWTP-RPPWTP-004-06	Occurrence Report notification review.
A-05-AMWTP-RPPWTP-004-07	Electrical Combo Shop temporary power.
A-05-AMWTP-RPPWTP-004-08	Personal Protective Equipment usage.
A-05-AMWTP-RPPWTP-004-09	Electrical Combo Shop mini load centers.
A-05-AMWTP-RPPWTP-004-10	Electrical BOF Buildings 91 and 84B.
A-05-AMWTP-RPPWTP-004-11	Concrete placement at HLW slab 1024.
A-05-AMWTP-RPPWTP-004-12	Occurrence Report review 2005-0005.
A-05-AMWTP-RPPWTP-004-13	Electrical LAW temporary power.
A-05-AMWTP-RPPWTP-004-14	Electrical temp-gas fired construction heaters.
A-05-AMWTP-RPPWTP-004-15	Epoxy grouting of LAW C5 exhaust fan bases.
A-05-AMWTP-RPPWTP-004-16	PTF transfer tunnel crane rail welding.
A-05-AMWTP-RPPWTP-004-17	PTF liner plate welding.
A-05-AMWTP-RPPWTP-004-18	Corrective Action Program review for IH&S issues.
A-05-AMWTP-RPPWTP-004-19	Electrical Water Treatment Building.
A-05-AMWTP-RPPWTP-004-20	Site rigging practice program review.
A-05-AMWTP-RPPWTP-004-21	Electrical LAW temporary power.
A-05-AMWTP-RPPWTP-004-22	Electrical Cobra office trailers.
A-05-AMWTP-RPPWTP-004-23	Carpenter trips GFCI-cord with two male plugs.
A-05-AMWTP-RPPWTP-004-24	Electrical new temp-gas fired construction heaters.
A-05-AMWTP-RPPWTP-004-25	LAW welding of plant cooling water system.
A-05-AMWTP-RPPWTP-004-26	PTF welding of tank ring beams.
A-05-AMWTP-RPPWTP-004-27	Cutting propane & argon line w/out proper LOTO.

A-05-AMWTP-RPPWTP-004-28	Installation of piers for the utility racks.
A-05-AMWTP-RPPWTP-004-29	Review of Construction Safety Bulletins.
A-05-AMWTP-RPPWTP-004-30	FRE inspection of LAB slab 0019.
A-05-AMWTP-RPPWTP-004-31	Concrete placement of LAB Slab 0019.
A-05-AMWTP-RPPWTP-004-32	Pressure testing of PTF piping.
A-05-AMWTP-RPPWTP-004-33	Electrical cable installation program.
A-05-AMWTP-RPPWTP-004-34	Preservation and maintenance program.
A-05-AMWTP-RPPWTP-004-35	Electrical LAW mini load centers.
A-05-AMWTP-RPPWTP-004-36	Suspect/Counterfeit Items program.
A-05-AMWTP-RPPWTP-004-37	LAW welding RLD system.
A-05-AMWTP-RPPWTP-004-38	PTF liner plate installation.
A-05-AMWTP-RPPWTP-004-39	Cold weather concrete placement preparation.
A-05-AMWTP-RPPWTP-004-40	Electrical Water Treatment Building 86.
A-05-AMWTP-RPPWTP-004-41	FRE inspection of HLW slab 1039.
A-05-AMWTP-RPPWTP-004-42	Concrete placement of HLW slab 1039.
A-05-AMWTP-RPPWTP-004-43	LAW Emergency Drill.
A-05-AMWTP-RPPWTP-004-44	Drawing control at the WTP construction site.
A-05-AMWTP-RPPWTP-004-45	Electrical LAW temporary power.
A-05-AMWTP-RPPWTP-004-46	Drinking water supply review.
A-05-AMWTP-RPPWTP-004-47	Electrical design review of LAW.
A-05-AMWTP-RPPWTP-004-48	Welding of LAB RLD system.
A-05-AMWTP-RPPWTP-004-49	Occurrence-electrical cord failure at LAW.
A-05-AMWTP-RPPWTP-004-50	FRE inspection for HLW slab 1029.
A-05-AMWTP-RPPWTP-004-51	Concrete placement of HLW slab 1029.
A-05-AMWTP-RPPWTP-004-52	Pressure testing of PTF piping.
A-05-AMWTP-RPPWTP-004-53	Safety Assurance Representative oversight.
A-05-AMWTP-RPPWTP-004-54	Crane safety review.
A-05-AMWTP-RPPWTP-004-55	Electrical Water Treatment Building.
A-05-AMWTP-RPPWTP-004-56	Pressure testing of LAB piping.
A-05-AMWTP-RPPWTP-004-57	Configuration review of LAW piping and supports.
A-05-AMWTP-RPPWTP-004-58	Review of first-aid and safety related statistics.
A-05-AMWTP-RPPWTP-004-59	Welding inspection of BOF rad transfer lines.
A-05-AMWTP-RPPWTP-004-60	Supplier inspection of Oregon Iron Works, Inc.
A-05-AMWTP-RPPWTP-004-61	Supplier inspection of Wagstaff, Inc.
A-05-AMWTP-RPPWTP-004-62	Pressure testing of PTF piping.
A-05-AMWTP-RPPWTP-004-63	Review of occurrence report 2005-0021.
A-05-AMWTP-RPPWTP-004-64	Electrical Simulator Building.
A-05-AMWTP-RPPWTP-004-65	Welding inspection of RLD LAW C-3 tank nozzle.
A-05-AMWTP-RPPWTP-004-66	Closure of A-05-AMWTP-RPPWTP-003-F02.
A-05-AMWTP-RPPWTP-004-67	Review of occurrence report 2005-0006.
A-05-AMWTP-RPPWTP-004-68	Review of occurrence report 2005-0002.
A-05-AMWTP-RPPWTP-004-69	Review of occurrence report 2005-0008.
A-05-AMWTP-RPPWTP-004-70	Simulator Building LOTO issue.
A-05-AMWTP-RPPWTP-004-71	Occurrence reports 2005-0024, 0025, and 0026.
A-05-AMWTP-RPPWTP-004-72	Review of occurrence report 2005-0028.

Task# ORP-WTP-2006-0005

E-STARS™ Report
Task Detail Report
01/13/2006 0839

TASK INFORMATION

Task#	ORP-WTP-2006-0005		
Subject	Concur 06-WTP-001, Inspection Report A-05-AMWTP-RPPWTP-004 - On-Location Inspection Report for the Period October 1, 2005, through December 30, 2005		
Parent Task#		**Status**	CLOSED
Reference	06-WTP-001	**Due**	
Originator	Hanson, Arlene J	**Priority**	High
Originator Phone	(509) 373-0068	**Category**	None
Origination Date	01/10/2006 0913	**Generic1**	
Remote Task#		**Generic2**	
Deliverable	None	**Generic3**	
Class	None	**View Permissions**	Normal

Instructions

bcc:
WTP OFF File
WTP Rdg File
MGR Rdg File
S. J. Olinger, DEP
R. C. Barr, ESQ
C. R. Ungerecht, ESQ
J. J. Short, OPA
J. R. Eschenberg, WTP
J. W. McCormick-Barger, WTP
M. J. Thomas, WTP

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RECORD NOTE: Please scan background material in IDMS.

ROUTING LISTS

1 Route List — Inactive

- Mccormick-Barger, James W - Review - Concur with comments - 01/10/2006 1116
  Instructions:
- Thomas, Michael J - Review - Concur - 01/11/2006 1312
  Instructions:
- Short, Jeff J - Review - Concur - 01/12/2006 1610
  Instructions:
- Eschenberg, John R - Review - Concur with comments - 01/11/2006 1313
  Instructions:
- Olinger, Shirley J - Review - Concur - 01/13/2006 0821
  Instructions:
- Schepens, Roy J - Approve - Approved with comments - 01/13/2006 0822
  Instructions:

ATTACHMENTS

Attachments

1. 06-WTP-001 Enclosure 1 Notice of Finding Report 05-004.doc
2. 06-WTP-001 Enclosure 2 Inspection Report A-05-AMWTP-RPPWTP-004 .doc

Task# ORP-WTP-2006-0005

3. 06-WTP-001.JWM.doc

COLLABORATION

COMMENTS

Poster Mccormick-Barger, James W (Mccormick-Barger, James W) - 01/10/2006 1101

Concur

Provided several minor comments to Arlene for incorporation, I concur on this report. Jim

Poster Eschenberg, John R (Hanson, Arlene J) - 01/11/2006 0101

Concur

Lew Miller concurred in Eschenberg's absence.

Poster Schepens, Roy J (Deutsch, V Genie) - 01/13/2006 0801

Approve

Shirley Olinger concurred for Schepens in his absence.

TASK DUE DATE HISTORY

No Due Date History

SUB TASK HISTORY

No Subtasks

-- end of report --

Task# ORP-WTP-2006-0005

E-STARS™ Report
Task Detail Report
01/10/2006 0913

TASK INFORMATION

Task#	ORP-WTP-2006-0005		
Subject	Concur 06-WTP-001, Inspection Report A-05-AMWTP-RPPWTP-004 - On-Location Inspection Report for the Period October 1, 2005, through December 30, 2005		
Parent Task#		**Status**	Open
Reference	06-WTP-001	**Due**	
Originator	Hanson, Arlene J	**Priority**	High
Originator Phone	(509) 373-0068	**Category**	None
Origination Date	01/10/2006 0913	**Generic1**	
Remote Task#		**Generic2**	
Deliverable	None	**Generic3**	
Class	None	**View Permissions**	Normal

Instructions

bcc:
WTP OFF File
WTP Rdg File
MGR Rdg File
S. J. Olinger, DEP
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J. W. McCormick-Barger, WTP
M. J. Thomas, WTP

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RECORD NOTE: Please scan background material in IDMS.

ROUTING LISTS

1	Route List	Active

- Mccormick-Barger, James W - Review - Awaiting Response
  Instructions:
- Thomas, Michael J - Review - Awaiting Response
  Instructions:
- Short, Jeff J - Review - Awaiting Response
  Instructions:
- Eschenberg, John R - Review - Awaiting Response
  Instructions:
- Olinger, Shirley J - Review - Awaiting Response
  Instructions:
- Schepens, Roy J - Approve - Awaiting Response
  Instructions:

LETTER: 06-WTP-001

BACKGROUND

MATERIAL

[SCANNED]

INSPECTION NOTES FOR INSPECTION REPORT

A-05-AMWTP-RPPWTP-004

LETTER 06-WTP-001

PLEASE SCAN AS BACKGROUND

INSPECTION NOTES

Facility: PTF___, HLW_X_, LAW__, LAB___, BOF___, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-01

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 4, 2005 – January 9, 2006

Item(s) Inspected:

The inspector performed a general surveillance of temporary power installed in HLW Facility.

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Conclusion:

The inspector discussed the following deficiencies with the Contractor:

1. Article 250.32 requires the equipment grounding conductor run with the supply conductors to connect to the structure's disconnecting means and to the grounding electrode. The grounding electrode conductor shall be copper, aluminum, or copper-clad aluminum and installed in one continuous length, reference Article 250.62 & 250.64(C).

   The Contractor had not installed a continuous grounding electrode conductor from the electrode to the equipment grounding conductor at Power Distribution Panelboards PDP-001 & PDP002, and General Distribution Rack GDR-060.

   The Contractor de-energized and danger tagged Panelboards PDP-001 & PDP-002 and General Distribution Rack GDR-060. This resolves this issue.

2. Article 110.26(A)(1) requires three foot working clearance in front of all electrical equipment.

   A scaffold installed around Power Distribution Rack PDR-014 located on the -21 elevation violates the required working clearance.

   The Contractor removed the scaffolding around PDR-014, thus resolving the above working clearance issue.

3. Article 527.4(H) requires flexible cords and cables to be protected from accidental damage.

   The SO cord feeding HLW Controlled Document Connex was damaged.

The Contractor immediately removed the cord from service and tagged it out. This resolves this issue.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X__ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___ No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-02

Inspector Name(s): RI Taylor **Dates of Inspection:** September 29, 2005

Item(s) Inspected:

The inspector performed a review and in process walkdowns at the Chiller/Compressor Plant, building 82, of installed structural steel columns, bracing, and beams located at the 0'-00" elevation, from column lines E.05/E.8 and column lines 1.2 to 7.1. Included in the review were bolting records, the grout placement card, and drawing configuration controls utilized by the Balance of Facilities during structural steel erection activities.

Design/Installation Documents Reviewed:

Construction Work Package BCS 0012

24590- WTP-3PS-SS02-T0001, *Engineering Specification for Erection of Structural Steel* Revision 2, dated June 5, 2005.

24590-WTP-GPP-CON-3206, *Structural Steel Installation and on site Fabrication,* Revision 3, dated May 26, 2005.

24590-BOF-SMIR-CON 05 004, *Structural or Miscellaneous Steel Inspection Report.*

24590-BOF-GPC-CON-05-006, *Grout Placement Card*

Work Activities:

The inspector performed in-process walkdowns during installation activities. During these walkdowns the inspector observed structural bolting type met design requirements, and verified configuration and joint make-up was correct and were documented by the Contractor quality control and field engineering.

Adequacy of Final Records:

The inspector performed a review of completed bolting records, listed in *SMIR-CON-05-004* and the grout placement card, contained in the construction work package listed above. The records were found to be acceptable per the above listed procedure.

Conclusion:

The inspector concluded the Contractor was installing structural steel at the Chiller/Compressor Plant, building 82, to approved design drawings and specifications.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X__ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___ No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-03

Inspector Name(s): RI Taylor **Dates of Inspection:** October 3, 2005

Item(s) Inspected:

The inspector performed a review of backfill and compaction activities for the Low Activity Waste Facility Export Building. The inspector performed the review to verify soil compaction efforts, documentation, and acceptance of the backfilling activities prior to placement of a concrete mudmat.

Design/Installation Documents Reviewed:

24590-WTP-GPP-CON-3202, *Excavation and Backfill,* Revision 4, dated July 19, 2005.

24590-BOF-BIR-CON-05-0500, *Backfill Inspection Report,* Revision 0.

24590-BOF-3PS-CE01-T0001, *Engineering Specification for Excavation and Backfill,* Revision 5, dated August 22, 2003.

24590-LAW-DB-S13T-00700, *Law Vitrification Building Export Building Concrete Key Plan at El. 0'-0",* Revision 0, dated August 24, 2005.

Installation Program Adequacy:

The inspector found data entries documenting square footage tested, % of moisture found, and % of compaction attained, as required by the above listed procedure. The tests were taken within the building footprint. Testing data was found to be acceptable to the listed specification.

Work Activities:

The inspector witnessed the below grade backfill and compaction efforts within the *Export Building* foot print area, at or below elevation (approx.) 670'. The inspector verified the data, in the above report, was documented per the listed procedure requirements.

Conclusion:

The inspector concluded the earthen backfill placement was performed in accordance with engineering specification and the compaction testing reviewed provided adequate documentation

of acceptance of the area to be covered by the concrete mudmat, to the referenced documents listed above.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW_X_, LAB___, BOF___, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-04

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 5, 2005

Item(s) Inspected:

Inspection of power distribution panel PDP-020 fabricated for various locations in the LAW facility consisting of:

- 225-amp, 480 volt three phase, three wire panelboard (branch circuits 1-42)
- Two 100-amp, 480 volt disconnects

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X_ **Quality Class:** ITS___ BOP_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-05

Facility Representative Name: Jeff Bruggeman **Dates of Inspection:** September/October 2005

Item Inspected:

On September 19, 2005, the Facility Representative was notified that Quality Inspection Services Inc. (QISI) had self-identified a Lock Out/Tag Out (LOTO) violation during aggregate sampling at the Batch Plant. The Facility Representative investigated the violation, reviewed the Contractor's incident report, reviewed the revised LOTO procedure, attended LOTO training, and witnessed sampling to the revised LOTO procedure.

Documents Reviewed:

- Procedure 24590-WTP-GPP-SIND-023, *Injury/Illness Notification, Investigation, and Reporting,* Revision 2, Effective date of September 30, 2004.
- Occurrence Report RP--BNRP-RPPWTP-2005-0023, dated September 20, 2005.
- Subcontractor Submittal 24590-QL-HC3-SY01-00001-22-00010, Quality Inspection Services, Inc., Incident Investigation Report/Corrective Actions, dated September 27, 2005.
- Central Pre-Mix Company, *Near Miss Report*, dated September 22, 2005.
- Subcontractor Submittal 24590-QL-HC1-DB50-00001-25-06, Central Pre-Mix Company, *Lockout/Tagout Program RPP-WTP Hanford*, Revision 00B.
- Quality Inspection Services, Inc., Job Safety Analysis, *Conveyor Aggregate Sampling,* dated October 4, 2005.
- Management Suspension of Work 24590-WTP-MSOW-MGT-05-002, Revision 2, dated October 10, 2005.
- 29 CFR 1910.147, Subpart J, The Control of Hazardous Energy (lockout/tagout).
- Corrective Action Report Number 24590-WTP-CAR-QA-05-227 Revision 0.
- 24590-WTP-SV-QA-05-560 QA Surveillance Report, *Central Pre-Mix Batch Plant Operations Lock Out/Tag Out and Release from Management Suspension of Work,* dated October 11, 2005.
- 24590-BOF-FIR-CON-05-129 Field Inspection Report, dated October 10, 2005.
- Central Pre-Mix Company, *Periodic Lockout Inspection* reports, dated October 10, 2005, October 11, 2005, and October, 13, 2005.

Event:

A QISI employee was preparing to perform a random sampling of aggregate at the Batch Plant, which requires the aggregate feed conveyor to be locked and tagged out of service. There were three separate conveyors that feed the batch plant (3/4" aggregate, 1 ½" aggregate, and sand).

The ¾" conveyor was operating, so the employee locked and tagged out of service (single source energy controls) the 1 ½" aggregate and sand conveyors and took the samples. Next, he shut down an extra conveyor that fills the hopper at the base of the ¾" conveyor belt. The extra conveyor does not expose employees to hazardous mechanical energy, and therefore, does not require LOTO. The ¾" conveyor subsequently shut down and the employee proceeded to take the sample from the belt. The employee did not lock and tag the conveyor out of service prior to placing a sampling device on the conveyor belt. The employee was approximately two feet from the aggregate feed conveyor when it unexpectedly started. There were no injuries. The event has been declared a Group 2 Personnel Safety and Health, Subgroup C Hazard Energy Control, Significance Category (SC) 3 occurrence, which is "Failure to follow prescribed hazardous energy control process (e.g., lockout/tagout)."

Bechtel National Inc. (BNI) management suspended work at the WTP construction site on Thursday, September 22, 2005, at 4:40 pm and directed all craft and non-manual employees to leave the site prior to 5:00 pm, the normal end of shift. The suspension was directed shortly after a second violation of the lockout/tagout procedure was reported. BNI contacted both the Central Washington Building Trades Council and the Hanford Advisory Board to seek input and participation in the fact-finding reviews of the string of incidents that led up to the suspension. Representatives from nine unions meet with BNI management for over 18 hours on Friday, Saturday, and Sunday to develop a list of near term actions that will be adopted and a set of compensatory measures that must be satisfied prior to resumption of work. All workers returned to the site on Monday, September 26, 2005 and Union leaders met with each trade to reiterate and emphasize the importance of stop work authorities, verbatim procedural compliance, and the values of a safety conscious work force. BNI management concurrently met with all non-craft workers to deliver the same message. Work at the WTP construction site resumed on Tuesday, September 27, 2005, at 1:00 pm following a series of morning briefings to all site personnel by the BNI Vice President for Construction. At that point, the resumption was limited to general construction activities while ALL activities requiring hazardous energy isolation (lockout/Tagout) remain suspended. Based upon the completion of the corrective actions addressed below, resumption of concrete batch operations were released for work (i.e., Partial Work Resumption from the Management Suspension of Work). Work on other construction utilities and facilities, (permanent and temporary), requiring LO/TO for modification, maintenance, and sampling or tie-ins remained suspended.

Direct Cause and Root Cause of the Incident:

The unexpected start-up of the conveyor belt was identified as the direct cause of the incident and inadequate procedure implementation was identified as the root cause of the incident.

Contributing Causes to the Incident:

- Human factors (early shift start, Monday morning, tired, & personal problems).
- Perception of production importance, the employee chose to sample the belts at different times, so as to not disturb production.

- Performing the task of turning off the extra feed conveyor, prior to locking and tagging out the ¾" belt, may increased the possibility of forgetting to disconnect the belt.
- Variation in implementation of CPM LOTO Procedure by QISI and CPM employees.
- CPM trained QISI employees to their general LOTO procedure and not their equipment specific LOTO procedure.
- Inadequate supervisory involvement in employee sampling procedure training and implementation of LOTO processes.

Corrective Actions:

- Conduct a safety stand down for all employees which may be involved in the sampling process. Completed September 19, 2005. The LOTO violation event was discussed, the CPM LOTO procedure was reviewed, and expectations of all employees regarding safe work performance and ISMS core functions were addressed.
- Conduct a Safety Toolbox Meeting covering the LOTO Program utilizing the ISMS core functions. Completed October 5, 2005. QISI briefed all employees on their revised Job Safety Analysis for Performing Conveyor Aggregate Sampling.
- Increased the supervision, safety, and controlling organization surveillances. Completed October 10, 2005. QISI now requires a sampler and an observer during belt sampling. CPM performed and documented on Periodic Lockout Inspection forms surveillances performed on October 10, 2005, October 11, 2005, and October 13, 2005. BNI Field Engineer documented inspection on October 10, 2005, in a Field Inspection Report. BNI Quality Assurance performed a surveillance on October 11, 2005. All surveillances verified the LOTO was performed per the procedure.
- Place signs near conveyor landings warning of hazardous mechanical energy and the required use of LOTO. Completed October 6, 2005. Signs were added to the landings stating, "Warning Authorized Personnel Only" and "Caution Is The Conveyor Locked Out". Additionally, larger identification signage was added to the three disconnects and conveyors.
- Revise the CPM LOTO procedure. Completed October 6, 2005. Specific revision to the sampling of the aggregate feed conveyors portion of the LOTO procedure included: 1.) Requiring all three conveyors to be locked out using equipment locks. The equipment locks are placed in a lock box controlled by the personal lock of the employee performing the sampling; 2.) Requiring a LOTO log to be filled out for each lock and each application; 3.) Verifying the energy is locked out by a plant operator attempting to start the aggregate feed conveyor from the control panel and; 4.) Requiring the plant operator to sign the LOTO log as a verifier. The Facility Representative verified compliance to the revised procedure on October 10, 2005, by observing the sampling of aggregates from the feed conveyors.
- Retrain all employees to the latest revision of the CPM LOTO procedure. Completed October 10, 2005. CPM conducted the training for all QISI and CPM employees. The training covered the procedure requirement in a classroom presentation, followed by a walkdown of the systems. CPM retains the training records at the on-site office trailer.

Conclusions:

The Facility Representative concluded the Contractor's investigation of the event was adequate and the corrective actions were completed based upon review of the revised procedure, attending training provided to employees, and field verifying procedure compliance.

Submitted By: Jeff Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_, HLW_X_, LAW_X_, LAB_X__, BOF_X_, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-06

Inspector Name(s): Brian Harkins **Dates of Inspection:** October 2005

Item(s) Inspected:

The Contractor's process for event investigation was reviewed in February 2005, and was determined to be adequate. However, filing of Occurrence Notification Reports needed to be improved. As a result, an assessment follow-up item was assigned to verify Occurrence Notification Reports were being filed within the specified time period (assessment follow-up item A-05-AMWTP-RPPWTP-001-A03). This inspection reviewed recent BNI occurrence reporting practices to determine if occurrence reporting timeliness was improving.

Program Documents Reviewed:

- All Occurrence Reports from January 1, 2005 to October 1, 2005

Remarks/Comments:

This review looked at the BNI occurrence report practices. The inspector found some improvement in occurrence reporting based on the reports since the last review (Reports 2005-11 to 2005-27);

a. Submittal of written reports (initial) to headquarters improved substantially. Late reports were reduced by half from 22.5% to 11.8% of the reports being filed late.

b. BNI categorization of the events improved slightly. Late categorization improved from 27.5% of the categorization being late to 23.5% being late.

c. Final report filing improved substantially. Late filings improved from 62.5% to 11.8% being filed late.

BNI had changed their reporting process and had shown improvements in reporting timeliness. While review of occurrence reporting will continue, based on the above, assessment follow-up item A-05-AMWTP-RPPWTP-001-A03 is considered closed.

Conclusion:

The inspector concluded that BNI has made notable improvements in their occurrence reporting process; therefore, assessment follow-up item A-05-AMWTP-RPPWTP-001-A03 is considered closed.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: October 24, 2005 **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-07

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 12, 2005

Item(s) Inspected:

Inspection of general distribution rack GDR-069 fabricated in the Combo Shop for temporary power at the Water Treatment Facility consisting of:

- 200-amp, 480 volt main disconnect (load side only)
- Two 100-amp, 480 volt spare disconnects (line side only)
- Two 30-amp, 480 volt spare disconnects (line side only)
- 60-amp, 480 volt disconnect feeding mini load center
- 25 KVA mini load center

Design/Installation Documents Reviewed:

1999 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace_ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_ HLW_X_ LAW_X_ LAB_X_ BOF_X_ **Quality Class:** ITS__ BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-08

Facility Representative Name: Jeff Bruggeman **Dates of Inspection:** October 2005

Item(s) Inspected:

The Facility Representative reviewed personal protective equipment usage at the Waste Treatment Plant (WTP) site.

Documents Reviewed:

- 29 CFR 1926 Subpart E – Personal Protective and Life Saving Equipment
- Procedure 24590-WTP-GPP-SIND-025, *Personal Protective Equipment,* Revision 1, Effective date of November 4, 2002.

Requirements:

The Facility Representative reviewed the WTP site for the following personal protective equipment attributes:

- Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.
- All personal protective equipment shall be of safe design and construction for the work to be performed.
- Safety-toe footwear for employees shall meet the requirements and specifications in American National Standard for Men's Safety-Toe Footwear, Z41.1-1967.
- Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets.
- Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table D-2, Permissible Noise Exposures, in 1926.52, ear protective devices shall be provided and used.

- Employees shall be provided with eye and face protection equipment when machines or operations present potential eye or face injury from physical, chemical, or radiation agents.
- Face and eye protection equipment shall be kept clean and in good repair. The use of this type of equipment with structural or optical defects shall be prohibited.
- Lifelines, safety belts, and lanyards shall be used only for employee safeguarding. Any lifeline, safety belt, or lanyard actually subjected to in-service loading, as distinguished from static load testing, shall be immediately removed from service and shall not be used again for employee safeguarding.

Conclusion:

BNI performs Behavioral Safety reviews on PPE regularly as part of their Safety Education Through Observations (SETO) program. BNI's reviews consistently show approximately 98% compliance with PPE requirements. Based upon the observations performed over the month, the Facility Representative verified compliance with PPE requirements was very high. When a worker/non-manual was observed not wearing hearing protection, face or eye protection, or gloves, the response was to thank you for bring it to their attention and they promptly donned the required PPE.

Submitted By: Jeff Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-09

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 17, 2005

Item(s) Inspected:

Inspection of 60-amp disconnect (load side only) and 25 KVA Mini Load Centers MLC-052 fabricated in the Compo Shop for temporary power for the Steam Plant Facility.

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace_ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-10

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 10-18, 2005

Item(s) Inspected:

Surveillance inspection of the following cable pulls as per Construction Work Package BEC0006:

- LVEPNL84001BH01 (three 500 Kcmil conductors) and LVEPNL84001BG01 (2/0 AWG equipment grounding conductor) routed from 480 volt loadcenter LVE-LC-91003-03H located in BOF Switchgear Building 91 to Building 84B power panel LVE-PNL-84001B.

- LVEMCC85001BH03 (three 500 Kcmil conductors) and LVEMCC85001BG03 (4/0 AWG equipment grounding conductor) routed from loadcenter LVE-LC-91003-04G located in BOF Switchgear Building 91 to Building 85 motor control center LVE-MCC-85001B-01C.

Design/Installation Documents Reviewed:

1999 National Electrical Code.

24590-B91-E1-LVE-00001, *BOF Switchgear Building Secondary Unit Substation LVE-LC-91003 Single Line Diagram,* Revision 3, dated February 10, 2005.

Construction Work Package BEC0006.

Set Route Cable Installation Card, Record Number 24590-BOF-SCC-E-05-0017, Revision 2.

Set Route Cable Installation Card, Record Number 24590-BOF-SCC-E-05-0029, Revision 1.

24590-WTP-GPP-CON-3304, *Electrical Cable Installation Construction Procedure,* Revision 1, dated September 12, 2005.

24590-WTP-3PS-E00X-T0004, *Engineering Specification for Installation of Cables in Conduit and Cable Tray,* Revision 3, dated March 01, 2005.

Remarks/Comments:

The inspector concluded the installation was acceptable in accordance with the established design.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW_X__ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-11

Facility Representatives Name: Jeff Bruggeman **Dates of Inspection:** October 20, 2005

Item(s) Inspected:

The Facility Representative witnessed the placement and testing of concrete for the High Level Waste (HLW) Facility slab HLW 1024.

Documents Reviewed:

- Engineering Specification 24590-WTP-3PS-D000-T0001, *Concrete Work,* Revision 6, dated September 23, 2004.
- Engineering Specification 24590-WTP-3PS-DB01-T0001, *Furnishing and Delivery Ready-Mixed Concrete,* Revision 7, dated October 12, 2004.
- Engineering Specification 24590-BOF-3PS-C000-T0001, *Material Testing Services,* Revision 3, dated May 25, 2004.
- Construction Procedure 24590-WTP-GPP-CON-3203, *Concrete Operations (Including Supply),* Revision 9, effective date June 22, 2005.
- Construction Guide 24590-WTP-GPG-CON-3212, *Concrete Placement,* Revision 1, effective date December 17, 2003.

Work Activities:

The Facility Representative witnessed the Material Testing subcontractor field technicians test the concrete temperatures, slump, flow, visual inspections (mortar halo, bleed water, and aggregate segregation) and unit weight. Mix designs F-7P (5,000 psi), F-7HS (5,000 psi), and F-10HS (6,000 psi) were used for this placement. The first truck arrived at the basemat at 5:22 am. The ambient temperature was 56° F and the concrete temperature was 63° F. The placement took 12 hours to complete. The placement was complicated due to the number and location of embeds, the three different types of concrete mixes required, and the slab configuration. The forms were installed for this slab in October 2004 and a number of technical and procurement issues had to be resolved for the placement to proceed. The Facility Representative observed the Contractor concrete superintendent, field engineer, quality control engineer, and quality assurance engineer monitor concrete placement activities to assure proper placement and consolidation techniques were used by the placing crews in accordance with the above listed documents.

Adequacy of Final Records:

The Facility Representative reviewed the Concrete Pour Card for the placement and verified applicable attributes were signed off, including the Final Release for Placement (Go/No-Go decision).

Remarks/Comments:

The Facility Representative concluded the Contractor was batching, placing, consolidating, testing, and monitoring concrete in accordance with engineering specifications and the Safety Requirements Document.

Submitted By: _JM Bruggeman__ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-12

Inspector Name(s): Brian Harkins **Dates of Inspection:** December 2005

Item(s) Inspected:

Review of the closed occurrence report EM-RP--BNRP-RPPWTP-2005-0005 *Knife Slip Severs Tendons in Hand.*

Program Documents Reviewed:

- Occurrence Report EM-RP--BNRP-RPPWTP-2005-0005.

Remarks/Comments:

The inspector reviewed the closed occurrence report on the worker who slipped while sharpening a knife and cut his thumb. The occurrence report had the following four corrective actions:

- Remove Accusharp hand held sharpeners from use at the WTP Construction Site.
- Develop and present a tool box safety topic for personnel to read and follow manufacturers' instructions when required for the use of specialized tools (out of the ordinarily used) and equipment. Emphasize that years of experience is not a substitute for manufacturers' written instructions where required for specialized purposes.
- Develop guidance for personnel ordering specialty tool kits to assist in identifying potentially unsafe tools, or tools requiring special training, instructions, or precautions for safe use. Where these are identified, Safety Assurance should be consulted prior to procurement.
- Enter this incident, findings and corrective actions into the WTP Project Lessons Learned Database.

Conclusion:

The inspector concluded BNI had adequately closed Occurrence Report EM-RP--BNRP-RPPWTP-2005-0005.

Submitted By: Brian Harkins_ **Reviewed By:** _____ **Approved by:** _____
Date: __December 22, 2005_ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW_X_, LAB___, BOF___, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-13

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 25, 2005

Item(s) Inspected:

Inspection of power distribution panel PDP-021 fabricated for various locations in the LAW facility consisting of:

- 225-amp, 480 volt three phase, three wire panelboard (branch circuits 1-42)
- Two 100-amp, 480 volt disconnects

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The Contractor identified one deficiency pertaining to the size of the grounding electrode conductor, which the craft immediately corrected. The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-14

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 24, 2005

Item(s) Inspected:

Surveillance of multiple Temp-Air Gas Fired Construction Heaters staged in various locations throughout the site. Note: These heaters are not in-service at this time.

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector discussed the following deficiencies with the Contractor:

1. Article 110.3(B) requires listed or labeled equipment to be installed and used in accordance with any instructions included in the listing or labeling.

   Gas-Fired Construction Heaters were purchased as re-conditioned equipment and are not an Electrical Testing Laboratory (ETL) listed product . Without the ETL it is indeterminate if the heaters meet ANSI Z83.7 standards for construction heaters. Also in some heaters, class 2 power-limited wiring (CMP) appears to be used for 110 volt circuits.

2. Article 110.12(C) requires internal parts of electrical equipment not to be damaged or contaminated by foreign materials. There shall be no damaged parts that may adversely affect safe operation or mechanical strength of the equipment.

   Multiple gas heaters contain cables/conductors that are damaged or brittle.

3. Article 110.26(F)(2) requires outdoor electrical equipment to be installed in suitable enclosures.

   Some enclosures are not approved for outdoor use.

The Contractor determined the older heaters were not suitable for site use and directed the construction staff to remove the heaters from service. Tested and approved (listed) rental heaters were ordered and were used to replace the older heaters. This resolves all items listed above.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW_X__ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___ No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-15

Inspector Name(s): RI Taylor **Dates of Inspection:** October 25, 2005

Item(s) Inspected:

The inspector witnessed epoxy grout placement of C5 Exhaust Fan Frame Base Plate, C5V-Fan-00005B, at the -21' elevation, of the Low Active Waste Facility.

Design/Installation Documents Reviewed:

24590-LAW-SI-C-CON-05-0019, *Special Instruction Number/Grout Placement Card.*

24590-WTP-NCR-CON-05-0299

24590-WTP-GPP-CON-3204, *Grouting,* Revision 1, dated November 22, 2004.

Acceptability of Material Being Used:

The inspector verified the "use by dates" of the grout materials was acceptable to the referenced procedure requirements.

Work Activities:

The inspector verified the areas to be grouted were clean and dry prior to grout placement. The inspector witnessed the Contractor verifying ambient temperatures prior to and during the placement. The Contractor's temperature measuring device was in current calibration.

Adequacy of Final Records:

The inspector verified the grout pour card was acceptable for the grouting activities performed.

Conclusion:

The inspector concluded the grouting activities listed above had been performed satisfactorily to the listed references. Prior to grouting activities it was noted by the Contractor the shelf life of the grout materials had been exceeded. Per the listed procedure nonconformance 24590-WTP-NCR-CON-05-0299 was issued. The Contractor received a 60 day extension of the shelf life from the manufacturer. Engineering disposition of the NCR allowing the use of the affected material.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-16

Inspector Name(s): MD Evarts **Dates of Inspection:** October 25, 2005

Item(s) Inspected:

The inspector witnessed the welding of the embed plate for the crane rail support to the existing anchor bolts in the transfer tunnel of the PTF building per Nonconformance Report 24590-WTP-NCR-CON-05-0103.

Design/Installation Documents Reviewed:

Nonconformance Report – 24590-WTP-NCR-CON-05-0103

Weld Record – 24590-PTF-FWCL-CON-05-04491

Work Package – CWP-0400

Welding Procedure – P1-A-lh(str), Revision 1

Visual Inspection Procedure – VT-AWS-D1.1, Revision 5

Work Activities:

The inspector witnessed welder I-073 finish welding field weld 43-13. The welder preheated (min 150 degrees) acceptable in accordance with the above welding procedure and used the correct filler metal (E7018) in accordance with the above welding procedure.

The inspector witnessed welder I-032 weld the entire field weld 43-19 from the root field weld to the finished condition. The welder preheated (min 150 degrees) acceptable in accordance with the above welding procedure and used the correct filler metal (E7018) in accordance with the above welding procedure.

The inspector verified both the above welders were qualified to weld to the above welding procedure and use the above filler metal.

The two field welds still needed to be ground flush and possibly be selected for NDE in accordance with the above NCR.

Conclusion:

The inspector concluded, the Contractor welded the embed plate to the existing anchor bolts acceptable in accordance with the above NCR.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-17

Inspector Name(s): RI Taylor **Dates of Inspection:** October 27, 2005

Item(s) Inspected:

The inspector performed a surveillance inspection of completed liner plate installed within area 11, room P-0114, located at 0'-0" el. of the Pretreatment Facility. Room P-0114 contains three vessels, CXP-VSL-00026A, CXP-VSL-00026B, and CXP-VSL-00026C (*Cesium Ion Exchange Process System*).

Design/Installation Documents Reviewed:

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April, 2005

24590-PTF-DD-S13T-00060, *Pretreatment Facility Structural Liners Main Pit & Tunnel Plans,* Revision 5, dated July 8, 2004.

24590-PTF-DD-S13T-00066, *Pretreatment Facility Structural Liners, El. 0'-0", Base Mat Sh 2,* Revision 10, dated June 28, 2005.

24590-PTF-DD-S13T-00067, *Pretreatment Facility Structural Liners and Details Sh 1,* Revision 7, dated June 28, 2005.

24590-WTP-3PS-NLLR-T0002, *Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates,* Revision 1, dated December 31, 2003.

24590-WTP-NCR-CON-05-347, *Nonconformance Report,* (NCR)

Work Activities:

The inspector verified the welding was continuous throughout the identified areas.

The inspector verified the liner plate as installed, was free of wrinkles, ripples or sharp discontinuities, per the listed specification.

The inspector verified the completed welds were free of slag, coarse ripples, and deep ridges and valleys, per AWS D1.6.

Conclusion:

The inspector concluded the liner plate was installed in accordance with the above listed requirements. Two wall areas located in the southeast corner, and the southwest corners of the referenced room were not covered with liner plate. Discontinuities with surface conditions, would not allow the installation of the liner plate on the walls. These areas were discovered and documented by the Contractor on nonconformance report 24590-WTP-NCR-CON-05-347.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTE

Facility: PTF___ HLW___ LAW__ LAB___ BOF___ **Quality Class:** ITS__ BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-18

Inspector Name(s): Brian Harkins **Dates of Inspection:** October 2005

Item(s) Inspected:

The inspector reviewed the implementation of the Corrective Action Reporting (CAR) system as it applied to the Quality Assurance Manual Policy 16.1 (Corrective Action), Sections 3.6 and 3.7 (*Conditions Adverse to Industrial Safety and Health* and *Significant Conditions Adverse to Industrial Safety and Health* respectively) at the construction site.

Background:

A surveillance of the BNI CAR system was scheduled on the ORP Master Assessment Plan for the inspector for the month of October. The inspector noted that the ORP ESQ division had recently completed a review of the BNI CAR program and the inspector determined that it was unnecessary to repeat the review. Instead the inspector focused this surveillance on the CAR program affecting the Industrial Safety & Health (IS&H) issues. The governing requirements for the IS&H CAR review were contained in the Quality Assurance Manual (QAM) (24590-WTP-QAM-QA-01-001), Corrective Action procedure (24590-WTP-GPP-QA-201), and Quality Trending procedure (24590-WTP-GPP-QA-204).

One fundamental element of continuous improvement is the corrective action system. The objective of a corrective action system is to identify, control, document, evaluate, and trend conditions adverse to quality and IS&H, and to develop and implement appropriate actions to correct the adverse condition. The corrective action system is a vital tool for implementing the continuous improvement element of the quality assurance program. Quality improvement is the essence of the feedback and improvement core function of Integrated Safety Management.

Design/Installation Documents Reviewed:

- 24590-WTP-QAM-QA-01-001, Rev 5a, *Quality Assurance Manual*
- 24590-WTP-GPP-QA-201, Rev 14, *Corrective Action*
- 24590-WTP-GPP-QA-204, Rev 3, *Quality Trending*
- CCN 125220, *WTP Quality Assurance Trend Report – Second Quarter CY 2005*, dated August 9, 2005
- All Corrective Action Reports, January 1, 2005, to October 20, 2005
- All RITS Reports, January 1, 2005 to October 20, 2005
- A-05-ESQ-RPPWTP-006, *Bechtel National, Inc., Corrective Action Management*, dated August 9 through 18, 2005

- 05-WTP-069, *Inspection Report A-05-AMWTP-RPPWTP-001 – On Location Inspection Report of Construction Performance of the Waste Treatment and Immobilization Plant (WTP) for the Period December 16, 2004, through March 31,2005*, dated April 1, 2005
- 05-WTP-132, *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, *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

Work Activities:

None.

Personnel Interviewed:

Safety Assurance Manager
Quality Assurance Manager
Senior Quality Assurance Engineer

Discussion:

The inspector reviewed the implementation of the QAM Policy Q-16.1, Sections 3.6 & 3.7, *Conditions adverse to Industrial Safety and Health* and *Significant Conditions Adverse to Industrial Safety and Health* respectively. The inspector also reviewed all of the 2005 CAR's marked as IS&H affecting to determine the extent of the conditions identified as IS&H affecting. The inspector also reviewed the rest of the 2005 CAR's for CAR's that might be IS&H affecting, but had not been marked and thus not evaluated as IS&H affecting. All RITS reports for the year to date were reviewed to see if there were any items that should have been reported in a CAR instead of a RITS item. The first three quarterly reports for the DOE onsite inspectors were also reviewed to check and see if all of the items identified by the site inspectors had been entered in the CAR system as applicable.

Review of the QAM requirements:

Policy Q-16.1, Section 3.6, *Conditions Adverse to Industrial Safety and Health*

1. **Paragraph 3.6.1 -** Responsible management shall perform investigative action to determine the extent of the adverse conditions and complete remedial action as soon as practical.

   The inspector found CAR's identified as IS&H affecting were being reviewed by the Safety Assurance Manager. Investigative actions were being performed by Safety Assurance and/or Construction personnel.

2. **Paragraph 3.6.2 –** Conditions adverse to safety and health shall be documented and reported to appropriate levels of management responsible for the conditions and to the Safety Assurance organization for tracking.

The inspector found some conditions adverse to safety and health (described below) were not being documented in CARs. This resulted in the identification of **Finding: A-05-AMWTP-RPPWTP-004-F05** below. Those items that were entered in the CAR's system were documented and reported to management.

Policy Q-16.1, Section 3.7, *Significant Conditions Adverse to Industrial Safety and Health*

3. **Paragraph 3.7.1 –** Criteria for determining significant conditions adverse to safety and health shall be established and identified.

   Criteria for determining significant conditions adverse to safety and health were established and identified in the Corrective Action procedure (GPP-QA-201).

4. **Paragraph 3.7.2** - The identification, cause, and corrective action for significant conditions adverse to safety and health shall be documented and reported to appropriate levels of management responsible for the organization and to the Safety Assurance organization for tracking.

   Only one 2005 Level 3 or above IS&H affecting CAR was found by the inspector (CAR-QA-05-224, Near Misses). It documented and reported to management the near miss events that resulted in management suspension of work activities at the construction site.

~~5.~~5. **Paragraph 3.7.3** – Responsible management shall:

   a. **Paragraph 3.7.3.A** – Perform investigative action to determine the extent and impact of the conditions and document the results.

      No investigative actions were documented in the one Level 3 IS&H affecting CAR reviewed (**Observation 1**).

   b. **Paragraph 3.7.3.B –** Determine, document, and complete remedial action as soon as practical.

      Remedial actions were listed and worked to closure during the review for the one Level 3 IS&H affecting CAR reviewed.

   c. **Paragraph 3.7.3.C** – Determine and document the root cause using formal root cause techniques.

      The root cause review for the one Level 3 IS&H affecting CAR was under way when the inspector conducted this review.

   d. **Paragraph 3.7.3.D** - Identify and implement corrective actions that will preclude recurrence as soon as practical.

Corrective actions from the one Level 3 IS&H affecting CAR reviewed will be identified during the root cause analysis review and thus were not available for review by the inspector.

Review of all of the 2005 CAR's marked as IS&H affecting:

From a review of the calendar year 2005 CAR's, the inspector found that those marked as IS&H affecting were being reviewed by the appropriate personnel and were being reviewed for trends by the Safety Assurance Manager. The only trend that the Safety Assurance Manager could give as evidence of trending was the CAR on near misses resulting a management suspension of work (CAR 05-224). This trend was only identified after significant events occurred at the construction site. **Observation 2** below discusses the issue that IS&H affecting trends were not being identified in time to preclude significant events. For example, in hind sight, there were indications of a lack of rigor with Lock & Tag and work control before a significant Lock & Tag violation occurred by the Balance of Facility (BOF) personnel.

Review of 2005 CAR's not marked as IS&H affecting:

From a review of the calendar year 2005 CAR's, the inspector found that those not marked as IS&H affecting were for the most part being correctly classified, with only one CAR questionable. This CAR (05-033) documented a condition where required temporary support posts were not in place when concrete was placed. These posts were necessary because the beams were not designed to adequately support the uncured concrete. This CAR had components that were both quality affecting and IS&H affecting but was not marked as IS&H affecting.

The person who generates the CAR is responsible to recognize a CAR as IS&H affecting. As a secondary process the CAR's are screened by Quality Assurance personnel. **Observation 3** below states that Safety Assurance should review all CAR's to ensure all IS&H affecting CAR's are properly identified.

Review of 2005 RITS entries:

From a review of calendar year 2005 RITS entries, the inspector found no items that were IS&H affecting that had not been entered also as CAR's.

Review of the first three quarterly reports for the DOE onsite inspectors:

From a review of DOE inspection report issues against the CAR's system, the inspector identified numerous instances where identified items, that met the corrective action procedure (24590-WTP-GPP-QA-201) appendix 1 definitions of a CAR, were not entered into the CAR's system. Although this issue was applicable to numerous items involving quality and procedure compliance, the examples given below are IS&H affecting, because that was the focus of this inspection. Two examples of items identified in DOE inspection reports that were not entered in the CAR system were:

1. Inspection Note A-05-AMWTP-RPPWTP-001-27 documented deficiencies in the site confined space procedure. Specifically, it documented BNI confined space procedure (24590-WTP-GPP-SIND-007) failed to implement the requirements of 29 CFR 1910.146. According to the Corrective Action procedure, this should have resulted in a Level 1 or 2 CAR because it was a failure to meet the governing regulations of 29 CFR 1910. This should have been an IS&H affecting CAR because it was an error in safety and health procedures. This issue was communicated to BNI in inspection report A-05-AMWTP-RPPWTP-001.

2. Inspection Notes A-05-AMWTP-RPPWTP-001-16, A-05-AMWTP-RPPWTP-001-36, A-05-AMWTP-RPPWTP-001-56, A-05-AMWTP-RPPWTP-003-09, and A-05-AMWTP-RPPWTP-003-74 identified equipment ground terminal bars that were isolated from their enclosures. As found, these breakers would not have tripped if a ground fault had occurred. All deficiencies were corrected prior to energizing with the exception of the one the craft identified when doing the assured ground testing (003-09). These deficiencies were documented as deviating from the requirements of 2002 NEC, Article 408.20. According to the Corrective Action procedure, this should have resulted in a Level 1 or 2 CAR because it was a failure to meet the governing regulations of 2002 NEC. This should have been an IS&H affecting CAR because it impacted the safety and health of site personnel in that it rendered the breakers ineffective. This issue was communicated to BNI in inspection reports A-05-AMWTP-RPPWTP-001 and A-05-AMWTP-RPPWTP-003.

From a review of the items identified by DOE inspections, the inspector found individual issues were being adequately tracked to closure both by DOE and BNI, but ~~by~~ not enter~~inged the issues~~ in the CAR system. ~~t~~Because the items were not entered in the CAR system, ~~available to those personnel~~the ~~reviewing corrective actions~~actions specified by the Corrective Action procedure (24590-WTP-GPP-QA-201), Section 3.2.2 and ~~to identify trends~~the Quality Trending procedure (24590-WTP-GPP-QA-204), Section 3.3.2 were not necessary all conducted. BNI took actions to correct each specific deficiency, but failed to prevent the continued risk to personnel by not identifying adverse trends and taking appropriate actions. **Finding A-05-AMWTP-RPPWTP-004-F05** below documents this issue.

Issues:

Finding: A-05-AMWTP-RPPWTP-004-F05: BNI failed to document conditions adverse to safety and health ~~and report them to the QA organization for tracking and trending~~.

Requirement: QAM Policy Q-16.1, Section 3.~~2~~6.2 states – Conditions adverse to ~~quality~~safety and health shall be documented and reported to appropriate levels of management responsible for the conditions and to the Safety Assurance organization for tracking. ~~shall be documented and reported to appropriate levels of management responsible for the conditions and to the QA organization for tracking and trending.~~ The Corrective Action procedure (24590-WTP-GPP-QA-201), Section 3.2.5 states that the originator is responsible for initiating a CAR as soon as practical after identifying a potential adverse condition.

Observation 1: No investigative actions were documented in the one Level 3 IS&H affecting CAR reviewed.

Requirement: QAM Policy 16.1, Paragraph 3.7.3.A states – Perform investigative action to determine the extent and impact of the conditions and document the results.

Observation 2: IS&H affecting trends were not being identified in time to preclude significant events. The one trend identified this year was only identified after significant events occurred at the WTP construction site resulting in management suspending work activities.

Observation 3: Safety Assurance was not reviewing all CAR's to ensure all IS&H affecting CAR's were properly identified.

Conclusion

The inspector identified one Finding with the BNI corrective action program regarding failure to enter identified issues in the CAR system thus precluding the issues from being properly processed by the BNI Corrective Action Program~~used to identify adverse trends~~ (**A-05-AMWTP-RPPWTP-004-F05**). Three observations were also identified documenting potential areas where improvements in the Contractor's IS&H corrective action program could be made. Although this inspection focused on ISH issues, the Finding identified could well encompass the manner in which some DOE identified quality affecting issues are being addressed by BNI without issuing CARs.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-19

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 26, 2005

Item(s) Inspected:

Inspection of main lightning protection down conductors, 5/8" x 10' copper clad ground rods, and cadwelds installed in the four corners of the BOF Water Treatment Building 86.

Design/Installation Documents Reviewed:

2005 National Electrical Code.

24590-CM-FC3-AKBP-00001-61-00035, *BOF Water Treatment Building 86, (Drawing BOF-86-LP-01),* Revision C, dated September 12, 2005.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the above design.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF X HLW X LAW X LAB X BOF X **Quality Class:** ITS___ BOP X.

Inspection Note Number: A-05-AMWTP-RPPWTP-004-20

Inspector Name(s): Joe Christ **Dates of Inspection:** November 1 – 22, 2004

Item(s) Inspected:

The inspector inspected site rigging practices.

Documents Reviewed:

- 24590-WTP-GPP-CON-1901, Rev. 4, *Rigging Work Operations*
- 24590-WTP-GPP-CON-1905, Rev. 0, *Competent Person Rigger Qualification*
- 24590-WTP-GPP-SIND-018, Rev. 1, *Crane Load Test*
- 24590-WTP-RIG-CON-05-015, *Rigging Package – Demag CC2800 Load Test*
- 24590-PTF-RIG-CON-05-019, *Rigging Package – Offload Vessels FEP-VSL-00017A ,B*
- 24590-LAW-RIG-CON-05-009, *Rigging Package – Turning Over Structural Steel Frames*
- 24590-BOF-RIG-CON-05-004, *Rigging Package – (6) CCP Chillers*
- 24590-LAB-RIG-CON-05-004, *Rigging Package – Upending C3 Drain Collection Vessel*
- 29 CFR 1926, Subpart H - Materials Handling, Storage, Use, and Disposal
- WAC Title 296, Chapter 155, Part F, Material Handling, Storage, Use and Disposal
- WTP Contract DE-AC27-01RV14136, Section C, Para. C.4, Environment, Safety, Quality, and Health

Field Work and Activities Observed:

- Turning Over Structural Steel Frames at LAW
- Rebar lifting activities
- Concrete form lift activities
- Structural steel lift activities
- Rigging storage areas

Personnel Interviewed:

- Certified Rigging Engineer
- Rigging Superintendent
- Iron Workers
- Flaggers
- Construction Site Training Coordinator

Discussion:

The inspector observed the over turning of structural steel frames at LAW, the lifting of air driers onto low-boy trailers for shipment, and numerous small site lifting activities. The inspector also interviewed the Rigging Superintendent and site Certified Rigging Engineer, several flaggers, and several Ironworkers. The inspector walked down rigging storage areas and observed rigging usage on the site. The inspector found overall site rigging activities were conducted safely and in accordance with their procedures and industry standards. However the inspector identified three areas where administrative compliance with BNI procedures was violated and two observations regarding lift plan coversheet formatting and documentation.

BNI Administrative procedural violations were:

1. Medium lift plans were not being approved by the Field Engineering Manager as required by procedure 24590-WTP-GPP-CON-1901, *Rigging Work Operations*, Rev. 4, Section 3.3.3.2. During the inspection several lift plans were reviewed to evaluate compliance with the procedure. Heavy and critical lift plans had the appropriate review/approval signatures but the medium lift plans did not have the FEM review and approval signature. This observation was discussed with the site's certified rigging engineer. He agreed that the FEM should be signing the medium lift plans. It was recognized that this was a misunderstanding of the procedure and was a recurring situation. This non-compliance was documented in corrective action report 24590-WTP-CAR-QA-05-280 with an action due date of December 7, 2005. The requirement to review and approve the medium lift plans appears to have been an administrative non-compliance since the lift plan preparations were found adequate in all other regards.

2. Competent Person Riggers (CPRs) did not receive practical testing as required by procedure 24590-WTP-GPP-CON-1905, *Competent Person Rigger Qualification*, Rev. 0, Section 3.3.1.3. Based on interviews with the site training coordinator, the rigging superintendent, and several CPRs, no practical test was provided. The rigging superintendent indicated during the classroom portion, hands-on training using rigging equipment is provided but no specific test was conducted or recorded. Sections 3.3.1.3 and 3.3.1.6, along with the process flow diagram and Attachment C implied a more rigorous practical was required to be qualified as a CPR. Based on discussions with the rigging superintendent, it appeared the process by which CPRs were selected and evaluated provided sufficient bases to not require a practical test. BNI indicated the procedure was being revised to reflect the current qualification process.

3. Competent Person Riggers (CPRs) were not keeping their qualification card (Attachment D) with them on site as required by procedure 24590-WTP-GPP-CON-1905, *Competent Person Rigger Qualification*, Rev., 0 Section 3.3.3. During the inspection, several CPRs were asked to present their qualification card to the inspector for verification. In two cases the individuals were able to comply, but in more instances they only referred to their hard hat sticker (rigger), and were not aware they needed to carry a card. By procedure, stickers are optional and must be placed on the hard hat if used. During this inspection, the CPR trainer issued an electronic memo to all site superintendents alerting them that all CPRs must carry a

qualification card with them. The site training coordinator confirmed cards were now being issued to qualified CPRs. Based on field observations, the inspector found no situation where a rigging activity was conducted by an individual not already on the list provided by the rigging superintendent.

Observations:

1. Lift plans have inconsistent review and approval signature spaces and titles on the coversheet. During the inspection several lift plans were reviewed. The inspector noted significant variance between the format for position titles and signature spaces based on the type of lift plan. Titles in some cases did not match the terms used in procedure 24590-WTP-GPP-CON-1901, *Rigging Work Operations*, Rev. 4. Medium lift plans were observed to have the most variation; with two having no signatures at all on the coversheet. BNI should consider establishing a standardized review/approval coversheet format for lift plans.

2. Section 3.8.4 in procedure 24590-WTP-GPP-CON-1901, *Rigging Work Operations*, Rev. 4 allows substituting the daily crane inspection form for the Pre-Lift Safety Checklist. However, the Pre-Lift Checklist was not required for medium lifts so it did not make sense to allow substitution for something that was not required. Based on discussions with the rigging engineer the expectation was to ensure the daily crane inspection was completed before performing the medium lift. BNI should revise Section 3.8.4 to clarify its expectations.

These observations were shared with the Contractor.

Conclusions:

The Contractor's site rigging practices were adequate.

Submitted By: Joe Christ **Reviewed By:** _____ **Approved by:** _____
Date: 11/22/05 **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW_X_, LAB___, BOF___, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-21

Inspector Name(s): Debra Wallace **Dates of Inspection:** October 31, 2005

Item(s) Inspected:

Inspection of power distribution panel PDP-022 fabricated for various locations in the LAW facility consisting of:

- 225-amp, 480 volt three phase, three wire panelboard (branch circuits 1-42)
- Two 100-amp, 480 volt disconnects

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-22

Inspector Name(s): Debra Wallace **Dates of Inspection:** November 1, 2005

Item(s) Inspected:

Inspection of 150 KVA Generator J0-53-041 installed for temporary feed to general distribution rack GDR-070 consisting of 200-amp main disconnect, and three 100-amp disconnects (DS-1 & DS-2 feeding Cobra Office Trailers and DS-3 spare disconnect) and 200-amp disconnect (fused 100-amp) feeding Malcolm Drilling Office Trailer.

Design/Installation Documents Reviewed:

1999 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X_ **Quality Class:** ITS___ BOP_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-23

Facility Representative Name: Jeff Bruggeman **Dates of Inspection:** October/November 2005

Item Inspected:

On October 26, 2005, the Facility Representative was notified that a BOF Carpenter tripped a ground fault current interrupter (GFCI) device when the male plug at the end of an energized extension cord contacted a metal object. The Facility Representative inspected the incident site, reviewed the Contractor's accident investigation report, and verified completion of corrective actions.

Documents Reviewed:

- Procedure 24590-WTP-GPP-SIND-023, *Injury/Illness Notification, Investigation, and Reporting,* Revision 2, Effective date of September 30, 2004.
- Occurrence Report RP--BNRP-RPPWTP-2005-0029, dated October 31, 2005.
- Bechtel Accident Investigation Report 127924, *Electrical Cord Incident Double Male Cord Plugs,* dated November 1, 2005.

Event:

A Carpenter was retrieving tools from a temporary wooden tool storage shed on the morning of October 26, 2005. It was dark in the shed, so the Carpenter decided to route a 120V power cord from a temporary GFCI power source (spider box) to the shed and plug in the lights that were mounted inside the shed. The light string had a male 120V pig tail cord hanging outside the shed, which is typical for the temporary wooden sheds with lights. Unbeknownst to the Carpenter, the other end of the light cord also had a male plug installed. The lights did not come on when plugged in so the Carpenter began tracing out the cord. The cord was lying on a shelf, so the Carpenter started to pull it off the shelf to look at it. When he pulled the cord an electrical arc occurred when the second male plug contacted a metal object on the shelf. The GFCI tripped at the spider box. No one was injured. The Carpenters have been using this specific shed for several months, but this is the first time they tried to utilize the lights. The immediate actions taken were to secure the area, remove the light string from service, and inspect all other temporary sheds for similar configurations. None were found.

BNI has declared this a Group 10 Management Concern (significance category 4) occurrence - A near miss, where no barrier or only one barrier prevented an event from having a reportable consequence.

Identified Causal Factors:

Core Function #4: Perform Work Within the Controls.

The temporary lighting placed in the storage shed was not installed correctly.

Core Function # 2: Identify and Analyze Hazards.

The temporary lighting was modified and male ends were placed on each end of the light stringer.

Identified Direct Cause:

The energized male end of an extension cord shorted against one of the tool on a shelf causing the GFCI breaker to trip.

Corrective Actions:

Remove the male cord ends from the light stringer. The male ends from the light stringer were removed immediately after the incident.

Inspect job-built storage sheds for proper electrical installation. The Facility Representative spot checked job-built storage sheds to verify proper electrical installations.

Conclusions:

The Facility Representative concluded the Contractor's investigation of the event was adequate and the corrective actions were completed.

Submitted By: Jeff Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW_X_, LAB___, BOF___, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-24

Inspector Name(s): Debra Wallace **Dates of Inspection:** November 1, 2005

Item(s) Inspected:

Inspection of the following Temp-Air Gas Fired Construction Heater:

- Serial #1475 (model THP-1400) installed on the +3 elevation, west of wall 11, in the LAW.

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector verified the heater was approved/listed by Electrical Testing Laboratory (ETL) and the plug installed by the Contractor met the requirements of the 2002 NEC.

Submitted By: D.O. Wallace_ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW_X__ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes___ No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-25

Inspector Name(s): RI Taylor **Dates of Inspection:** November 2, 2005

Item(s) Inspected:

The inspector witnessed welding activities at the -21' elevation of the Low Level Waste Facility. Areas of interest were material verifications, internal alignment, final weld inspection, and welder qualification. The inspector performed a walk down of the -21' elevation for proper storage of pre fabricated pipe spools. The inspector reviewed the construction work package (CWP) document list for current revisions of piping isometrics listed on the field welding checklists (FWCL).

Design/Installation Documents Reviewed:

Construction Work Package, LPI0006

24590-LAW-FWCL-CON-05-02185

24590-LAW-FWCL-CON-05-02227

ASME B31.3, 1996.

24590-WTP-MN-CON-01-001, *Welding Control Manual,* Revision 18, dated August 24, 2005.

Acceptability of Material Being Used:

The inspector verified piping materials utilized to fabricate the piping were acceptable to the isometric drawings listed on the Field Welding Checklists. The inspector verified welding materials were acceptable per the Field Welding Checklists.

Work Activities:

The inspector verified drawing revisions of the piping isometrics listed on the Field Welding Checklists were current and in compliance with the document list.

The inspector found piping spools were stored on dunnage and with end caps in place.

The inspector performed final weld inspection and alignment for the following listed Field Welding Checklists:

24590-LAW-FWCL-CON-05-02185, 4" Carbon Steel Plant Cooling Water System piping, to weld neck flange

24590-LAW-FWCL-CON-05-02227, 4" Carbon Steel Plant Cooling Water System piping, to weld neck flange.

Training and Qualification of Personnel:

From a review of the Contractor's welder qualification list, the inspector verified welder P-91 was certified to weld to the procedure listed on the Field Welding Checklist.

Conclusion:

The inspector concluded the welding activities noted above were performed and documented to the referenced requirements listed above.

Submitted By: _RI Taylor___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-26

Inspector Name(s): RI Taylor **Dates of Inspection:** October 31, 2005

Item(s) Inspected:

The inspector witnessed welding activities on ring beam to floor embeds of HLP-VSL-00022, *HLW Lag Storage and Feed Blending Process System* at the 0' elevation of the Pre Treatment Facility. Areas of interest were fit-up and alignment, final weld inspection, and verification of welder qualifications.

Design/Installation Documents Reviewed:

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April 2005

AWS D1.1, 2000, *American Welding Society.*

24590-WTP-MN-CON-01-001, *Welding Control Manual,* Revision 18, dated August 24, 2005.

24590-PTF-FWCL-CON-04-2190, *Field Welding Checklist.*

Acceptability of Material Being Used:

The inspector verified welding materials were acceptable per the Field Welding Checklist.

Work Activities:

The inspector performed fit-up, alignment, and final weld inspection for a field weld associated with 24590-PTF-FWCL-CON-04-2190, ring beam to floor embed of HLP-VSL-00022, HLW Lag Storage and Feed Blending Process System.

Training and Qualification of Personnel:

From a review of the Contractor's welder qualification list, the inspector verified welders B-1, B-6, B-7, and B-14 were certified to weld to the procedure listed on the Field Welding Checklist.

Conclusion:

The inspector concluded the welding activities noted above were performed and documented to the referenced requirements listed above.

Submitted By: _RI Taylor___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X_ **Quality Class:** ITS___ BOP_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-27

Facility Representative Name: Jeff Bruggeman **Dates of Inspection:** Sept. – Nov. 2005

Item Inspected:

On September 22, 2005, the Facility Representative was notified that pipe fitters cut a 2-inch temporary propane line and a 2-inch temporary argon line without a lockout/tagout (LOTO) in place. The Facility Representative inspected the incident site, reviewed the Contractor's accident investigation report, and verified completion of corrective actions.

Documents Reviewed:

- Procedure 24590-WTP-GPP-SIND-023, *Injury/Illness Notification, Investigation, and Reporting,* Revision 2, Effective date of September 30, 2004.
- Occurrence Report RP--BNRP-RPPWTP-2005-0029, dated October 31, 2005.
- Bechtel Accident Investigation Report 125558, *Cut Propane Line Incident,* dated October 10, 2005.
- Management Suspension of Work 24590-WTP-MSOW-MGT-05-002, Revision 3, dated October 25, 2005.
- 29 CFR 1910.147, Subpart J, The Control of Hazardous Energy (lockout/tagout).
- Corrective Action Report Number 24590-WTP-CAR-QA-05-227 Revision 0.
- BOF-05-125 System/Equipment Safety Tagout Permit.
- Work Package BPU0194, *Reroute the Argon, Water, and Propane Lines Southwest of the LAW.*
- Memorandum CCN: 125293, *Additional Delegation of Lockout/Tagout – Tagging Authority and Alternate Tagging Authorities,* dated October 17, 2005.
- Procedure 24590-WTP-GPP-SIND-008, *System and Equipment Lockout/Tagout,* Revision 8, dated October 28, 2005.

Event:

At approximately 2:00 pm on September 22, 2005, pipe fitters cut a 2-inch temporary propane line and a 2-inch temporary argon line without a lockout/tagout in place. There were no injuries. The scope of work was to remove and reroute sections of buried 2-inch carbon steel temporary argon, water, and propane (AWP) lines. The three temporary lines run in parallel approximately 12 inches apart. Access to the three buried lines was via two separate excavations approximately 50 feet apart. The work required cutting each line twice, once in each excavation. The work assignment for September 22, 2005, was to purge the argon line, lock it out, and cut it. The argon line was vented and purged with compressed air. The pipe fitter then cut the 2-inch argon line in one of the excavations prior to the lockout/tagout being installed.

After cutting the first section of the argon line, the pipe fitter moved to the other excavation to cut the other section of the argon line. The pipe fitter inadvertently cut the propane line instead of the argon line. He smelled propane gas and immediately stopped cutting and notified his foreman. The propane line was isolated and vented, but not purged or locked out.

The event was declared a Group 2 Personnel Safety and Health, Subgroup C Hazard Energy Control, Significance Category 3 occurrence, which is "Failure to follow prescribed hazardous energy control process (e.g., lockout/tagout)."

As a result of this event, an earlier lockout/tagout violation (batch plant), and an electrical shock event during the week, the BNI Manager of Construction suspended all work at the construction site on Thursday, September 22, 2005, at 4:40 pm and directed all craft and non-manual employees to leave the site prior to 5:00 pm, the normal end of shift.

BNI called both the Central Washington Building Trades Council and the Hanford Advisory Board to seek input and participation in the fact-finding and review of the incidents that led up to the suspension. Representatives from nine unions meet with BNI management for over 18 hours on September 23rd, 24th, and 25th to develop a list of near term actions that must be completed and a set of conditions that must be met prior to resumption of work.

Near term (NT) actions were:

NT1) Complete an incident investigation for the LOTO violation.

NT2) Complete the investigation into the assured grounding protective features of the underground electrical systems.

NT3) Union representatives to interview the pipe fitter apprentice who cut the argon and propane lines.

NT4) Interview the piping superintendent who was directing the work on Thursday to determine if he conducted the required pre-job briefing prior to starting the work, and if he directed the work to proceed prior to the LOTO process being completed.

NT5) Develop a compensatory measure to add increased oversight and checks for all Construction facility and utility work on commissioned systems which require LOTO, including permanent facilities which are being used by construction (i.e. Administration building, Warehouses, and maintenance shops). All modifications, revisions, and maintenance on systems that have been or are currently in service must go through a more rigorous process prior to release by supervision to proceed with these activities. The compensatory measures must create more worker involvement in the job hazard analysis phase and in the final checks of the clearance boundaries prior to supervision authorizing the work to proceed.

Long-term (LT) actions identified were:

LT1) Form a committee to study and recommend minimum standards for knowledge, skill and understanding of foreman, general foremen, and superintendents. Consider practical and written test to confirm the individual meets the minimum standards. Evaluate all future leaders to this standard, test all current leaders to this standard, and close any gaps identified, and train all future leaders to the new standards.

LT2) Form a committee and evaluate the effectiveness of project training to provide the knowledge needed to work on and around live utility systems. Consider practical and written testing to confirm the craftsmen assigned to this type of work have the prerequisite knowledge, skill, and understanding before assigning them to infrequently performed activities and to work involved in previously energized systems.

LT3) Form a committee to review the current Job Hazard Analysis (JHA) process and develop a new process to perform future JHAs with a high level of craft involvement.

LT4) Use the new JHA process and have craft committees review all previously prepared and currently in progress JHAs.

LT5) Form a committee to design and implement a new work control process for construction facilities and utilities to assure that all infrequently performed, off normal, non routine, and hazardous work is evaluated by a team of employees to assure that all safety and risk aspects of the work are considered prior to work commencing. This new process must address work control, configuration management, hazard analysis, procedure compliance, and planning to assure that all necessary steps are taken to create a safe envelope within which craft can perform the work to the existing procedures and processes.

LT6) Form a committee to study the project work rules that are used to discipline the craft for safety infractions and the human resources policies which are used to discipline the non-manual employees for similar violations. Make recommendations to assure that safety infractions are dealt with firmly, fairly, consistently, and quickly.

Craft workers returned to the site on Monday, September 26, 2005. Union leaders meet with each trade to reiterate and emphasize the importance of safety to each of their members. BNI management concurrently met with all non-craft workers to deliver the same message. The Craft participated in a job clean up, "roll back" of all cords and hoses, and return of tools/materials not currently required on the site the remainder of the day.

The investigation into the Near Term items (NT 1, 2, 3, & 4) was completed and no new data was discovered that would change the understanding of the issues. Therefore, work at the WTP construction site resumed on Tuesday, September 27, 2005, at 1:00 pm following a series of morning briefings to all site personnel by the BNI Manager of Construction. The resumption was limited to general construction activities, while ALL activities requiring hazardous energy isolation (lockout/tagout) remain suspended. As the compensatory measures (NT 5) are enacted,

work will be incrementally authorized. See Inspection Report A-05-AMWTP-RPPWTP-004-05 for release of the batch plant from the LOTO suspension.

The WTP startup organization has assumed the responsibility for the lockout/tagout program. In assuming that responsibility, the LOTO procedure was revised, the energy isolation process has been integrated with the construction work control process, and lockout/tagouts are issued from a single point.

Identified Causal Factors:

1.) ISMS Core Function #2, Identify and Analyze Hazard.

The hazard of inadvertently cutting the wrong line, propane, was not identified to the craft conducting the work.

2.) ISMS Core Function #2, Identify and Analyze Hazard.

The Job Hazard Analysis utilized for this process did not adequately address the hazard of the job.

3.) ISMS Core Function #3, Develop and Implement Hazard Controls.

The controls for safely cutting the argon line were properly developed, but not implemented. The Lockout/Tagout process was not implemented prior to starting work.

4.) ISMS Core Function #3, Develop and Implement Hazard Controls.

Controls were not adequately put in place to ensure only the argon line was cut. Lay out of each AWP line was not done. If the Scope of work was followed as specified in the work package, the lines would have been properly identified.

5.) ISMS Core Function #4, Perform Work Within Controls.

Because the identified hazard controls were not implemented, supervision failed to ensure the work was performed within the controls developed and specified in the work package.

6.) ISMS Guiding Principle #1, Line Management.

Supervision failed to implement and utilize the ISMS process.

7.) ISMS Guiding Principle #2, Clear Roles and Responsibilities.

The roles, responsibilities, and expectations were not adequately defined by the discipline superintendent.

8.) ISMS Guiding Principle # 3, Competence Commensurate With Responsibility.

The General Forman, Foreman, and workers were not aware of the requirement to isolate the argon line utilizing the Lockout/Tagout process.

9.) ISMS Guiding Principle # 3, Competence Commensurate With Responsibility.

The temporary Pipefitter foreman assigned to complete the task of relocating the AWP lines was not adequately briefed to the requirements work package.

10.) ISMS Guiding Principle #4, Balance of Priorities.

The field superintendent failed to balance his priorities by not communicating the requirements specified in the work package.

11.) ISMS core function #1, Define the Scope of Work.

The Scope of work to purge and relocate the AWP lines was not completely understood by all workers involved. The Superintendent failed to conduct a pre-job briefing prior to the start of the work.

12.) ISMS Core Function #2, Identify and Analyze Hazard.

Ensuring the Argon line was properly isolated. locked, and tagged prior to the start of work, was not identified by field supervision or craftsman.

Identified Direct Cause:

Failure to comply with the LOTO procedure.

Corrective Actions:

For contributing causes 1, 4, 5, 7, 9, 10, and 11, the corrective action was to require all jobs associated with a work package to have a pre-job meeting prior to the start of work. Foreman are not allowed to check out the work package until the pre-job meeting is completed. The Facility Representative attended numerous pre-job meetings the past month to verify the meetings were conducted and the work package was addressed in sufficient detail.

A specific JHA was developed for each job associated with construction facilities and utilities involving the LOTO process and discussed at the pre-job meeting for the work package (Contributing Cause 2).

A checklist was developed to ensure all systems are adequately isolated, locked, and tagged prior to personnel being exposed to hazardous energy. For work involving locking and tagging a system, the responsible Superintendent and a Safety Assurance representative sign the check list prior to the start of work (Contributing Causes 3 and 12 and NT 5).

All supervision attended ISMS retraining (Contributing Cause 6).

All Pipefitters and Superintendents in the BOF were retrained to the current revision of the LOTO procedure. This was accomplished by required reading with a question and answer session (Contributing Cause 8).

Lessons Learned:

A specific JHA needs to be developed for tasks involving lockout/tagout. Supervision shall ensure all new and temporary foreman or craft personnel are adequately informed of their

responsibility to current work activity. Personnel completing the STARRT process and STARRT card are informed of all hazards involved in completing the assigned task. Ensure personnel involved in lockout/tagout are properly trained to the lockout/tagout requirements. A pre-job briefing, which includes the information contained in the work package, needs to be conducted prior to the start of work.

Conclusions:

All activities requiring hazardous energy isolation (lockout/tagout) remain suspended at the completion of this inspection note. LOTO work is being released on a case by case basis using Partial Work Resumptions (revisions to the Management Suspension of Work) authorized by the Manager of Construction and Construction Operations Manager until the committees developing the long-term solutions have completed their recommendations and revised the system. Revision 3 of the Management Suspension of Work authorized the propane work to proceed based upon completion of the corrective actions addressed above. The Facility Representative verified the startup organization has assumed the responsibility for the LOTO program, LOTOs were properly administered, training to the revised LOTO procedure was completed, pre-job brief verification occurred, and the corrective actions were completed for the reroute the AWP lines work package prior to work commencing. The Facility Representative followed the work to completion and observed strict compliance to the work controls.

Submitted By: Jeff Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X_ **Quality Class:** ITS___ BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-28

Facility Representative Name: Jeff Bruggeman **Dates of Inspection:** October/November 2005

Items Inspected:

The Facility Representative reviewed the technical requirements and witnessed the drilling, rebar placement, anchor bolt installation, concrete placement, and testing of the piers for the utility racks.

Documents Reviewed:

- Engineering Specification 24590-BOF-3PS-CE01-T0002, *Installation of Drilled Shafts & Cast-In-Place Caissons*, Revision 0, dated December 16, 2004.
- Engineering Specification 24590-BOF-3PS-PA01-T0002, *Furnishing of Anchor Bolts (Rods)*, Revision 2, dated January 18, 2005.
- Subcontractor Submittal 24590-CM-HC3-MQEE-00001-06-00013, Malcolm Drilling Co., Inc., *Axial Tensile Load Test Procedure*, release date of October 20, 2005.
- Subcontractor Submittal 24590-CM-HC3-MQEE-00001-05-00002, Malcolm Drilling Co., Inc., *Execution Plan*, release date of October 17, 2005.
- Subcontractor Submittal 24590-CM-HC3-MQEE-00001-06-00012, Malcolm Drilling Co., Inc., *Evidence of Casing Adequacy*, release date of October 20, 2005.
- Subcontractor Submittal 24590-CM-HC3-MQEE-00001-06-00001, Malcolm Drilling Co., Inc., *Drilled Pier Installation Summary Report*, release date of September 26, 2005.
- Exhibit "D" Construction Subcontract 24590-CM-HC3-MQEE-00001, *Pipe Rack Foundations*, Revision 0, dated June 23, 2005.
- American Concrete Institute ACI 336.3R-93, *Design and Construction of Drilled Piers.*
- American Society For Testing and Material ASTM D 3689-90, *Standard Test Method for Individual Plies Under Static Axial Tensile Load.*
- Drawings 24590-BOF-DB-S13T-00021 through 00035, *Balance of Facilities Utility Rack*, latest revision.
- Field Inspection Report 24590-CM-HC3-MQEE-00001, Report Numbers 00001 through 00010.

Assessment:

Forty-four piers were released for installation to Malcolm Drilling Co., Inc. during this phase of construction. The piers were located between the LAW and HLW Facilities and south of the LAW Facility extending to the Glass Former Storage Building. BNI performed the surveying (both layout and anchor bolt verification); supplied the anchor bolts, rebar, and concrete; and

performed radiological surveys on the soil removed from the pier holes. Receipt inspections were verified on the rebar and anchor bolts by the Facility Representative.

Malcolm drilled the piers to the specified depths; fabricated and installed the rebar cages; placed the concrete; and installed the anchor bolts. Pier records were completed for each pier providing pier identification and location (northing & easting); date and time pier excavation was started; pier diameter per contract drawings; pier diameter as constructed; ground surface elevation; top elevation of pier concrete per contract drawings; top elevation of pier concrete as constructed; bottom of pier elevation per contract drawing; bottom of pier elevation per constructed; lineal feet of drilling; details of any obstructions encountered during drilling; details of any cavities found during drilling; comments on water conditions; date and time excavation was completed; date and time concrete was placed; volume of concrete placed (with batch number); other comments; and details of construction equipment and method used. All shafts were drilled within tolerances, centralizers were used to center the reinforcing cages in the pier excavation, concrete was placed by tremie method (only upper five feet required vibration), and anchor bolts were set in jig arrangements on the top of the split casing form work, maintaining exact dimensions.

An axial tensile load test was performed on two piers as designated by the contract drawings (numbering approximately 2% of the production piers) in conformance with ASTM D 3689 as follows:

- Standard load procedure was used to apply 200 percent of the design load specified on the drawings.
- Load was applied by a single hydraulic jack acting against a support frame.
- Load was measured with a primary load cell and a secondary system of calibrated jacks and hydraulic pressure gages.
- Uplift of the pier was measured with a primary system of dial gages supported by a reference beam and by a secondary system of wire, mirror, and scale.
- A test report was generated for each test.

Uplift of both piers was less than 1/16 inch; up to ¼ inch is acceptable.

Low-strain sonic testing was performed on approximately 10 percent of the installed piers to evaluate pier integrity. The sonic testing was performed by Lachel Felice & Associates, a contractor specializing in low-strain sonic testing of drilled piers.

Conclusions:

The Facility Representative concluded the piers were installed within tolerances, tested per specifications, and documented adequate oversight was performed by BNI.

Submitted By: JM Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF__, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-29

Inspector Name(s): Brian Harkins **Dates of Inspection:** November 2005

Item(s) Inspected:

Review of construction site Safety Bulletins to ensure any requirements contained in the safety bulletins have been subsequently placed in BNI procedures as applicable.

Program Documents Reviewed:

- Safety Bulletin, June 15, 2005 – *Gravlock Beam Clamps*
- Safety Bulletin, September 26, 2005 – *Dropped Drill Battery*
- Safety Bulletin, August 16, 2005 – *Lessons Learned for Fallen Bull Pin from Scabbard*
- Safety Bulletin, September 15, 2005 – *Subcontractor worker falls through shrink wrap*
- Safety Bulletin, 2005 – *Electrical Hazard*
- Safety Bulletin, June 27, 2005 – *Electrical labeling issues*
- Safety Bulletin, July 25, 2005 – *Assured Grounding*
- Safety Bulletin, May 10, 2005 – *PT dropped tool incident*
- Safety Bulletin, September 1, 2005 – *Concrete Pour Activities*
- Safety Bulletin, May 4, 2005 – *Changes to completed work*
- Safety Bulletin, August 31, 2005 – *Solar Truck Pack Explosion*
- Safety Bulletin, May 9, 2005 – *Barricade Requirements*
- Safety Bulletin, June 6, 2005 – *Awareness of Energized Electrical Lines*
- Safety Bulletin, August 15, 2005 – *Flap wheel defects*
- Safety Bulletin, August 1, 2005 – *Tie Wire*
- Safety Bulletin, June 14, 2005 – *Equipment operation*
- Safety Bulletin, July 20, 2005 – *Skip Boxes*
- Safety Bulletin, January 25, 2005 – *Safe Lifting, Pushing, & Pulling*
- Safety Bulletin, September 15, 2005 – *Foreign material in a worker's eye*
- Safety Bulletin, July 14, 2005 – *Meningitis*
- Safety Bulletin, May 9, 2005 – *BOF Excavation Incident*
- Safety Bulletin, January 5, 2005 – *Preventing Damage to Permanent Plant Light Fixtures*
- Safety Bulletin, September 7, 2005 – *Lesson Learned Regarding Excavation*
- Safety Bulletin, July 18, 2005 – *Lacerated Fingers & Crane Damages Trailer*
- Safety Bulletin, August 25, 2005 – *Retractable life line causes worker to fall*
- Safety Bulletin, February 10, 2005 – *Information on Sentry RAE Area Monitors*
- Safety Bulletin, September 7, 2005 – *Hand Protection (PPE)*
- Safety Bulletin, March 2, 2005 – *Hearing Loss Prevention*

- Safety Bulletin, August 30, 2005 – *Changes with safe work practices involving leading edge work*
- Safety Bulletin, September 6, 2005 – *GFCI's*
- Safety Bulletin, September 28, 2005 – *Call before you dig or drive requirements*
- 24590-WTP-JHA-CON-03-009A, rev 0, *Welding Operation JHA*

Remarks/Comments:

The inspector reviewed Safety Bulletins for the calendar year 2005 to date to determine if applicable requirements contained in the safety bulletins were subsequently placed in BNI procedures. This review was done because the inspector was reviewing the events surrounding the potential over exposure of a CB&I welder to hexavalent chrome (Occurrence Report EM-RP--BNRP-RPPWTP-2005-0028) and found the requirement to wear a ½ face respirator for stick welding on stainless steel had been issued in multiple safely speaking bulletins but never incorporated into a site procedure or welding Job Hazard Analysis (JHA) (JHA-CON-03-009A).

The inspector found three safety bulletins, out of the 30 bulletins reviewed, contained requirements as opposed to just communicating general information to the workers:

- The March 2 bulletin communicated hearing loss prevention information, including requirements for wearing double hearing protection for some specific activities.

- The August 30 bulletin communicated changes to the OSHA requirements for warning lines protecting leading edge work.

- The September 6 bulletin communicated the OSHA requirement for resetting breakers.

The requirements listed in the above three safety bulletins were not incorporated into site procedures or JHA's.

This indicates BNI needs to ensure requirements are both communicated in a timely manor (e.g. Safety Bulletins) and captured in the appropriate procedure and/or JHA. It is important to make timely notifications to workers of requirements that have changed or that have not been adequately incorporated in procedures to ensure worker safety. It is also important to follow up the safety bulletin by incorporating the requirements in the applicable procedure and/or JHA. This ensures that personnel are working to the correct requirements and that personnel who are hired after the safety bulletin was issued will also receive training on the requirement.

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB_X__ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-30

Inspector Name(s): MD Evarts **Dates of Inspection:** November 3, 2005

Item(s) Inspected:

The inspector performed a pre-placement inspection including verification of forms, rebar, embedment, embedded drain piping, and electrical grounding (FRE) installation for placement of LAB slab 0019.

Design/Installation Documents Reviewed:

Concrete Pour Card – ACC-0019.

Specification - 24590-WTP-3PS-D000-T0001, *Engineering Specification for Concrete Work,* Revision 6, dated September 23, 2004.

The inspector reviewed primary structural design documents listed in the above Concrete Pour Card for the slab placement. Other drawings referenced on the primary drawings were also used for the inspection.

Adequacy of Final Records:

At the time of this inspection, the Contractor had signed the appropriate attributes on the Concrete Pour Card.

Conclusion:

The inspector concluded the Contractor installed reinforcement, embeds, electrical grounding, and piping in an acceptable manner in accordance with the above design requirements.

Submitted By: _MD Evarts___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

Conclusion:

The inspector concluded BNI had failed to capture essential requirements from Safety Bulletins in applicable procedures and/or JHA's. BNI has agreed that the requirement for warning lines for leading edge work will be placed in a procedure and that the welding JHA has been revised to require ½ face respirators for stick welding on stainless steel. BNI determined the breaker resetting requirements and requirements for double hearing protection are adequately implemented. The inspector will continue to review safety bulletins for requirements and verify that the requirements are incorporated in the appropriate procedure.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: November 16, 2005 **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB__X_ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-31

Inspector Name(s): MD Evarts **Dates of Inspection:** November 7, 2005

Item(s) Inspected:

The inspector witnessed the concrete placement, testing, and consolidation of concrete for LAB basemat #0019, Concrete Pour Card ACC-0019.

Design/Installation Documents Reviewed:

- 24590-WTP-3PS-D000-T0001, *Engineering Specification For Concrete Work,* Revision 6, dated September 23, 2004.
- 24590-WTP-3PS-DB01-T0001, *Engineering Specification For Furnishing and Delivering Ready-Mixed Concrete,* Revision 7, dated October 12, 2004.
- 24590-BOF-3PS-C000-T0001, *Engineering Specification For Material Testing Services,* Revision 3, dated May 25, 2004.
- 24590-WTP-GPP-CON-3203, *Concrete Operations (Including Supply),* Revision 9, dated June 22, 2005.

Work Activities:

For the placement listed above, the inspector observed field engineering staff performing concrete receipt activities and observed their review of the batch tickets, as required by Section 3.11.2 of *Concrete Operations (Including Supply).* The inspector concluded these activities were performed in accordance with established requirements.

The inspector observed the Materials Testing subcontractor field technicians performing concrete receipt activities, observed the review of batch tickets, and observed recording of information required by Section 3.2.1 of the *Engineering Specification for Material Testing Services.* The inspector concluded these activities and documents were performed or completed in accordance with the specification.

The inspector examined the conduct of testing for concrete temperature, slump, and unit weight, and observed filling and capping the 6-inch by 12-inch compressive test cylinders, and the field storage of the test cylinders for the placements identified above. The inspector concluded the Material Testing subcontractor technicians were performing these testing activities in accordance

with their procedures, the applicable American Society for Testing and Materials (ASTM) standards, and Contractor's specifications.

The inspector witnessed the placement of concrete, for the placement listed above, and concluded the concrete was being produced, placed, consolidated, and tested in accordance with procedures, specifications, and required codes and standards. The inspector concluded the Contractor was conforming to the maximum 24-inch lift height, as required by Section 3.7.4 of *Engineering Specification for Concrete Work*. The inspector observed the 3 or 4 vertical foot per hour maximum placement rate, established by the panel manufacturer, was being maintained. The process also ensured the concrete did not exceed the maximum free fall distance, as outlined in Section 3.7.1 of *Engineering Specification for Concrete Work*.

Adequacy of Final Records:

The inspector examined the above listed Concrete Pour Card for the placement observed, and concluded the required signatures were in place prior to the start of the placement.

Conclusion:

The inspector concluded the Contractor was batching, placing, consolidating, and testing concrete in accordance with engineering specifications and the SRD.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP_X__

Dangerous Waste Permit Affecting: Yes_X_No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-32

Inspector Name(s): MD Evarts **Dates of Inspection:** November 1-30, 2005

Item(s) Inspected:

The inspector witnessed pressure testing (hydrostatic or pneumatic) at various locations within the PTF facility during the month of November 2005.

Design/Installation Documents Reviewed:

ASME B31.3, 1996

Procedure – 24590-WTP-GPP-CON-3504, *Pressure Testing of Piping, Tubing, and Components,* Revision 5, dated November 7, 2005.

Acceptability of Material Being Used:

The inspector verified piping material or installed correct spool in accordance with the piping codes referenced on the pressure test data sheet list below.

Work Activities:

The inspector verified the proper test boundaries were specified, valve line-ups were thorough, and the required test parameters had been specified. The inspector verified the calibration of the pressure gauge was current, the appropriate calibration stickers were affixed, and the gauge range conformed to the requirements of the above procedure. The inspector observed the conduct of hydrostatic/pneumatic testing in accordance with the Contractor's established requirements and the applicable code. The inspector verified the system tests conformed to established requirements regarding leakage and time at pressure.

If the listed test below is a Dangerous Waste Permitted system, the inspector verified the test was performed acceptable in accordance with the permit.

The inspector witnessed the following pressure tests:

- 24590-PTF-DSTR-CON-05-0025, 8" & 6"- PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0024, 8" & 6"- PWD Plant Wash & Disposal System

Adequacy of Final Records:

The inspector reviewed the final pressure test report and concluded the report was completed acceptable.

Conclusion:

The inspectors concluded the Contractor had accomplished hydrostatic/pneumatic testing of the above listed pressure tests in accordance with established requirements.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-33

Inspector Name(s): Debra Wallace **Dates of Inspection:** November 1-16, 2005

Item(s) Inspected:

The inspector reviewed the permanent plant electrical installation program for cable installation to ensure a standard work process exists for the planning, installation, monitoring, and inspection of electrical cable at the WTP site.

Design/Installation Documents Reviewed:

24590-WTP-GPP-CON-3304, *Electrical Cable Installation,* Revision 1, dated September 12, 2005.

24590-WTP-3PS-E00X-T0004, *Engineering Specification for Installation of Cables in Conduit and Cable Tray,* Revision 3, dated March 01, 2005.

24590-WTP-GPG-E-001, *Setroute Work Process,* Revision 2, dated December 16, 2004.

24590-WTP-GPP-CON-3301, *Electrical Equipment Installation,* Revision 1, dated September 12, 2005.

NFPA 70 National Electrical Code, Edition 1999

Construction Work Package BEC0006.

Construction Work Package BEC0007.

Set Route Cable Installation Card, Record Number 24590-BOF-SCC-E-05-0017, Revision 2.

Set Route Cable Installation Card, Record Number 24590-BOF-SCC-E-05-0029, Revision 1.

Set Route Cable Installation Card, Record Number 24590-BOF-SCC-E-05-0081, Revision 0.

Work Activities:

The inspector reviewed the implementation of the above procedures, attended a dry run of the cable pulling operation, attended a pre-job/JHA briefing, and observed cable pulls per the requirements of Construction Work Package BEC0006 & BEC0007.

The craft foreman and the responsible field engineer (RFE) verified the following attributes prior to the cable pull:

- Raceways were complete, adequately supported and properly identified.
- Cable route was free of debris and sharp edges.
- Sheaves and rollers met the minimum cable bending radius requirements.
- Cable to be installed matched cable code on Setroute cards, was the correct size, type, rating and free of damage. Cable ends were sealed.
- Cable was marked with temporary cable identification label and phase marking.

The foreman verified the following attributes during to the cable pull:

- Proper pulling method.
- Pull tensions were not exceeded.
- Routing was correct.
- Bend radius was not exceeded.

Megger Testing will be performed and documented on cable termination setroute card.

Adequacy of Final Records:

Final acceptance is not complete at this time. Setroute cards are controlled within the Construction Work Package.

Conclusion:

The inspector verified the Contractor installed the cable per the Installation Plan, Electrical Installation Procedure, applicable Setroute Cable cards, design drawings, and Manufacturer's instructions. Craft personnel were knowledgeable of the requirements identified in the work package and their responsibilities for a successful cable installation.

The above procedures implement the standard work process meeting the contract requirements, the Safety Requirements Document (SRD) and the National Electrical Code for installing, controlling, documenting, inspecting, and testing of permanent plant electrical cables.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X__ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes___ No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-34

Inspector Name(s): RI Taylor **Dates of Inspection:** November 7, 2005

Item(s) Inspected:

The inspector performed a review of the preservation and maintenance provisions of the BOF centrifugal air compressors for closure of assessment follow-up item A-05-AMWTP-RPPWTP-002-A13 from Inspection Note A-05-AMWTP-RPPWTP-002-65. During the previous inspection BOF Centrifugal Air Compressors PSA-CMP-00001A, 00001B, 00001C, and 00001D were found to not have in place an acceptable long-term preservation and maintenance program. During this review the inspector performed an inspection of completed work orders retrieved from project document control (PDC) and new maintenance procedure revisions, and performed a walk down of the equipment to assure compliance to the recommended maintenance requirements.

Design/Installation Documents Reviewed:

24590-CM-POA-MCCA-00001-10-00010, *Atlas Copco Long Term Storage Procedure WI-108,* Revision 7, dated August 17, 2005.

24590-WTP-GPP-CON-6201, *Equipment Preservation and Maintenance*, Revision 4, dated June 29, 2005.

24590-WTP-GPP-CON-3607, *Operation of Systems Under Construction Custody*, Revision 2, dated November 1, 2005.

24590-WTP-GPP-CON-3106, *Construction Deficiency Reporting & Control,* Revision 5, dated December 29, 2004.

24590-WTP-CDR-CON-05-0228 *Construction Deficiency Report.*

24590-WTP-PWO-CMNT-05-0991, *Work Order.*

24590-WTP-PWO-CMNT-05-0995, *Work Order.*

24590-WTP-PWO-CMNT-05-0996, *Work Order.*

24590-WTP-PWO-CMNT-05-0997, *Work Order.*

24590-WTP-PWO-CMNT-05-1045, *Work Order.*

24590-WTP-PWO-CMNT-05-1053, *Work Order.*

24590-WTP-PWO-CMNT-05-1057, *Work Order.*

Equipment Preservation and Maintenance Implementation:

An assessment follow-up item had been assigned to track the Contractor's actions to establish and implement preservation and maintenance requirements for the BOF Centrifugal Air Compressors (A-05-AMWTP-RPPWTP-002-A013).

The inspector obtained from document control work order 0966 for one of the BOF Centrifugal Air Compressors. The inspector determined the work had been scheduled and performed during the week of September 11, 2005; however, the year 2004 was incorrectly entered on the form in the performed by block. This work order had been reviewed and approved.

The inspector found a note on work order 0997, a monthly verification, performed on September 13, 2005, stating the compressor oil heater was not energized. However, construction did not initiate a CDR at that time. The same issue was noted on work order 1057, a weekly verification, dated October 3, 2005. The requirement from the approved long-term storage procedure stated, the oil heater *must* be energized in a manner that the oil temperature is maintained between 70F and 150F at all times to prevent condensation. To-date the issue is still open and the heaters are not energized. Following inspector discussions with the Contractor, a Construction Deficiency Report (CDR) for each listed compressor was issued by the Contractor, as required by the referenced equipment preservation and maintenance procedure.

The inspector noted prior to the heater's power being disconnected; there were no entries on the completed work orders on how the temperatures were to be verified or what temperatures were required to be verified.

The inspector determined the Atlas Copco qualified serviceman had not been called to the WTP site within 6 months of delivery of the equipment to witness/inspect maintenance, to maintain warranty status. This is a stated requirement of the approved long-term storage procedure. The loss of power to the compressors may put the warranties in jeopardy of being voided.

The inspector determined the compressors had been filled with rust inhibiting oil.

The inspector determined the temporary power had been secured to the compressor panel due to a violation of electrical clearance distances. Electrical clearance of three feet in front of the main panel could not be achieved due to scaffolding interferences. During this inspection, the site was undergoing lock and tag safety issues that prevented a timely solution to the electrical problem.

Conclusion:

Although, the inspector found improvements in the area of preservative maintence there remained an underling impression that equipment entered into the program were not being maintained per approved procedures. Revisions to the preservative maintenance procedure have streamlined the process for generation of work orders to document the required maintenance.

The actions taken to address an electrical clearance problem, isolating power to BOF Centrifugal Air Compressors, indicated a significant disregard for the long-term care of this equipment. Furthermore, when the discrepancy was noted on the work order, implementation of follow up actions to document and address the discrepancy was unacceptable. CDRs were note generated until prompted by the ORP inspector, nearly two months after the condition was reported on the work order.

In addition, work orders were not specific enough regarding what was required by the long-term storage procedure. Specifically specified temperature ranges for compressor oil needed to be verified. The work order required only that the oil heaters be energized.

In light of the above poor performance, the inspector is closing assessment follow up item **A-05-AMWTP-RPPWTP-002-A13**, and issuing a Finding for failure to implement Contract requirements regarding maintaining plant equipment (Contract DE-AC27-01RV14136, Section I.88, FAR 52.245-5, section (a) *Property administration,* subsection (2)). Specifically, not maintaining the BOF Centrifugal Air Compressors in accordance with 24590-CM-POA-MCCA-00001-10-00010, *Atlas Copco Long Term Storage Procedure WI-108,* Revision 7 (**Finding A-05-AMWTP-RPPWTP-004-F03).**

Submitted By: _RI Taylor___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-35

Inspector Name(s): Debra Wallace **Dates of Inspection:** November 9, 2005

Item(s) Inspected:

Inspection of 25 KVA Mini Load Centers MLC-044 fabricated for temporary power for various locations in the LAW.

Design/Installation Documents Reviewed:

2002 National Electrical Code.

Control of Temporary Electrical Installations, 24590-WTP-GPP-CON-3311, Revision 3, dated September 29, 2003.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace_ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW_X__ LAW_X_ LAB_X_ BOF_X__ **Quality Class:** ITS_X_ BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-36

Facility Representative Name: Jeff Bruggeman **Dates of Inspection:** November 1 - 9, 2005

Item(s) Inspected:

The Facility Representative reviewed the BNI Suspect/Counterfeit Items (S/CI) program implementation.

Documents Reviewed:

- DOE G 440.1-6, *Implementation Guide for use with Suspect/Counterfeit Items Requirements of DOE O 440.1*
- DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*
- DOE O 414.1A, *Quality Assurance*
- 24590-WTP-QAM-QA-01-001, Rev. 5a, *Quality Assurance Manual*
- 24590-WTP-GPP-GCB-00100_11, *Field Materials Management*
- 24590-WTP-3PS-G000-T0002, Rev. 7, *WTP Engineering Specification for Positive Material Identification*
- 24590-WTP-RPT-CN-01-004, Rev. 1, *Construction and Acceptance Testing Program*
- 24590-WTP-3DP-G06B-00001, Rev. 11, *Material Requisitions*
- 24590-WTP-GPP-MGT-013, Rev 4, *Acceptance of Procured Material*
- 24590-WTP-GPP-MGT-012, Rev. 5, *Control of Suspect/Counterfeit Items*
- 24590-WTP-GPP-CON-7110, Rev. 4, *Material Receiving Instructions*
- BNI RPP-WTP Quality Assurance Website
- Training Record – Construction Site, Required Reading 24590-WTP-GPP-MGT-012, Control of Suspect/Counterfeit Items
- Training Record – Construction Site, Course 24590-WTP-TNGC-G-03-000050, Suspect/Counterfeit Items

Field Work and Activities Observed:

- Walk down of construction site storage areas
- Tour of the Marshaling Yard

Personnel Interviewed:

- QC Management
- QA Management
- Field Engineers

- Supplier Quality Management
- Suspect Counterfeit Item Web Site Administrator
- QC inspectors
- Buyers
- Procurement Engineer
- Warehouse personnel
- Tool Room Supervisor
- Craft Workers
- Training Management

Discussion:

The Facility Representative reviewed BNI S/CI program implementation. The Facility Representative reviewed the applicable S/CI procedures, personnel training, and material receipt process used at the Waste Treatment Plant (WTP)Facility. The Facility Representative also reviewed BNI's handling of S/CI alerts/notices and conducted a walk down of the site looking for S/CI materials.

The Facility Representative found a good understanding of S/CI attributes at all personnel levels interviewed, from craft up to management. No S/CI material was found by the inspector during the site walk down.

Weakness found in the S/CI program implementation and documented in Inspection Report A-04-AMWTP-RPPWTP-001-53 were specifically evaluated during this inspection. The Facility Representative found evidence that S/CI alerts and notices were being adequately handled and disseminated; applicable BNI procedures required inspection of construction safety equipment; S/CI alerts and notices on construction safety equipment were being adequately handled and disseminated; and the BNI procedure changes were acceptable.

Conclusion:

The Facility Representative determined the Contractor had developed and was adequately implementing the Contract required S/CI program at the WTP.

Submitted By: Jeff Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW_X__ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-37

Inspector Name(s): RI Taylor **Dates of Inspection:** November 10, 2005

Item(s) Inspected:

The inspector performed a surveillance of welding activities at the -21" elevation of the Low Activity Waste Facility. The area of focus was RLD-VSL-00004 (Radioactive Liquid Waste Disposal System). Field welding was performed on 3" piping from the vessel to RLD Bulge-0001. The inspector reviewed the construction work package (CWP) document list for current revisions of piping isometrics listed on the field welding checklists (FWCL).

Design/Installation Documents Reviewed:

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April, 2005

24590-LAW-MX-RLD-00001001, *Equipment Assembly LAW-RLD C3/C5 Pump Bulge RLD-Bulge-00001,* Revision 0, dated May 22, 2002.

24590-LAW-P3-RLD ZF03415001, *LAW Vitrification Building Isometric,* Revision 0, dated September 17, 2003.

24590-LAW-P3-RLD ZF03414001, *LAW Vitrification Building Isometric,* Revision 0, dated September 17, 2003.

Construction Work Package, *CWP LPI0005.*

Acceptability of Material Being Used:

The inspector verified piping materials utilized to fabricate the piping, were acceptable to the isometric drawings listed on the Field Welding Checklist. The inspector verified welding materials were acceptable per the Field Welding Checklist.

Work Activities:

The inspector performed final alignment and final weld inspection for pipe spools to vessel and bulge Field Welding Checklists 24590-LAW-FWCL-CON-05-02083, 02084, 02085, and 02086.

Final welding and alignment were found acceptable. The inspector confirmed the required nondestructive examinations were performed as required.

Training and Qualification of Personnel:

From a review of the Contractor's welder qualification list, the inspector verified welder P-84 was certified to weld to the procedure listed on the Field Welding Checklists.

Conclusion:

The inspector concluded the welding activities noted above were performed and documented to the referenced requirements listed above.

Submitted By: _RI Taylor___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-38

Inspector Name(s): RI Taylor **Dates of Inspection:** November 14, 2005

Item(s) Inspected:

The inspector performed a surveillance inspection of completed liner plate installed within planning area 13W, room P-0117, located at 0'-0" el. of the Pretreatment Facility. Room P-0117 contains vessel, TLP-VSL-00009A (*Treated LAW Evaporation Process System*) and was only partially covered with liner plate.

Design/Installation Documents Reviewed:

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April, 2005

24590-PTF-DD-S13T-00060, *Pretreatment Facility Structural Liners Main Pit & Tunnel Plans,* Revision 5 dated July 8, 2004.

24590-PTF-DD-S13T-00066, *Pretreatment Facility Structural Liners, El. 0'-0", Base Mat Sh 2,* Revision 10, dated June 28, 2005.

24590-PTF-DD-S13T-00067, *Pretreatment Facility Structural Liners and Details Sh 1,* Revision 7, dated June 28, 2005.

24590-WTP-3PS-NLLR-T0002, *Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates,* Revision 1, dated December 31, 2003.

Work Activities:

The inspector verified the welding was continuous throughout the identified areas.

The inspector verified the liner plate as installed, was free of wrinkles, ripples or sharp discontinuities, per the listed specification.

The inspector verified the completed welds were free of slag, coarse ripples, and deep ridges and valleys, per AWS D1.6.

Conclusion:

The inspector concluded the liner plate was installed in accordance with the above listed requirements. The inspector verified liner plate was installed only in the east portion of room P-0177 between column lines 19 and 20; western portions of the referenced room were not covered with liner plate.

Submitted By: _RI Taylor___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_ HLW_X_ LAW_X_ LAB_X_ BOF_X__ **Quality Class:** ITS_X_ BOP_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-39

Facility Representative Name: Brian Harkins **Dates of Inspection:** November 2005

Item(s) Inspected:

The inspector reviewed the Contractor's preparations that ensure concrete placed during cold weather will have sufficient strength and durability to satisfy intended service requirements.

Design/Installation Documents Reviewed:

- Construction Guide 24590-WTP-GPG-CON-3213, *Cold Weather Concrete Placement,* Revision 0, dated January 9, 2003.
- Specification 24590-WTP-3PS-D000-T0001, *Concrete Work,* Revision 6, dated September 23, 2004.
- Specification 24590-WTP-3PS-DB01-T0001, *Furnishing and Delivering Ready-Mix Concrete,* Revision 7, dated October 12, 2004.
- Procedure 24590-WTP-GPP-CON-3203, *Concrete Operations (Including Supply),* Revision 7, dated June 22, 2005.
- Construction Guide 24590-WTP-GPG-CON-3212, *Concrete Placement,* Revision 2, dated October 7, 2004.
- Subcontractor Submittal 24590-QL-HC1-DB50-00001-21-20, Central Pre-Mix Concrete Co. (CPM) Implementing Procedure *Cold Weather Concrete, Batch Plant, WTP/RPP,* Revision 00C, approved August 24, 2004.

Acceptability of Material/Equipment Being Used:

Equipment at the batching plant was installed and tested to ensure concrete will be produced at the specified rates and temperatures in accordance with the *Furnishing and Delivering Ready-Mix Concrete* specification when the air temperature is as low as minus 10 °F. Heated mix water was available, a system to pre-heat aggregates was operational, and admixtures were stored in heated spaces.

Work Activities:

The nominal thicknesses of the concrete placements were being reported at the Daily Concrete Scheduling Meeting to determine the minimum concrete temperature as mixed for the indicated air temperature. Blankets and/or heaters were available to minimize the loss of heat during the concrete placement/curing and to maintain minimum temperature for forms/embedded items/rebar prior to concrete placement. Issues with the propane system testing in the PT building are being addressed before scheduling concrete placement requiring heating. Temperature monitoring equipment and documentation forms were in place. Since actual

concrete strength gain for cold weather concrete may be slower than that of the laboratory cured samples, field cured cylinders will be required to allow for the safe removal of structure supporting forms and shoring. Insulated boxes were in place for the field cure cylinders. The winterization of the batch plants were field verified by the Contractor and the inspector and found to be acceptable.

The inspector reviewed HLW slab 1039 preparations for cold weather placement. The day before the placement the placement area was covered with curing blankets and they had electric heaters down in the rebar. On the day of the placement, the workers were only uncovering areas when they were ready to place concrete. They were using a weed burner to heat embeds and rebar. Field engineering was taking the temperature of rebar and embeds to ensure they maintained the temperature in accordance with the cold weather concrete placement guide (GPG-CON-3213).

Remarks/Comments:

The inspector concluded the Contractor had adequate concrete procedures, controls, and equipment in place in terms of production, placement, curing, and protection for cold weather concrete.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-40

Inspector Name(s): Debra Wallace **Dates of Inspection:** November 15, 2005

Item(s) Inspected:

The inspector performed a surveillance inspection of installation in progress on 20-amp GFCI receptacles and 8' fluorescent fixtures in room WT-0101 at the Water Treatment Building 86.

Design/Installation Documents Reviewed:

1999 National Electrical Code.

24590-CM-FC3-AKBP-00001-61-00033, *BOF Water Treatment Building 86, 100% Design Drawing – Electrical – Lighting Plan (Drawing BOF-86-E-03),* Revision C, dated September 12, 2005.

24590-CM-FC3-AKBP-00001-61-00031, *BOF Water Treatment Building 86, 100% Design Drawing – Electrical – One-Line Diagram, Notes and Legend (Drawing BOF-86-E-01),* Revision C, dated September 12, 2005.

24590-BOF-3PS-G000-T0001, *Engineering Specification for Performance Specification for the Water Treatment Building,* Revision 0, dated December 19, 2002.

24590-CM-FC3-AKBP-00001-69-00006, Project *Specification – Water Treatment Building 86 – Project Specification 100%,* Revision 00C, dated October 13, 2005.

Conclusion:

The inspector discussed the following deficiencies with the Contractor:

1. Performance Specification section 16050 paragraph 3.4(A) states "Lighting and receptacle conductors shall be solid copper with Type XHHW insulation."

   The sub-contractor was installing stranded #12 AWG type XHHW conductors for lighting and receptacle circuits, thus complying with their Project Specification 24590-CM-FC3-AKBS-0001. There is a conflict between the two Specifications. Although the Contractor's Performance Specification is not part of the Subcontract, it is still an approved active engineering specification.

The Contractor cancelled the Performance Specification for the Water Treatment Building (reference 24590-BOF-3PS-G000-T0001, Revision 1, dated December 19, 2005). This resolves this issue.

2. Drawing BOF-86-E-01, Legend #2 requires the installations to comply with the requirements of the National Electrical Code (NFPA 70, latest edition).

   A conflict exists between the above drawing and the Performance Specification (section 16050 paragraph 1.2) and Project Specification (section 16010, paragraph 1.02). The specifications require the 1999 edition of the NEC versus the latest edition required by the drawing.

   The subcontractor issued Engineering Change Directive ECD-018 revising Note 2 on drawing BOF-86-E-01 from "NFPA 70, Latest Edition" to "NFPA 70, 1999 Edition". The Contractor tracked this item through the RITZ process (Item #24590-WTP-RITS-QAIS-05-1184) until closure - December 9, 2005. This resolves this issue.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW_X__ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-41

Inspector Name(s): MD Evarts **Dates of Inspection:** November 14, 2005

Item(s) Inspected:

The inspector performed a pre-placement inspection including verification of forms, rebar, embedment, and electrical conduit (FRE) installation for placement of HLW Slab 1039.

Design/Installation Documents Reviewed:

Concrete Pour Card – HLW1039.

Specification - 24590-WTP-3PS-D000-T0001, *Engineering Specification for Concrete Work,* Revision 6, dated September 23, 2004.

Specification – 24590-WTP-3PS-DB01-T0001, *Engineering Specification for Furnishing and Delivering Ready-Mix Concrete,* Revision 7, dated October 12, 2004.

The inspector reviewed primary structural design documents listed in the above referenced Concrete Pour Card for the slab placement. Other drawings referenced on the primary drawings were also used for the inspection.

Acceptability of Material Being Used:

The inspector verified the correct type of re-steel material being installed was acceptable in accordance with the above specification.

Adequacy of Final Records:

At the time of this inspection, the Contractor had filled out and signed the appropriate attributes on the Concrete Pour Card acceptable in accordance with the above concrete procedure.

Conclusion:

The inspector concluded the Contractor installed reinforcement, embeds, and electrical conduit in an acceptable manner in accordance with the above design requirements.

Submitted By: _MD Evarts___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

WTP Welding Program Concerns

On August 10, 2005, ORP issued a letter (05-WTP-172) to BNI informing them of our concern with an apparent significant decline in quality associated with WTP welding and inspection activities. This concern was based on repeat occurrences in 2005 of procedural non-compliances with welding requirements including the use of wrong weld inspection criteria or preheat requirements, and loss of material and design document control. BNI was requested to describe its corrective actions planned or taken to address the specific issues described in an enclosure to the August 10 letter and to assess the overall weld program quality. In addition, BNI was requested to describe the immediate corrective actions taken and BNI's basis for continued welding operations while long-term corrective assessments and action are being formulated.

Proposed Corrective Actions:
Following receipt of the letter, BNI met with ORP to discuss their proposed corrective actions and their basis for continued welding activities while corrective actions are being developed and implemented. BNI provided detailed information regarding the actions taken or being taken to address each of the specific issues described in the August 10th letter. In addition, BNI described the following specific actions proposed:

- Develop specific training modules for Welding Field Engineers Piping Field Engineers, and Quality Control Inspectors (also craft supervision and craft for some moduales) addressing work activities and management expectations regarding conduct of weld inspections and pipe installations.

- Arranging for an independent management assessment of piping and welding programs to evaluate program effectiveness.

- Perform piping and welding specification and procedure reviews to identify where clarifications may be needed to improve program understanding.

- Perform interim peer reviews of ongoing welding and pipe installation work to ensure ongoing work complies with specification and procedure requirements.

Current status of Corrective Actions:
BNI is to formalize these corrective actions in a written response to the August 10, 2005 letter. Although this letter has yet to be finalized, it is getting Management and Quality Assurance attention.

Over 20 training modules are being developed; training is planned to start the week of October 3, 2005. BNI plans to complete round 1 of the training modules by the end of January 2006. The training is planned to continue on a regular basis thereafter as new employees are hired in the piping and welding areas.

Specification and procedure reviews are occurring in tandem with training module development. This effort is resulting in some feedback where improvements may be implemented.

An independent management assessment of the piping and welding programs is planned for starting the week of October 3, 2005.

Peer reviews of piping installation work and welding activities have begun and is expected to be ongoing until at least the first round of the specific training described above is completed.

In addition to BNI's efforts to improve welding and pipe installation activities, ORP has increased its construction oversight in this area.

Basis for Continued Welding Operations:
BNI stated they had performed inspections of installed pipe in the LAB and have identified the clam shell spools that were miss-installed. They also inspected work at the other major WTP facilities and have not found similar miss-installed spools. In addition, BNI stated few bulk material applications exist at the site at this time, substantially reducing the opportunity for material control problems like that identified at the LAB to exist elsewhere. BNI has conducted several meetings with construction staff to discuss material and document control requirements. Based on this, and the peer reviews that are ongoing, BNI stated they believe adequate justification exist to continue to perform welding activities while corrective actions are being developed and implemented.

ORP has tentatively accepted BNI's proposed corrective action plan. However, ORP is waiting for BNI's formal response to this concern prior to formally accepting BNI's corrective action plan.

INSPECTION NOTES

Facility: PTF___ HLW_X__ LAW___ LAB___ BOF___ **Quality Class:** ITS__X_ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-42

Inspector Name(s): MD Evarts **Dates of Inspection:** November 15, 2005

Item(s) Inspected:

The inspector witnessed the concrete placement, testing, and consolidation of concrete for HLW basemat #1039, Concrete Pour Card HLW-1039.

Design/Installation Documents Reviewed:

- 24590-WTP-3PS-D000-T0001, *Engineering Specification For Concrete Work,* Revision 6, dated September 23, 2004.
- 24590-WTP-3PS-DB01-T0001, *Engineering Specification For Furnishing and Delivering Ready-Mixed Concrete,* Revision 7, dated October 12, 2004.
- 24590-BOF-3PS-C000-T0001, *Engineering Specification For Material Testing Services,* Revision 3, dated May 25, 2004.
- 24590-WTP-GPP-CON-3203, *Concrete Operations (Including Supply),* Revision 9, dated June 22, 2005.

Work Activities:

For the placement listed above, the inspector observed field engineering staff performing concrete receipt activities and observed their review of the batch tickets, as required by Section 3.11.2 of *Concrete Operations (Including Supply).* The inspector concluded these activities were performed in accordance with established requirements.

The inspector observed the Materials Testing subcontractor field technicians performing concrete receipt activities, observed the review of batch tickets, and observed recording of information required by Section 3.2.1 of the *Engineering Specification for Material Testing Services.* The inspector concluded these activities and documents were performed or completed in accordance with the specification.

The inspector examined the conduct of testing for concrete temperature, slump, and unit weight, and observed filling and capping the 6-inch by 12-inch compressive test cylinders, and the field storage of the test cylinders for the placements identified above. The inspector concluded the Material Testing subcontractor technicians were performing these testing activities in accordance

with their procedures, the applicable American Society for Testing and Materials (ASTM) standards, and Contractor's specifications.

The inspector witnessed the placement of concrete for the placement listed above, and concluded the concrete was being produced, placed, consolidated, and tested in accordance with procedures, specifications, and required codes and standards. The inspector concluded the Contractor was conforming to the maximum 24-inch lift height, as required by Section 3.7.4 of *Engineering Specification for Concrete Work*. The inspector observed the 3 or 4 vertical foot per hour maximum placement rate, established by the panel manufacturer, was being maintained. The process also ensured the concrete did not exceed the maximum free fall distance, as outlined in Section 3.7.1 of *Engineering Specification for Concrete Work.*

Adequacy of Final Records:

The inspector examined the above listed Concrete Pour Card for the placement observed, and concluded the required signatures were in place prior to the start of the placement.

Conclusion:

The inspector concluded the Contractor was batching, placing, consolidating, and testing concrete in accordance with engineering specifications and the SRD.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF__, HLW__, LAW_X_, LAB__, BOF__ **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-43

Facility Representative(s): Jeff Bruggeman
Brian Harkins
Joe Christ

Date of Inspection: November 16, 2005

Item(s) Inspected:

The Facility Representatives observed an emergency drill conducted November 16, 2005, in the -21 foot elevation C3/C5 Room at the LAW Building. The drill involved the lifting of a semiconscious worker with head and neck injuries (simulated human using 170 pound training dummy), from the floor to a platform 15 feet above, with the corresponding technical complications encountered with performing a rope and tackle rescue.

Remarks/Comments:

The drill was well setup to simulate actual working conditions and to provide a challenging extraction for the Hanford Fire Department (HFD).

Positive Attributes Observed:

- Drill plan was developed to demonstrate proficiency in responding to an injured person in a location requiring a technical extraction.
- Drill plan was adequately prepared.
- There were adequate personnel staged as observers and drill coordinators.
- Excellent radio communications were observed.
- The BNI Personnel Accountability Aide (PAA) conducted effective turn over to the HFD Incident Commander.
- PAA assigned a person to take notes and keep a time line.
- PAA staged personnel to relay information due to limited radio transmission in the basement area.
- PAA notified the on call DOE Facility Representative of the man down and briefed him on the man's condition and the actions under way to stabilize and extract the worker.
- Hanford Fire Department was very systematic and careful to ensure the safety of all personnel involved.
- Workers maintained the area clear of unnecessary personnel.

Areas for Improvement (Discussed at the post-drill critique):

- Personnel involved in the drill needed to be more consistent in identifying that this is a drill during their radio and one-on-one communications.
- Different hard hats or hard hats with chin straps need to be evaluated for Project Medical staff.
- The use of latex gloves for the control of blood after a co-worker provides initial aid while awaiting Project Medical staff to arrive should be evaluated.

Time line from inside the cell:

8:40 Co-worker discovered fellow worker down and notified attendant.
Attendant made the radio call "Drill, May-Day, May-Day, Man Down Drill"
Injured employee had cut his head and complained of bad pain before passing out.
Co-worker applied compression to the head wound with bare hands.

8:41 Argon purge was shut off.
Verification that air levels in the room were at acceptable levels was performed.
Removed permit required confine space signage and barrier.

8:43 Notified assistance was in route.

8:44 Safety Representative arrived; was provided information on the injury.

8:45 – 8:52 Site Medical staff reaches the down employee and given known information on injury. First aid was initiated (one of the two Site Medical personnel removed their hard hat). Site Medical staff asked if the Pipe Fitter wanted latex gloves. Pipe Fitter declined. A jacket was placed under the injured employee. Check was made of injured employee badge and hard hat for prior medical condition notifications.

8:55 Pipe Fitter started clearing path for rescue workers.

8:56 Blanket was lower and applied over injured worker.

8:57 Radio message stating the man basket was ready for use if needed.

8:58 Notified HFD on site. Safety Representative went to meet HFD to provide information on injured employee.

9:00 2nd set of vitals taken. HFD arrived at platform and provided a good status of injured employee and general layout of the area.

9:01 HFD reaches the down employee and provided information on the injured employee from the Site Medical staff.

9:03 Backboard and skid requested.

9:06 Medical monitor and an additional HFD person were requested at the injured employee.

9:07 HFD removed retractable life line from the tripod.

9:10 HFD extraction equipment and personnel arrive.

9:13 Injured employee rolled onto backboard.

9:17 Rope and tackle equipment installed on tripod.

9:23 Injured employee on backboard placed in TACO.

9:27 Injured employee packaged and awaiting extraction.

9:30 Moved injured employee to extraction location.

9:32 Extraction started.

9:33 Injured employee reaches the grating.

9:36 Injured employee removed through the handrail guarding the extraction opening and then carried down the stairs and out of the building.

9:40 Injured employee placed in an ambulance located at the southeast corner of the building. End of drill.

Conclusion:

Based on direct observation, the Facility Representative concluded the PAA was knowledgeable of his emergency duties, demonstrated good command and control, and kept well informed the status of protective actions being taken. The Facility Representatives determined the drill was well coordinated and staff performed adequately in their duties. The post-drill critique included good observations and comments and the subsequent report reflected these comments and assigned corrective actions as needed.

Submitted By: Jeff Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW_X_ LAW_X_ LAB_X__ BOF_X__ **Quality Class:** ITS__ BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-04-44

Inspector Name(s): Brian Harkins **Dates of Inspection:** November 2005

Item(s) Inspected:

The inspector reviewed drawing control at the construction site.

Design/Installation Documents Reviewed:

- Concrete (DB) drawings at LAW, PT, HLW, and the LAB
- Embedded metal (DD) drawings at LAW, PT, HLW, and the LAB
- Reinforcing (DG) drawings at LAW, PT, HLW, and the LAB
- Structural & Miscellaneous steel (SS) drawings at LAW, PT, HLW, and the LAB
- Work packages in LAW, PT, HLW, and the LAB

Personnel Interviewed:

- PT Document Control Person

Work Activities:

The inspector reviewed controlled drawings and work packages to ensure only the current revision of drawings and change documents were being used.

Discussion:

The inspector reviewed hundreds of drawings and their associated change documents to ensure the drawings were all the current revisions and all applicable change documents were marked on the drawings. Numerous work packages were reviewed to ensure they contained current revisions of the drawings and applicable change documents were in the packages.

One work package was found to contain one out-of-date drawing in addition to the correct drawing. One drawing was found in two locations without the associated change document marked on the drawing. Both of these discrepancies were brought to the attention of the PT Document Control Person so they could be corrected.

Inspection note A-05-AMWTP-RPPWTP-002-102 documents a review of PT work packages and welding records conducted in September 2005. No discrepancies were found during that inspection. This inspection and the one conducted in September both reviewed the same program items and concluded drawings and work packages are being adequately controlled.

Conclusion

Drawings are being adequately controlled at the construction site.

Submitted By: Brian Harkins Reviewed By: _____ Approved by: _____
Date: _____ Date: _____ Date: _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW_X_, LAB___, BOF___, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-45

Inspector Name(s): Debra Wallace **Dates of Inspection:** November 22, 2005

Item(s) Inspected:

Inspection of power distribution panel PDP-023 fabricated for various locations in the LAW facility consisting of:

- 225-amp, 480 volt three phase, three wire panelboard (branch circuits 1-42)
- Two 100-amp, 480 volt disconnects

Design/Installation Documents Reviewed:

2002 National Electrical Code.

24590-WTP-GPP-CON-3311, *Control of Temporary Electrical Installations,* Revision 3, dated September 29, 2003.

Conclusion:

The inspector concluded the Contractor had installed the electrical equipment listed above in accordance with the 2002 NEC.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF __HLW__LAW _ LAB __BOF _X_ **Quality Class:** ITS___ BOP _X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-46

Inspector Name(s): Joe Christ **Dates of Inspection:** November 23, 2004

Item(s) Inspected:

Based on a report of tainted water at the LAB facility, an inspection was done of the construction site drinking water process as performed in Building 56 (Combination Shop).

Documents Reviewed:

- 24590-WTP-GPP-SIND-047, Rev. 2, *Construction Site Drinking Water*
- Washington Administrative Code (WAC) Title 296, Chapter 155, Part A, Section 140, Sanitation

Field Work and Activities Observed:

- Toured Building 56 area where portable drinking water containers are stored and cleaned for use.
- Observed portable drinking water container cleaning process.
- Toured the ice storage trailer west of Building 56.

Personnel Interviewed:

- Laborer Foreman responsible for delivering drinking water on site
- Laborers performing cleaning operations.
- Greg Dixon
- Chris Strand
- Scott Corrigan

Discussion:

The inspector was notified by a worker at the LAB about a strange taste detected in the drinking water last week (11/12/05 or 11/13/05). The water was controlled and discarded but the worker was told that something would be done to check the water. Based on this report the inspector toured the area where the coolers are cleaned, disinfected, and filled. The inspection was a reactive evaluation of the process for providing drinking water at the construction site.

The WAC requires an adequate supply of potable water shall be provided in all places of employment and it appears that this is being met by BNI. However, the inspector

observed several deviations from the process described in BNI procedure 24590-WTP-GPP-SIND-047, *Construction Site Drinking Water*, Rev. 2. While the process used by the workers appeared acceptable it did not follow the steps listed in the procedure. The steps in the procedure appear to be written for cleaning a single container at a time which is not efficient. The workers used a process that appears safe and effective while allowing them to clean many containers per day. Procedural deviations included:

- Personnel were wearing appropriate safety equipment except safety glasses were worn instead of safety goggles as required.

- Coolers were not wiped down with a clean sponge after cleaning.

- Instead of making a disinfecting solution, a dollop of bleach from a gallon jug was poured into each container and then water added.

- The cooler is supposed to be covered and shaken to ensure the entire insides are contacted with the disinfecting solution, this was not done. The solution was sloshed around as it was poured out. It was hard to tell whether the entire insides were disinfected.

- Similarly with the backing soda rinse the cover was not installed and the cooler shaken.

- The procedure requires that only approved potable water be used for drinking water. The site receives its water in large bottles from a local distributor. This water is used to perform two rinses after the coolers are cleaned and/or disinfected and it is used to fill up the containers for delivery to the field. However water of a non-certified nature is being used during the intermediate rinses and this is not recognized in the procedure.

- After the containers are filled a tamper resistant seal is applied to the container's lid with the date written down. This process assures workers that the water's quality has been maintained. The step is not recognized in the procedure but is certainly useful and should be included.

The inspector concluded no apparent hazard exists with the cooler preparation process being used; however, the procedure needs to match and authorize the process being used.

Based on discussions with the foreman and the superintendent, it appears that the tainted water at the LAB was the result of bad ice. Ice is provided by an off-site vendor and is added to the coolers when the weather is hot. When it was realized the water in the coolers had a "cherry" taste, several other coolers were similarly checked and then emptied. The foreman tasted the water with and without ice and determined the ice was the source of the cherry taste. The superintendent followed up by contacting the supplier and found that their process had not been changed. The supplier could provide no explanation for the cherry taste.

BNI Industrial Hygiene determined no further testing was needed since the ice was confirmed as the source and the ice vendor had no process changes that would explain the taste. All affected containers and ice were discarded and since the weather has gotten cooler no further ice will be used. No observed adverse conditions have been reported to site first aid as a result of this situation.

Conclusions:

BNI's process for supplying drinking water to site employees is adequate. BNI should revise its procedure to match the current process.

Submitted By: Joe Christ **Reviewed By:** _____ **Approved by:** _____
Date: 11/23/05 **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW_X_, LAB___, BOF___, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-47

Inspector Name(s): Debra Wallace **Dates of Inspection:** November 23, 2005

Item(s) Inspected:

The inspector performed a design review on the following drawings listed below for compliance to the 1999 National Electrical Code.

Design/Installation Documents Reviewed:

1999 National Electrical Code.

24590-LAW-E1-LVE-00003, *LAW Vitrification Building 480V Switchboard LVE-SWBD-20101 Single Line Diagram,* Revision 3, dated October 03, 2005.

24590-LAW-E1-LVE-00004, *LAW Vitrification Building 480V Switchboard LVE-SWBD-20102 Single Line Diagram,* Revision 3, dated October 03, 2005.

24590-LAW-E1-LVE-00005, *LAW Vitrification Building 480V Switchboard LVE-SWBD-20201 Single Line Diagram,* Revision 3, dated October 03, 2005.

24590-LAW-E1-LVE-00006, *LAW Vitrification Building 480V Switchboard LVE-SWBD-20202 Single Line Diagram,* Revision 3, dated October 03, 2005.

24590-LAW-E1C-MVE-00006, *LAW Feeder Breaker and Cable Sizing Calculation,* Revision B, dated March 30, 2005.

Adequacy of Final Records:

Section C, subsection C7(f), *Application on National Design Codes and Standards,* require the Contractor to design and construct the Waste Treatment and Immobilization Plant (WTP) in accordance with the National Electric Code.

Article 240-3 requires where the overcurrent device is rated over 800 amperes, the ampacity of the conductors it protects shall be equal to or greater than the rating of the overcurrent device as defined in Section 240-6.

> Drawing 24590-LAW-E1-LVE-00003, Switchgear LVE-SWBD-20101, compartment B2 depicts three sets of 3 single 500 kcmil conductors (rated at 380-amps) feeding Motor Control Center LVE-MCC-20203 protected by a 1200-amp circuit breaker.
> (380 x 3 = 1140 amps)

Drawing 24590-LAW-E1-LVE-00004, Switchgear LVE-SWBD-20102, compartment B2 depicts three sets of 3 single 500 kcmil conductors (rated at 380-amps) feeding Motor Control Centers LVE-MCC-20204 protected by a 1200-amp circuit breaker. (380 x 3 = 1140 amps)

Drawing 24590-LAW-E1-LVE-00005, Switchgear LVE-SWBD-20201, compartments B6 & C4 depicts three sets of 3 single 500 kcmil conductors (rated at 380-amps) feeding Motor Control Centers LVE-MCC-20301 & LVE-MCC-20201 protected by 1200-amp circuit breakers. (380 x 3 = 1140 amps)

Drawing 24590-LAW-E1-LVE-00006, Switchgear LVE-SWBD-20202, compartments C4 & C5 depicts three sets of 3 single 500 kcmil conductors (rated at 380-amps) feeding Motor Control Centers LVE-MCC-20302 & LVE-MCC-20202 protected by 1200-amp circuit breakers. (380 x 3 = 1140 amps)

Table 310-20 allows a larger ampacity where the conductors are installed in cable trays with adequate spacing. The Contractor provided conductor sizing calculations assuming this spacing requirement is met.

Conclusion:

The inspector reviewed LAW Feeder Breaker and Cable Sizing Calculation (24590-LAW-E1C-MVE-00006), Section 7.2, Table 3, and NEC Article 318-11(b)(4). The calculation used Table 310-20 in determining conductor size. The Contractor assumed triangular spacing in cable trays. If the cables are installed in a triangular configuration in uncovered cable tray, with a maintained free air space of not less than 2.15 times one conductor diameter of the largest conductor, the ampacity may be determined per Table 310-20 and this would address the above issue. At this time, the cable tray configuration is indeterminate. Therefore, based on the calculations reviewed, the inspector is not able to assess the adequacy of the conductors specified on the design drawing.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB_X__ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-48

Inspector Name(s): RI Taylor **Dates of Inspection:** November 29, 2005

Item(s) Inspected:

The inspector witnessed welding activities at the 0'-00" elevation of the Analytical Laboratory Facility. Areas of interest were material verifications, internal alignment, cleanliness, final weld inspection, and welder qualification. The inspector reviewed the construction work package (CWP) document list for current revision of the piping isometric listed on the field welding checklist (FWCL).

Design/Installation Documents Reviewed:

Construction Work Package, APU0012.

24590-LAB-FWCL-CON-05-00894.

ASME B31.3, 1996.

24590-WTP-MN-CON-01-001, *Welding Control Manual,* Revision 19, dated November 30, 2005.

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April 2005.

Acceptability of Material Being Used:

The inspector verified piping materials utilized to fabricate the piping were acceptable to the isometric drawings listed on the Field Welding Checklist. The inspector verified welding materials were acceptable per the Field Welding Checklist.

Work Activities:

The inspector verified drawing revisions of the piping isometrics, listed on the Field Welding Checklist, to be current and in compliance with the document list contained in the construction work package.

The inspector performed final weld and alignment inspection for the following listed Field Welding Checklist:

24590-LAB-FWCL-CON-05-00894, 3" Stainless Steel, (RLD) Radioactive Liquid Waste Disposal System piping.

Training and Qualification of Personnel:

From a review of the Contractor's welder qualification list, the inspector verified welders P-38 and P-95 were certified to weld to the procedure listed on the Field Welding Checklist.

Adequacy of Final Records:

The inspector reviewed the Field Welding Checklist after final weld and radiograph inspections were completed.

Conclusion:

The inspector concluded the welding activities noted above were performed and documented to the referenced requirements listed above.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW_X_, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-49

Inspector Name(s): J. McCormick-Barger **Dates of Inspection:** November 29, 2005

Item(s) Inspected:

The inspector performed a event follow-up inspection of an electrical cord failure at the LAW - 21' level when a Laborer plugged a shop vacuum into an energized electrical cord and the electrical cord arc flashed and the laborer reported experiencing a shock to his stomach. This event occurred at about 11:00 a.m. on November 29, 2005.

Event Description and Follow-up Results:

On November 29, 2005, at about 11:00 a.m. a Laborer in the LAW -21' basement area near the northwest elevator shaft received a shock and reported seeing an arc flash while plugging in a portable shop vacuum into an energized 110 volt electrical cord. The Laborer was in a small area of standing water. He immediately unplugged the electrical cord from the vacuum and the spider box (power source), reported the incident to his foreman, took the cord to the LAW construction office, and reported to the WTP medical clinic. The Laborer complained of a shock to the stomach area and was reported to have a minor red spot on his stomach in the area of the shock which disappeared shortly after he was released from the medical clinic.

BNI informed the DOE Facility Representative and conducted an investigation of the incident. Upon being informed of the incident, the DOE inspector reported to the LAW construction office, inspected the cord and determined it had previously been cut about 8-9" from the female end of the cord. The cut area of the cord had a small burned area indicating it had experienced a short. Later upon further investigation of the cord, both the black and white conductors had been damaged and burn marks indicated they had shorted together.

The spider box power source was inspected. The spider box plug in used was protected by both a ground fault interrupter (GFI) and a 20 amp circuit breaker. The 20 amp circuit breaker had tripped. Because of the circuit breaker trip, the inspector could not determine if the GFI had tripped. However, the GFI was tested after the event and was determined to be operational.

The shop vacuum was inspected and determined to be operational with no defects.

Preliminary indications are that the electrical extension cord used by the Laborer was damaged before use and shorted during the act of plugging in the cord to the shop vacuum. 110 volt electrical cords are required to be inspected prior to each use. During the investigation of this incident, the inspector observed another 110 volt extension cord located with the shop vacuum that also had previously been damaged (a portion of outer cord insulation had been burned, probably by welding operations). The contractor immediately removed the second cord from

services and informed the inspector that all site 110 volt extension cords would be inspected for similar damage.

The inspector reviewed the draft Bechtel Accident Investigation Report, dated November 29, 2005, for this event and determined the Contractor adequately described and investigated the event. Corrective actions included notifying all WTP facilities of the event and discussing the event with site workers to reinforce the need to inspect electrical cords before each use.

BNI has declared this event as a management concern occurrence (10(2) SC3).

Conclusion:

The Contractor notified the Facility Representative of an electrical cord arching event at the LAW in a timely manner. The Contractor conducted and documented an adequate investigation of the event and took appropriate corrective actions.

Submitted By: J. McCormick-Barger **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____


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INSPECTION NOTES

Facility: PTF___ HLW_X__ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-50

Inspector Name(s): MD Evarts **Dates of Inspection:** November 29, 2005

Item(s) Inspected:

The inspector performed a pre-placement inspection including verification of forms, rebar, embedments, and electrical conduit (FRE) installations for placement of HLW Slab 1029.

Design/Installation Documents Reviewed:

Concrete Pour Card – HLW1029.

Specification - 24590-WTP-3PS-D000-T0001, *Engineering Specification for Concrete Work,* Revision 6, dated September 23, 2004.

Specification – 24590-WTP-3PS-DB01-T0001, *Engineering Specification for Furnishing and Delivering Ready-Mix Concrete,* Revision 7, dated October 12, 2004.

The inspector reviewed primary structural design documents listed in the above Concrete Pour Card for the slab placement. Other drawings referenced on the primary drawings were also used for the inspection.

Acceptability of Material Being Used:

The inspector verified the correct type of re-steel material being installed was acceptable in accordance with the above specification.

Adequacy of Final Records:

At the time of this inspection, the Contractor had signed the appropriate attributes on the Concrete Pour Card.

Conclusion:

The inspector concluded the Contractor installed reinforcement, embeds, and electrical conduit in an acceptable manner in accordance with the above design requirements.

Submitted By: _MD Evarts___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW_X__ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-51

Inspector Name(s): MD Evarts **Dates of Inspection:** November 30, 2005

Item(s) Inspected:

The inspector witnessed the concrete placement, testing, and consolidation of concrete for HLW basemat #1029, Concrete Pour Card HLW-1029.

Design/Installation Documents Reviewed:

- 24590-WTP-3PS-D000-T0001, *Engineering Specification For Concrete Work,* Revision 6, dated September 23, 2004.
- 24590-WTP-3PS-DB01-T0001, *Engineering Specification For Furnishing and Delivering Ready-Mixed Concrete,* Revision 7, dated October 12, 2004.
- 24590-BOF-3PS-C000-T0001, *Engineering Specification For Material Testing Services,* Revision 3, dated May 25, 2004.
- 24590-WTP-GPP-CON-3203, *Concrete Operations (Including Supply),* Revision 9, dated June 22, 2005.

Work Activities:

For the placement listed above, the inspector observed field engineering staff performing concrete receipt activities and observed their review of the batch tickets, as required by Section 3.11.2 of *Concrete Operations (Including Supply).* The inspector concluded these activities were performed in accordance with established requirements.

The inspector observed the Materials Testing subcontractor field technicians performing concrete receipt activities, observed the review of batch tickets, and observed recording of information required by Section 3.2.1 of the *Engineering Specification for Material Testing Services.* The inspector concluded these activities and documents were performed or completed in accordance with the specification.

The inspector examined the conduct of testing for concrete temperature, slump, and unit weight, and observed filling and capping the 6-inch by 12-inch compressive test cylinders, and the field storage of the test cylinders for the placements identified above. The inspector concluded the

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-52

Inspector Name(s): RI Taylor **Dates of Inspection:** November 30, 2005

Item(s) Inspected:

The inspector witnessed pressure testing (hydrostatic or pneumatic) at various locations within the PTF facility during the month of November 2005.

Design/Installation Documents Reviewed:

ASME B31.3, 1996

Procedure – 24590-WTP-GPP-CON-3504, *Pressure Testing of Piping, Tubing, and Components,* Revision 5, dated November 7, 2005.

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April 2005

Acceptability of Material Being Used:

The inspector verified piping material or installed correct spool in accordance with the piping codes referenced on the pressure test data sheet list below.

Work Activities:

The inspector verified the proper test boundaries were specified, valve line-ups were thorough, and the required test parameters had been specified. The inspector verified the calibration of the pressure gauge was current, the appropriate calibration stickers were affixed, and the gauge range conformed to the requirements of the above procedure. The inspector observed the conduct of hydrostatic/pneumatic testing in accordance with the Contractor's established requirements and the applicable code. The inspector verified the system tests conformed to established requirements regarding leakage and time at pressure.

If the listed test below is a Dangerous Waste Permitted system, the inspector verified the test was performed acceptable in accordance with the permit.

The inspector witnessed the following pressure tests:

- 24590-PTF-DSTR-CON-05-0027, 6"- PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0028, 6" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0029, 8" - PWD Plant Wash & Disposal System

- 24590-PTF-DSTR-CON-05-0030, 8" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0031, 6" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0032, 6" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0033, 6" - PWD Plant Wash & Disposal System

Adequacy of Final Records:

The inspector reviewed the final pressure test reports and concluded the reports were completed acceptable.

Conclusion:

The inspectors concluded the Contractor had accomplished hydrostatic/pneumatic testing of the above listed pressure tests in accordance with established requirements.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

Material Testing subcontractor technicians were performing these testing activities in accordance with their procedures, the applicable American Society for Testing and Materials (ASTM) standards, and Contractor's specifications.

The inspector witnessed the placement of concrete for the placement listed above, and concluded the concrete was being produced, placed, consolidated, and tested in accordance with procedures, specifications, and required codes and standards. The inspector concluded the Contractor was conforming to the maximum 24-inch lift height, as required by Section 3.7.4 of *Engineering Specification for Concrete Work*. The inspector observed the 3 or 4 vertical foot per hour maximum placement rate, established by the panel manufacturer, was being maintained. The process also ensured the concrete did not exceed the maximum free fall distance, as outlined in Section 3.7.1 of *Engineering Specification for Concrete Work.*

Adequacy of Final Records:

The inspector examined the above listed Concrete Pour Card for the placement observed, and concluded the required signatures were in place prior to the start of the placement.

Conclusion:

The inspector concluded the Contractor was batching, placing, consolidating, and testing concrete in accordance with engineering specifications and the SRD.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_, HLW_X_, LAW_X_, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-53

Inspector Name(s): J. McCormick-Barger **Dates of Inspection:** November 26-December 1, 2005

Item(s) Inspected:

The inspector performed an inspection of BNI Safety Assurance Representative oversight of construction job safety and health-related activities at their assigned facilities.

Design/Installation Documents Reviewed:

24590-WTP-PL-IS-01-001, Revision 5, *Nonradiological Worker Safety and Health Plan*, dated November 30, 2005.

RL/REG-2000-04, Revision 3, *Industrial Health and Safety Oversight Plan*, dated July 2003.

Observations and Assessments:

The inspector reviewed the Contractor's *Nonradiological Worker Safety and Health Plan* and the DOE *Industrial Health and Safety Oversight Plan* to ascertain requirements specific to Safety Assurance Representative construction oversight activities. The inspector focused this assessment on determining the adequacy of Safety Assurance Representative oversight of construction activities at their assigned facilities.

The above listed documents specify that Safety Assurance Representative (SAR) personnel will perform a number of specified activities including conducting and documenting daily surveillance of all construction site and subcontractor activities to ensure that safety and health guidelines are being implemented properly. In addition, SAR personnel take the lead in investigating any reports from employees regarding unsafe work practices, acts, or conditions. SAR personnel also conduct accident and incident investigations as needed.

During this inspection, the inspector interviewed five SAR personnel assigned to the LAW, HLW, PTF, and BOF. The inspector accompanied a LAW SAR on a weekly construction superintendent walk-down of a portion of the LAW, and observed a LAW SAR conduct an investigation of a damaged electrical cord shock event that occurred on November 29, 2005, at the LAW -21' elevation. The inspector also observed some SAR personnel interact with site construction forces during day-to-day execution of their responsibilities at assigned facilities.

Overall the SARs were very active in conducting oversight of construction activities. Construction staff regularly contacted SARs for guidance and assistance. Interactions between SARs and construction staff were observed and reported to be good. SARs' reported that it was

rare when construction staff were not cooperative and willing to amend their behavior when deficient performance was observed. In the rare case when the staff was uncooperative, the SARs stated they would contact the offender's supervisor and the issues were resolved. The construction weekly walk-down was well attended and safety issues were identified and documented. The SAR stated he would give the staff a few days to address the items and then would perform a follow-up to verify the identified issues were addressed.

The investigation of the LAW damaged electrical cord shock event was thorough and conducted and documented in a systematic manner. The inspector reviewed the related investigation report and determined it was detailed and adequately addressed the incident.

During interviews with the SARs, the inspector determined the SARs were not formally documenting their daily inspections as required by Section 2.3.2 of the *Nonradiological Worker Safety and Health Plan* and Appendix A.14(3)of the *Industrial Health and Safety Oversight Plan* (required by Standard 7, Section (e)(1)(ii) of Contract DE-AC27-01RV14136 -- the DOE Contract with the Contractor). In addition, worker safety issues identified by the SARs and not addressed on-the-spot, were not being documented or tracked to closure. Section 4.5 of the *Nonradiological Worker Safety and Health Plan* implies that safety issues that cannot be corrected immediately will be brought to the attention of supervision and placed in the RITS open item tracking system. Some SARs were, however, documenting their activities in personal note books to ensure adequate follow-up.

Both of the above issues were raised previously in inspection report IR-01-010, dated March 19, 2002 (document control number 02-OSR-0090). At the time of that inspection, after the issues were raised, the Contractor put into place a documentation process where daily SAR surveillance activities were being logged and issues not resolved on-the-spot were being tracked by an open items system. Since this inspection, SAR management had changed twice and some time during this period, new management canceled the processes put in place to address the inspector's issues without revising their *Nonradiological Worker Safety and Health Plan* and requesting from DOE a variance from the Contract required *Industrial Health and Safety Oversight Plan*.

These issues were discussed with the Field Safety Assurance Manager who stated the issues would be reviewed and the Contractor would take action to align its Safety Assurance Program with contractual requirements. Follow-up to verify the Contractor addresses these concerns will be tracked as assessment follow-up item A-05-AMWTP-RPPWTP-004-A02.

Training and Qualification:

The inspector determined from interviews that the SARs were well qualified for their positions. Three of the SARs had recent four year degrees in the field of industrial health and safety. Others had substantial experience as SAR, including other construction related experience. The inspector reviewed the training profiles for the SARs and found their records to be up-to-date and the training was current and extensive.

Conclusion:

With the exception of failing to document surveillance activities and track open safety issues, Safety Assurance Representatives were found to be actively involved in safety oversight of their assigned facilities. Cooperation between craft, supervision, support staff, and the SARs was good and safety issues were being identified and addressed in a timely and effective manner. Construction Management acknowledged the issues discussed above and were planning to take appropriate actions to address the concerns. Follow-up to track resolution of the issues will tracked as assessment follow-up item A-05-AMWTP-RPPWTP-004-A02.

Submitted By: J. McCormick-Barger **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_, HLW_X_, LAW_X_, LAB_X_, BOF_X_, **Quality Class:** ITS_X_, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-54

Facility Representative Names: Jeff Bruggeman **Dates of Inspection:** December 2005

Item(s) Inspected:

The Facility Representative reviewed the crane safety requirements at the Waste Treatment Plant site. No subcontractor cranes were in operation during the inspection period; therefore, the Facility Representative was unable to verify flow down of crane safety requirements to subcontractors.

Document Reviewed:

- Procedure 24590-WTP-GPP-CON-1902, *Tower Crane Interference and Boom Swing Coordination,* Revision 2, effective date June 20, 2005.
- Procedure 24590-WTP-GPP-CON-1903, *Cranes-Use and Operation,* Revision 0, effective date April 20, 2004.
- Procedure 24590-WTP-GPP-SIND-041, *High Wind Safety,* Revision 2, effective date May 10, 2003.
- Procedure 24590-WTP-GPP-SIND-017, *Crane Operator Qualification,* Revision 1, effective date November 4, 2002.
- Procedure 24590-WTP-GPP-CON-1906, *Crane Operator Qualification,* Revision 0, effective date December 22, 2005.
- Rigger Refresher Course 24590-WTP-TNGC-G-02-000230.
- Safely Speaking, *Overhead Loads and Crane Bellmen,* dated November 22, 2005.
- Near Miss Report, *Rigging Hits Pipefitter's Hard Hat,* dated November 17, 2005.

Requirements:

All qualified Crane Examiners and qualified crane operators are required to be maintained in a database. The database identifies qualified operators, the different types of cranes they are qualified to operate, dates operators must be re-qualified, terminated qualifications, etc.

As Found Conditions:

From a review of the training database, the Facility Representative verified documentation/tracking of written examinations, identification of the different types of cranes the operators were qualified to operate, dates operators must be re-qualified, current crane operator medical certificates, possession of a current National Commission for the Certification of Crane Operators (NCCCO) License, required procedure reading was current, and OSHA training was current. The Crane Examiner's certifications were on file in the Training Office. However, the database identified the re-qualification for some of the crane operators on some

cranes at intervals greater than the procedure specified three years. Additionally, the procedure required Crane Operators to attend a crane operator safety refresher course annually to maintain their qualifications that was not identified in the training records. When these discrepancies were pointed out to BNI, they provided a draft revision to the procedure that revised the requirements. The revised procedure deleted the requirement for annual safety training and required crane operators to re-qualify every five years and to maintain an up to date crane license. These changes were consistent with BNI corporate requirements. The revised procedure went into effect on December 22, 2005.

Requirements:

The Project Equipment Maintenance and Operation Team (PEMOT) will set up "equipment specific" maintenance and inspection files for each piece of lifting equipment on-site. These files shell include (when completed) initial inspections, daily inspections, load tests/brake tests, periodic inspections, maintenance records, and any other manufacturers documentation deemed required by the PEMOT.

As Found Conditions:

The Facility Representative performed a random review of the maintenance records and found all maintenance records to have been completed and up to dated. The Annual and Monthly Inspection Forms were submitted to Project Document Control (PDC) for logging, issuance, distribution, and records retention. Load tests were also submitted to PDC. All other records were maintained at the Maintenance Facility.

Requirements:

A Crane Coordinator is assigned to each building. The Crane Coordinator shall possess a NCCCO License or attend the Crane Operation Safety Refresher Course. The Crane Coordinator and Primary Flagman (bellman) must read and be familiar with the procedures referenced above. The coordinator acts as the traffic controller to ensure the movements of all cranes within the swing radius of the tower crane does not conflict with each other. If a conflict is identified, the Crane Coordinator will direct the bellman and Operator to accommodate the required crane movements. The Crane Coordinator has the authority to stop any rigging activity for safety or coordination reasons.

Operation quadrants are designated for each crane daily. All crane movements outside an assigned operation quadrant that may conflict with the position of another crane are made only with the permission from the Crane Coordinator. The Primary Flagman notifies the Crane Coordinator when ready to swing by identifying the crane, direction of swing, and approximate pick or set location. The Primary Flagman does not proceed with the movement of the crane until receiving clearance from the Crane Coordinator. The Primary Flagman then directs the crane movement. All swing movements of the tower crane outside the assigned operation quadrant are announced by the Crane Coordinator to the primary flagman and Operator of any cranes in the path of the tower crane swing. Radios are the primary means of communication between the Crane Coordinator, flagmen, and operators.

As Found Conditions:

From a review of crane operator training databases, the Facility Representative verified possession of a current NCCCO Licenses, required procedure reading was current, and training was current for all Crane Coordinators. The Facility Representatives performed a review of a typical lift at the Low Activity Waste (LAW) Facility involving tower crane movement into another cranes operation quadrant. The Crane Coordinator met daily at the start of the shift with all operators and bellmen. A LAW footprint drawing with designated crane quadrants was reviewed and initialed by all operators acknowledging their designated crane operation quadrant. The Safety Task Analysis Risk Reduction Talk (STARRT) Card was reviewed with the assigned crane operation quadrants identified. The operator of the tower crane contacted the Crane Coordinator on radio channel one and requested the Crane Coordinator to switch to radio channel four (the tower crane operation channel). With the Crane Operator and the tower crane crew on radio channel four, permission was requested to enter the Linkbelt mobile crane operation quadrant to perform a lift. Once clearance was received from the Linkbelt operator, the Crane Coordinator cleared the tower crane to enter the Linkbelt operation quadrant to make the lift.

Requirements:

Crane bellmen (signal persons) safety precautions:

- Only qualified, trained employees can give crane signals to the crane operator.
- Only one designated bellman (signal person) should be used for the each crane.
- Bellman (signal persons) shall wear a green vest and use a whistle to alert others when the crane hook is in motion.
- All employees are to respond to the bellman's (signal person) directions when the whistle sounds - Look up and move out of the way to avoid being under the oncoming load.
- A bellman (signal person) is to be in visual contact or constant communication with the crane operator.
- A signal person is responsible for the hook and load from start to finish of all rigging operations.
- When the crane hook is in motion, the bellman's (signal person) primary focus is on the hook and the surrounding area.
- All employees are not to divert the bellman (signal person's) attention away from the hook or the load unless it's an emergency.
- Employees should not stand directly under a load or the lowering of a crane hook.
- If there is a concern or problem, the signal person is to **STOP** all crane movement in a safe manner and position. The issues will be addressed before continuing craning operations.

As Found Conditions:

As with any task on the WTP project, signaling and moving a load from one point to another takes constant attention and focus by the bellman (signal person) and the crane operator and must be supported by each employee.

On November 14, 2005, an incident occurred where a Pipefitter was struck on the back of his hard hat by rigging from a tower crane. The Pipefitter and Ironworker (Bellman for the LAW tower crane) were in the piping laydown yard southeast of the LAW building discussing the rigging method to be used to rig a gang box, a suit case welder, and a stack of welding leads to be set into the LAW building at EL -21' by the tower crane. Right before their discussion began, the bellman communicated with Operating Engineer, in the tower crane and instructed him to lower the hook to their location because that was the next pick for the tower crane. During their discussion, the bellman contacted the tower crane operator and informed him to stop the lowering of the hook. The tower crane operator complied. The two employees were directly under the tower crane hook when the lowering stopped. Attached to the tower crane hook were two 30-foot wire rope slings. When the lowering stopped the slings swung slightly one of which struck the Pipefitter in the top rear portion of his hard hat.

The Pipefitter was caught off guard and staggered forward, but was not knocked to the ground and was not injured when his hard hat was struck from behind. When the Pipefitter and the bellman began their discussion, the bellman's attention was diverted from directing the tower crane hook. The Pipefitter should have not distracted the bellman while he was directing the tower crane and the bellman should not allowed himself to be distracted while the hook was still being lowered. The work should have been stopped at a safe stopping point before the discussion was conducted between the Pipefitter and the bellman.

The LAW pipefitters were briefed on the incident and directed not to distract any crane bellman while a bellman was directing a crane. The pipefitters were advised that if a discussion was required, they were to let the bellman complete lowering the crane hook and then stop work to conduct the discussion. The bellman was directed to complete his task of directing the tower crane operator before focusing his attention on other matters. A safety bulletin was issued to the site to share the details of the incident and lessons learned with others on the site. Follow on interviews and observations by the Facility Representative verified the corrective actions were implemented and requirements were being followed.

Remarks/Comments:

The Facility Representatives determined all crane operators and primary flagmen were notified of their operation quadrant limits by the Crane Coordinator and any changes to a crane's operation quadrant were communicated to the operator and Primary Flagman as required by the above procedures. Personnel were current on training, required reading, and medical examinations. Crane maintenance was being performed in accordance with procedure requirements and maintenance records were complete and up to date.

Submitted By: Jeff Bruggeman **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-55

Inspector Name(s): Debra Wallace **Dates of Inspection:** December 6, 2005

Item(s) Inspected:

Inspection of the following electrical equipment, located in Water Treatment Building 86, room WT-0101, for compliance with the National Electrical Code, drawings, and specification listed below:

- Main Distribution Panelboard LVE-PNL-86001 – 480 volt, 3 phase / 3 wire, 225-amp main lug only panelboard (three pole branch circuits 1-10).
- Transformer LVE-XFMR-86001 – 45 KVA, three phase, 480-208Y/120 volt (secondary side only, 480 volt primary is not installed at this time).
- Lighting Panelboard LTE-PNL-86001(A) – 208/120, 3 phase / 4 wire, 100-amp panelboard with 100-amp main breaker (branch circuits 1-21 & 23).

Design/Installation Documents Reviewed:

1999 National Electrical Code.

24590-CM-FC3-AKBP-00001-61-00031, *Drawing – Water Treatment Building No. 86 – 100% Design Drawing – Electrical One-Line Diagram, Notes and Legend – BOF-86-E-01,* Revision 00C, dated September 12, 2005.

24590-CM-FC3-AKBP-00001-61-00033, *Drawing – Water Treatment Building No. 86 – 100% Design Drawing – Electrical – Lighting Plan – BOF-86-E-03,* Revision 00C, dated September 12, 2005.

24590-CM-FC3-AKBP-00001-69-00006, *Specification – Water Treatment Building No. 86 – Project Specification 100%,* Revision 00C, dated October 13, 2005.

Conclusion:

During testing the sub-contractor identified the phasing sequence in the 480 volt main distribution panelboard (LVE-PNL-86001) did not match design or panelboard schematic. The Contractor initiated an inspection report identifying this deficiency.

With exception of the deficiency listed above, the inspector concluded the installation was acceptable in accordance with the National Electrical Code and established design.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB_X__ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-56

Inspector Name(s): RI Taylor **Dates of Inspection:** December, 6, 2005

Item(s) Inspected:

The inspector witnessed pressure testing (hydrostatic or pneumatic) at various locations within the Analytical Laboratory facility during the month of December 2005.

Design/Installation Documents Reviewed:

ASME B31.3, 1996

Procedure – 24590-WTP-GPP-CON-3504, *Pressure Testing of Piping, Tubing, and Components,* Revision 5, dated November 7, 2005.

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April 2005

Acceptability of Material Being Used:

The inspector verified piping material or spools were installed in accordance with the piping codes referenced on the pressure test data sheet list below.

Work Activities:

The inspector verified the proper test boundaries were specified, valve line-ups were thorough, and the required test parameters had been specified. The inspector verified the calibration of the pressure gauge was current, the appropriate calibration stickers were affixed, and the gauge range conformed to the requirements of the above procedure. The inspector observed the conduct of hydrostatic/pneumatic testing in accordance with the Contractor's established requirements and the applicable code. The inspector verified the system tests conformed to established requirements regarding leakage and time at pressure.

If the listed test below is a Dangerous Waste Permitted system, the inspector verified the test was performed acceptable in accordance with the permit.

The inspector witnessed the following pressure tests:

- 24590-LAB-DSTR-CON-05-0026, 6" clean out - RLD Radioactive Liquid Waste Disposal System.

- 24590-LAB-DSTR-CON-05-0027, 6" clean out - RLD Radioactive Liquid Waste Disposal System.

Adequacy of Final Records:

The inspector reviewed the final pressure test reports and concluded the reports were completed acceptable.

Conclusion:

The inspectors concluded the Contractor had accomplished hydrostatic/pneumatic testing of the above listed pressure tests in accordance with established requirements.

Submitted By: _RI Taylor___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW_X__ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes___ No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-57

Inspector Name(s): RI Taylor **Dates of Inspection:** November 6, 2005

Item(s) Inspected:

The inspector performed a configuration review of installed piping and piping supports in the Low Activity Waste Facility at elevation -21' column lines C and 14. Of interest during the review were installed pipe supports, and piping. Two inch prefabricated piping, and piping supports for the Chilled Water System (CHW) had been installed. Accessible piping welds, and pipe support welds were inspected, and welder qualifications were verified.

Design/Installation Documents Reviewed:

24590-WTP-MN-CON-01-001-02-01, *General Welding Standard GWS-2,* Revision 6, dated November 30, 2005

Construction Work Package, *CWP-LPI0006.*

24590-LAW-P3-CHW-WK01981006, *LAW Vitrification Building Isometric*, Revision 0, dated June 17, 2003.

24590-LAW-P3-CHW-WL01950001, *LAW Vitrification Building Isometric*, Revision 1, dated April 8, 2004.

24590-LAW-P3-CHW-WL01950002, *LAW Vitrification Building Isometric*, Revision 0, dated September 24, 2003.

24590-LAW-FWCL-CON-04-1113, *Field Welding Checklist, pipe weld.*

24590-LAW-FWCL-CON-04-1229, *Field Welding Checklist, pipe weld.*

24590-LAW-FWCL-CON-04-1230, *Field Welding Checklist, pipe weld.*

24590-LAW-FWCL-CON-04-1342, *Field Welding Checklist, pipe support.*

24590-LAW-FWCL-CON-04-1370, *Field Welding Checklist, pipe support.*

24590-LAW-FWCL-CON-04-1371, *Field Welding Checklist, pipe support.*

24590-WTP-PH-50-00003001, *Standard Pipe Support Details Cantilever-Cantilever*, Revision 1, dated May 20, 2004.

24590-WTP-PH-50-00004001, *Standard Pipe Support Details Frames-L Shape*, Revision 2, dated June 20, 2004.

24590-LAW-CHW-H00169, *Pipe Support,* Revision 0, dated October 23, 2003.

Work Activities:

The inspector performed the review on three installed pipe supports and three installed small bore piping welds.

The inspector verified drawing revisions of the piping isometrics and standard pipe support details, listed on the completed Field Welding Checklists, to be current and in compliance with the document list.

The inspector utilized current drawing revisions and completed Field Welding Checklists to perform the review. Field welded pipe supports were inspected for conformity to the standard pipe support detail drawings. Small bore socket welded pipe welds were visually inspected including verifying the fit-up gap marking. Welding of the pipe and piping supports was found to be acceptable.

Training and Qualification of Personnel:

From a review of the Contractor's welder qualification list, the inspector verified welders P-85 and P-91 were certified to weld to the procedures listed on the Field Welding Checklists.

Adequacy of Final Records:

The inspector reviewed the Field Welding Checklists after final welding acceptance by the Contractor and concluded the reports were completed acceptable.

Conclusion:

The inspector concluded the piping/piping supports were installed utilizing current revisions of listed drawings. The inspector found the welders to be currently certified to weld to the procedures listed on the field welding checklists. The inspector also found the welding of the pipe/piping supports to be acceptable to the listed specifications and drawings.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF __ HLW __ LAW __ LAB __ BOF _X_ **Quality Class:** ITS____ BOP _X_.

Inspection Note Number: A-05-AMWTP-RPPWTP-004-58

Inspector Name(s): Joe Christ **Dates of Inspection:** December 6 - 29, 2005

Item(s) Inspected:

A review of BNI's first-aid and safety related statistics was performed to identify any performance issues requiring attention by DOE or BNI. The review used control charts as a method to demonstrate whether injury and causal rates due to construction work processes were stable and predictable. This method also was used to see if injury rate performance improvements could be attributed to actions implemented by BNI management.

Documents Reviewed:

- BNI/WTP Safety Statistics/Graphs for 2004 – 2005, Excel® Spread Sheet
- RPP-WTP – Construction Safety Statistics, Excel® Spread Sheet
- SDS Report – Safety Assurance, Email from Catherine Hammack

Field Work and Activities Observed:

- This was a desk top review of safety related performance data and no field work or activities were observed.

Personnel Interviewed:

- Clay Davis
- Victor Edens
- Catherine Hammack

Discussion:

Based on interviews with BNI Safety Assurance staff, there are no BNI documents that define the process for preparing safety statistics. Current safety reports are prepared based on management needs and have evolved over time. The current process is

informal and relies on the supervisor's experience and ability. Data sources used to provide safety statistic reports come from the injury/illness record (Safety Data System, a BNI corporate database that functions as the OSHA 300 log), and BNI's accident investigation reports. The number of employee hours worked is obtained from BNI's Human Resources organization. This information is reviewed to identify trends needing further attention. The weekly report presents safety statistics in the table format shown below for each of the following groupings; Total WTP Project, Total Construction Site, Total Bechtel National, Inc, Washington Group International/Staff Augmentation, Construction Night Shift, and Construction Sub Contractor.

	First-Aid Cases	Rate	OSHA Recordable Cases	Rate	Restricted Cases	Rate	Lost Work Day Cases	Rate	Hours
Week	4	8.2	1	2.0	0	0.0	0	0.0	97,602
Month	20	8.3	3	1.2	0	0.0	1	0.4	481,220
Year to Date	374	13.0	43	1.5	14	0.5	12	0.4	5,769,394
Job Inception	1475	10.7	156	1.1	75	0.5	32	0.2	27,678,233

The information being used was considered reliable. However the rates may be revised later due to the work hour information taking up to a quarter to be finalized. The injury/illness record for first-aid events may also be revised due to some injury prognoses being delayed or a non-recordable injury later being determined as OSHA recordable. This can sometimes be several months. While these changes may affect the various rates, the change is relatively small and does not impact the overall performance picture.

BNI uses two forms to collect accident/injury information that is used to fill in the data fields in the SDS. The information requested on the forms appears adequate for this purpose. However, while reviewing the injury/illness data it was noticed that some terminology varied within similar data fields and in several events information was missing that was available in other fields. This situation may indicate that more thoroughness is needed in completing the forms. Analyzing injury events may be improved if the SDS contained complete information in each field.

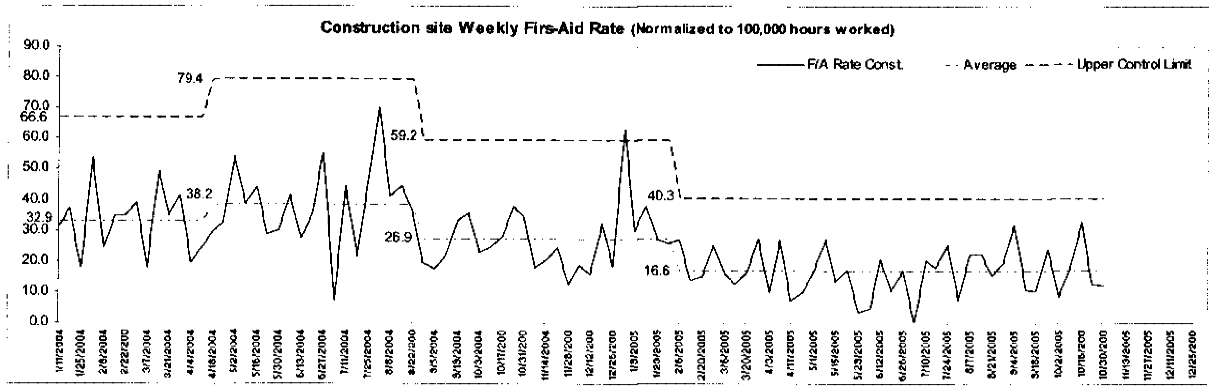
BNI's performance monitoring and trending process bins the data by various attributes and then analyzes it to identify adverse trends. This information is presented monthly in several graphical formats such as bar graphs and trend charts and is divided up by various groupings. In presenting its safety performance statistics, BNI management chose not to use control charts since they were considered ineffective. While BNI's process is effective in identifying adverse trends it is limited in demonstrating whether a process is stable. In this case the process would be the rates at which injuries are occurring. Based on the graphs used by BNI it is not possible to determine whether the variation in injury numbers is due to normal process variation or something else. Control charts provide a means to see the variation in the process and to recognize when a perturbation outside the established norms has occurred.[1]

[1] The benefit in using these charts is in recognizing whether data points are due to the natural variable characteristic of the process being monitored. Monitoring construction site processes that represent a complex interrelationship of personal behaviors, administrative procedures, equipment use, and site conditions is not an exact science and should by approached with that perspective.

Based on accident/injury information provided by BNI the assessor created a control chart representing the first-aid case rate per week normalized to 100,000 hours worked. Based on this chart (see attached), two process changes occurred on site that improved (reduced) the average first-aid rate to the workers at the construction site. The first occurred around August 22, 2004 and the second around January 23, 2005. BNI also provided a timeline listing various actions management took to address construction site safety. This timeline was superimposed on the chart and revealed actions taken by BNI had somewhat immediate and direct impact on reducing the first-aid case rate. Without this chart, it is much harder to see the correlation between management's actions and results.

As mentioned earlier, control charts can help identify perturbations that occur that can not be explained by the normal variation. Around January 2, 2005, the weekly case rate exceeded the upper control bound. This indicates something happened during the week that caused the case rate to increase outside what would normally be predicted. Based on reviewing the individual accidents during the week in question, it became apparent that inclement weather (increased snow fall) led to numerous slip type injuries. Knowing this information can help management understand what type of action it needs to take. In this situation, due to the significant number of weather induced injuries, changes to the safety processes may not necessarily be needed, but reevaluation of the cold weather protection program might be considered. In this situation the increased rate was obvious. However, other perturbations may not be as recognizable, especially if there multiple changes occurring in the various processes.

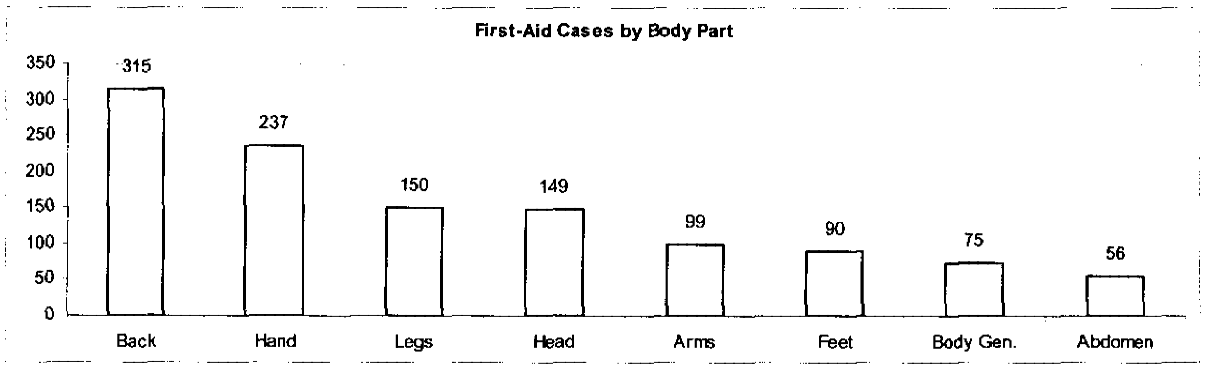
Additional analysis was performed on the various types of injuries and their causes. The results are presented below.



Construction Site Weekly First-Aid Rate: This chart is a compilation of all the injuries and does not distinguish between first-aid cases and OSHA recordable cases. It is also based on only craft work hours but includes injuries occurring to non-manuals employees since the number contributed by non-manuals is negligible compared to manual employees.

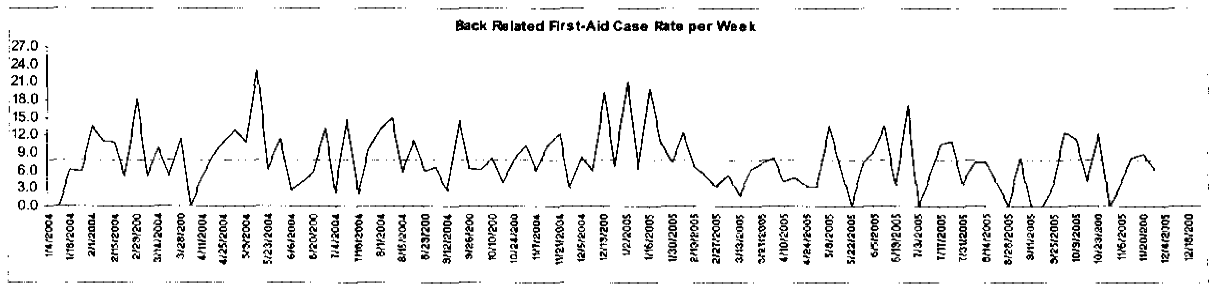
Based on the construction site first-aid cases, the trend over the past two years has improved. The average weekly first-aid rate is currently 16.6 cases per 100,000 hours worked. This is an improvement from a high of 79.4 cases per 100,000 hours worked between April and August, 2004. The current trend started in January 2005. The process variation as measured by the standard deviation has also improved from the high of 13.7 occurring between April and August, 2004 down to 7.9. The average weekly first-aid rate and variation have been relatively constant since February 2005 with no unusual outliers or groupings. The outlier during the week of 1/2/05 was due to a higher number of injuries resulting from slips caused by a relatively large snowfall accumulation at the site during the week.

The next five charts represent the safety data as defined by body part injured.

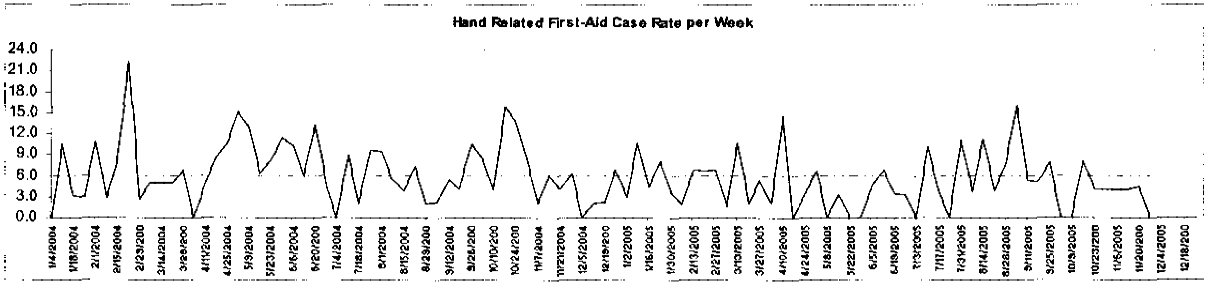


1. First-Aid Cases by Body Part: This graph breaks out the various first-aid cases over the past two years based on the location on the body. Back included neck, shoulders, and spine. Hand included the wrists. Legs included the knees. Head included face, mouth, teeth, eyes, ears, and nose. Feet included the ankles and toes. Body general included areas affecting the overall body. Abdomen included the groin area, pelvis, buttocks, chest, ribs, and internal organs.

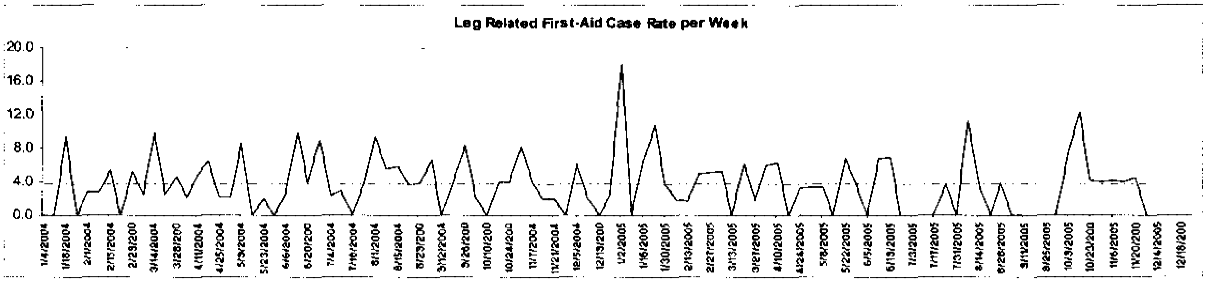
The following charts only address the top four contributors and the rates are based only on construction worker hours since non-manual injury rates were negligible in comparison. The case rates were normalized to 100,000 hours. Based on the lower frequency of occurrence of the other four locations further analysis was not performed.



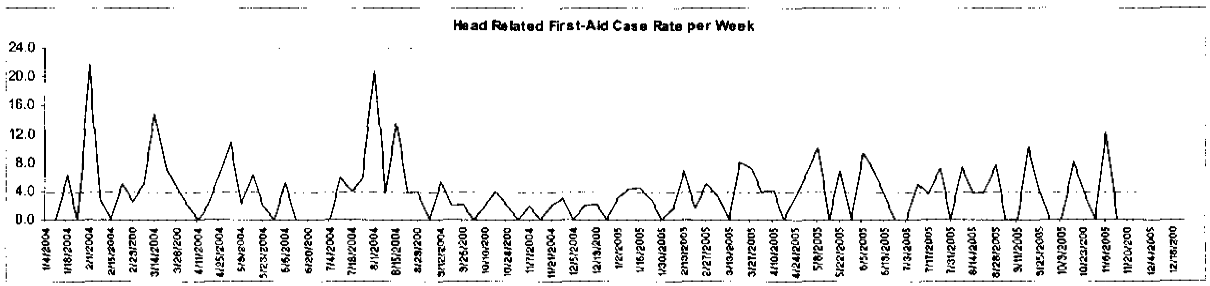
2. Back Related First-Aid Case Rate per Week: No significant trend was identified with this chart. However, it appears that the case rate since 2/13/2005 has decreased since most of the data points lay below the average.



3. Hand Related First-Aid Case Rate per Week: No significant trend is demonstrated by this control chart. There appears to be relatively little change in the variation or the rate of occurrence. This indicates that the hand injury rate is constant and the process is stable.

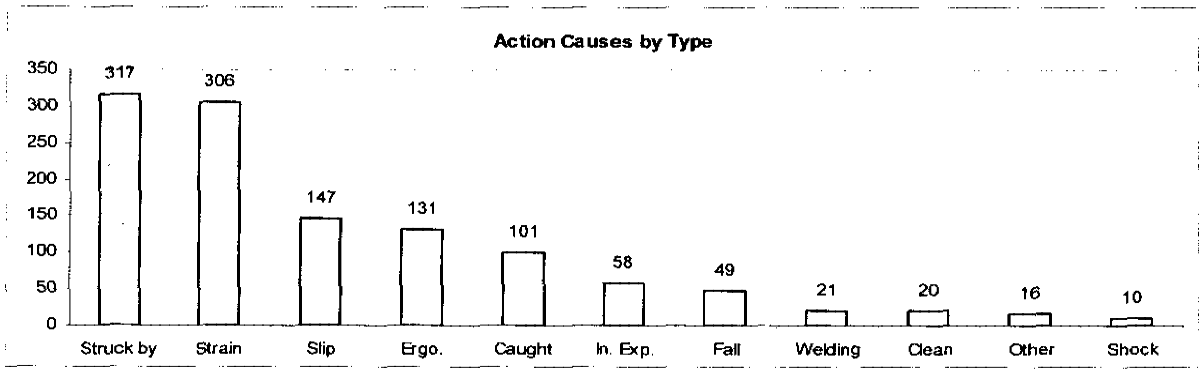


4. Leg Related First-Aid Case Rate per Week: No significant trend is demonstrated by this control chart. There appears to be relatively little change in the variation or the rate of occurrence. This indicates the rate of leg injuries constant and the process is stable.



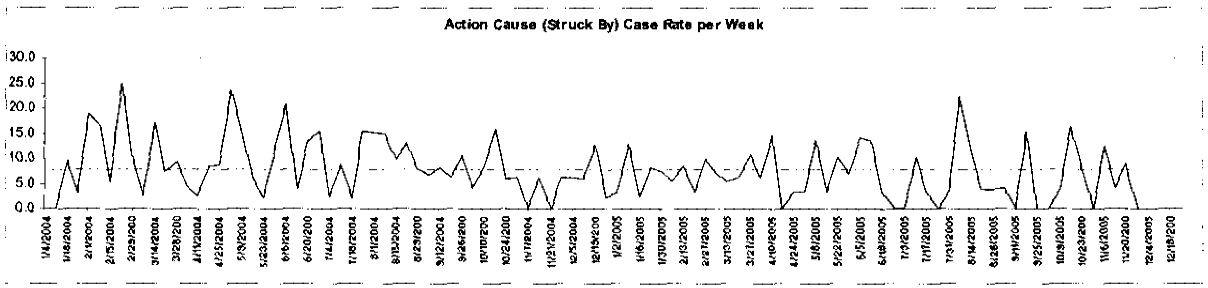
5. Head Related First-Aid Case Rate per Week: No significant trends were demonstrated by this control chart, although there appears to be improvement in the variation of occurrence during 2005. It also appears during the last quarter of 2004 the case rate dropped for a period of time but came back up. No specific reason was identified for this decrease. This rate of head injuries appears constant and the process is stable.

The next six charts represent the safety data as defined by Action Cause. This is the action performed by the person that led to their injury or event. Sometimes this action was not intentional but occurred by either accident or lack of personnel awareness to the hazardous condition.

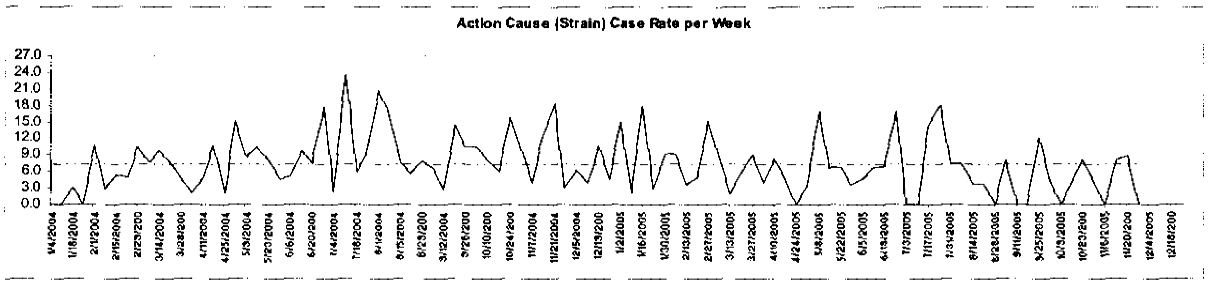


Action Causes by Type: This graph breaks out the various action causes over the past two years based on the following categories as listed and defined below. Struck-by (struck-against) included injuries caused by foreign bodies in the eye, cutting, or by falling objects. Strain included injuries caused by overexertion, lifting, climbing, pulling, or pushing. Slip or trips resulting in injury. Ergonomics included injuries caused by repetitive motion, body position, or ergonomic hazards. Caught included injuries caused by being caught in or between something. Internal exposure included injuries caused by exposure to noise, dust, radiation, heat/cold environment, or inhaling, absorbing, or ingesting some hazardous material. Fall included injuries caused by falling from elevation or on the same surface (not slip or trip). Welding included any injury caused by welding. Clean included injuries caused by grinding, sanding, scraping, cleaning, or blowing actions. Other included injuries caused by vehicles or injuries not classified under any other listed cause. Shock included events due to electrical shock.

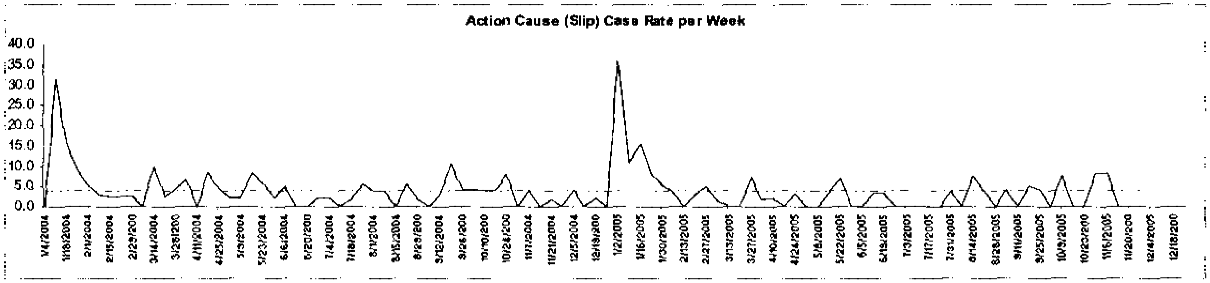
The following charts only address the top five contributors and rates are based on only construction worker hours since non-manual injury rates were negligible in comparison. The case rates were normalized to 100,000 hours. Based on the lower frequency of occurrence in the other six categories further analysis was not performed.



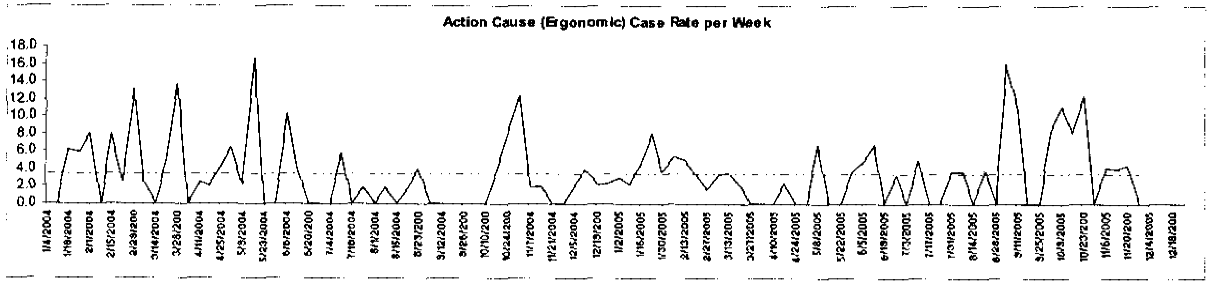
1. Action Cause (Struck By) Case Rate per Week: No significant trends were demonstrated by this control chart. Injury rates due to this cause remain steady and the process is stable.



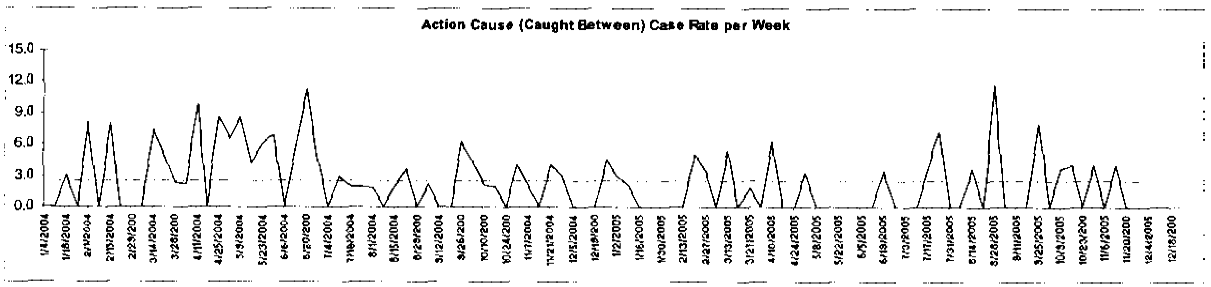
2. Action Cause (Strain) Case Rate per Week: No significant adverse trends were demonstrated by this control chart. It appears that the rate has improved during the last quarter of 2005 since the variation appears to lie below the average. Injuries due to this cause appear to have improved and demonstrate process stability.



3. Action Cause (Slip) Case Rate per Week: This chart demonstrates an adverse trend during the early winter months of January and February. While this is not unexpected it demonstrates that the safety process for preventing slips is least effective during these two months. The variation is relatively low during the rest of the year indicating these two outliers are unique and repetitive and may therefore require action. BNI should evaluate what actions are needed to eliminate this jump in the causal rate. The outlier discussed in the Construction Site Weekly First-Aid Rate chart indicated snow accumulation attributed to the 2005 spike. However, after reviewing the individual events no unique attribute could explain the increase.



4. Action Cause (Ergonomic) Case Rate per Week: No significant adverse trends were demonstrated by this control chart. However, it appears that the variation itself is inconsistent which indicates instability in the safety processes designed to minimize ergonomic injuries. Increased variability may be a leading indicator that the injury rate will worsen. Further monitoring and evaluation is needed to understand this situation.



5. Action Cause (Caught Between) Case Rate per Week: No significant adverse trends were demonstrated by this control chart. Injuries due to this cause appear steady and demonstrate process stability.

Conclusion

BNI's safety processes have in general been effective at reducing the rate of first-aid events over the past two years. The actions taken by BNI construction management resulted in two significant improvements, once in September 2004 and the other in February 2005. BNI's safety processes in general appear stable and predictive. It is important to note that just because a process demonstrates stability; it does not imply that the injury rates are acceptable. Improving and eliminating injuries should always be the goal and using these charts as a tool to monitor that progress is a start.

This report identified two areas where BNI's attention is recommended. The first area deals with injuries caused by slips due to cold weather conditions (see previous discussion). The second area deals with the process instability for injuries caused by ergonomic factors. Recent instability may indicate worsening injury rates due to ergonomic factors.

Submitted By: Joe Christ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW___ LAB___ BOF_X__ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-59

Inspector Name(s): RI Taylor **Dates of Inspection:** December 12, 2005

Item(s) Inspected:

The inspector performed an overview of welding activities for the Balance of Facilities Rad Transfer Piping. Piping is currently being installed between the High Level Waste Facility and the Pretreatment Facility. The following items were included in the overview; fit-up and alignment, welder certification, construction work package review, and final weld inspection.

Design/Installation Documents Reviewed:

Construction Work Package, BPU0124.

24590-BOF-FWCL-CON-04-0744.

ASME B31.3, 1996.

24590-WTP-MN-CON-01-001, *Welding Control Manual,* Revision 19, dated November 30, 2005.

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April 2005.

Acceptability of Material Being Used:

The inspector verified welding materials were acceptable per the Field Welding Checklist.

Work Activities:

The inspector verified drawing revisions of the piping isometrics, listed on the Field Welding Checklist, to be current and in compliance with the documents contained in the construction work package.

The inspector performed final weld inspection and alignment for the following listed Field Welding Checklist:

24590-BOF-FWCL-CON-04-0744, 3" Stainless Steel, inner to inner, (RLD) Radioactive Liquid Waste Disposal System piping.

Training and Qualification of Personnel:

From a review of the Contractor's welder qualification list, the inspector verified welder P-86 was certified to weld to the procedure listed on the Field Welding Checklist.

Adequacy of Final Records:

The inspector reviewed the Field Welding Checklist after final weld and radiograph inspections were completed. The Field Weld Checklist was complete as required.

Conclusion:

The inspector concluded the welding activities noted above were performed and documented to the referenced requirements listed above.

Submitted By: RI Taylor **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW_X__ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes___No_X__

Inspection Note Number: A-05-AMWTP-RPPWTP-004-60

Inspector Name(s): MD Evarts
J. McCormick-Barger

Dates of Inspection: December 5/6, 2005

Item(s) Inspected:

The Department of Energy, Office of River Protection (ORP) inspectors performed a review of Oregon Iron Works, Inc. (OIW), (Supplier – Purchase Order – 24590-QL-MRA-ADDH-00007) HLW/PTF Crane Maintenance Shield Door fabrication work at their Clackamas Oregon fabrication shop. The Supplier was hired by the Contractor (BNI) to fabricate important-to-safety equipment and components for use at the Waste Treatment and Immobilization Plant (WTP) site, located at Hanford Washington. ORP periodically inspects selected suppliers to both assess BNI's oversight of WTP material and service suppliers and to confirm adequate quality of the products provided by the selected suppliers.

Design/Installation Documents Reviewed:

OIW, *Nuclear Products Quality Assurance Manual*, Revision 6, dated April 22, 2005.

Engineering Specification – 24590-WTP-3PS-ADDH-T0006, *QL Crane Maintenance Shield Doors for HLW and PTF,* Revision 0, dated March 24, 2005.

Material Acceptance Plan 24590-WTP-MAP-AS-05-00021, Revision 0, dated March 7, 2005.

Supplier Quality Representative (SQR) Oversight of OIW

The inspectors obtained and reviewed selected portions of BNI's OIW purchase order and the above listed Material Acceptance Plan (MAP) for the crane maintenance shield door fabrication work. The inspectors also reviewed all of the related SQR reports written since the purchase order was issued to the Supplier (15 reports issued from June 10 through November 17, 2005). The MAP was typical of most MAPs reviewed in the past for fabricated work. For example, the SQR was to review weld procedures, welder and inspector qualifications, and materials used, and observed first activities for each new process employed by the Supplier. SQR reports documented these inspection activities and met the requirements specified in the MAP.

Quality Assurance Program Review:

The inspectors reviewed selected portions of the Supplier's Quality Assurance Manual(QAM) and inspected Supplier's implementation of the following selected QA program activities:

Nonconformance Control and Corrective Actions:

The inspectors reviewed the Supplier's Nonconformance Report (NCR) Log and selected NCRs, Corrective Action Request (CAR) Log and selected CARs, and issued Supplier Deficiency Deviation Request (SDDR) and Request for Information (RFI) records associated with the fabrication of the shield doors.

Based on review of the records mentioned above, the inspectors determined the Supplier was generally documenting and addressing issues in accordance with their QAM and BNI Purchase Order requirements. NCRs dispositioned for rework or accept as is were approved by BNI and SDDRs adequately described and controlled requested deviations from approved design. Although most RFIs appropriately requested clarifications to purchase order or approved designed, one RFI (2155-OIW-RFI-0001) requested approval to deviated from the engineering specification regarding the use of a lithium soap grease when the specification stated lithium grease was not allowed. This RFI was sent to BNI and BNI approved the use of lithium soap grease; however, an SDDR should have been written in this case. This issue was discussed with the Contractor representative.

Audit Program:

The inspectors obtained a copy of the Supplier's audit schedule and selected four audits for review. These audits reviewed the Supplier's compliance to their QAM and were adequately detailed and of sufficient scope. One minor issue was identified regarding the time it was taking to address audit findings. In one audit, issues were identified in August and some were still open in December.

The inspectors also reviewed the audit of ARES Corporation, the Supplier's engineering sub-contractor. The audit was led by a subcontract QA auditor, and accompanied by a Supplier employee and a BNI employee. The lead auditor's qualifications were on file with the Supplier and the audit was detailed and of adequate scope.

Calibration Program:

The inspectors reviewed the Supplier's Calibration Program and determined, with one exception, the Supplier was implementing an adequate program to ensure measuring and testing equipment (M&TE) were being calibrated and controlled in an acceptable manner. M&TE were appropriately labeled indicating the date of calibration and date when calibration was again due, and records indicated calibrations were performed by a sub-contractor with standards traceable to nationally recognized standards.

Although most M&TE was being calibrated by a vendor who was placed on the Supplier's approved vendors list (AVL), equipment that could not be calibrated by the vendor were being sent to the original equipment manufactures (OEMs) for calibration. The OEMs were not on the Supplier's AVL and there was no documented justification for using an OEMs to calibrate equipment. Furthermore, the Supplier's QAM stated suppliers of Safety Related/Class/Significant services shall be qualified, approved and controlled by OIW through placement on the AVL. At least one instrument used on BNI procured equipment was calibrated by an OEM. The identified M&TE was a torque wrench used for verifying tightness on bolts in the door. This issue was discussed with a Contractor representative.

Acceptability of Material Being Used:

The inspectors reviewed the Supplier's purchase orders for materials used to fabricate the shield doors and found the material ordered was acceptable in accordance with the Supplier's fabrication drawings. The Supplier used the commercial grade dedication process to upgrade commercial grade material for Q material applications. The inspectors reviewed Supplier's procedure QP-2155-7-5, *Commercial Grade Material Upgrade Dedication Procedure,* Revision 2, and found the Supplier was adequately implementing their procedure except there was no objective evidence engineering had reviewed the procedure for concurrence that all the critical charactertics addressed in the procedure for upgrading bulk material was acceptable. This issue was discussed with a Contractor representative.

Work Activities:

The inspectors reviewed six welding procedures and found them to be acceptable in accordance with the above listed specification and ASME Section IX.

The inspectors reviewed five NDE procedures and found them to be acceptable in accordance with the above specification and ASME Section V.

The inspectors reviewed the material certifications for steel plate and bolt material and found the Supplier had purchased and installed materials that were acceptable in accordance with the above specification.

The inspectors reviewed the material certifications (GTAW & FCAW) for the weld filler material the Supplier was using to fabricate the shield doors. The inspectors found the Supplier had purchased and used acceptable weld filler material in accordance with the above specification.

The inspectors asked to review the Supplier's weld filler metal material storage and issue procedure and were told the Supplier did not have a procedure in place for issuance of weld filler material. The inspectors found the Supplier kept the weld filler metal under lock and only a few Supplier personnel were allowed to issue the weld filler material. This issue was discussed with a Contractor representative.

The inspector reviewed drawing 2156-23227 for compliance to Engineering Specification 24590-WTP-3PS-SS00-T0001, *Welding of Carbon Structural Steel,* Revision 5, paragraph 5.3 which states; "In addition to the above requirements, the Supplier shall show the applicable WPS and nondestructive testing on shop drawings. NDE and WPS number or identification may be shown either in the fabrication drawing notes or on the applicable weld joint detail or in a table." The inspectors determined the reviewed drawing did not show the applicable WPS at the weld symbol or in the notes. This issue was discussed with a Contractor representative. Also the inspectors inquired about a weld symbol for a dissimilar metal weld that called for the welder to use 308 weld filler metal instead of 309 weld filler metal. The Supplier investigated this and found the drawing was in error but the fabrication traveler showed the Supplier actual welded with 309 weld filler metal and the traveler required the weld to be welded with 309 weld filler metal. The inspectors asked the Supplier if there was a disconnect between the drawing requirements and the traveler. This issue was discussed with a Contractor representative.

Training and Qualification of Personnel:

The inspectors reviewed seven welder certifications and found them to be acceptable in accordance with the above specification and ASME Section IX.

The inspectors reviewed three Quality Control (QC) inspector certifications and found the QC inspectors were certified acceptable in accordance with the above specification. All the QC inspectors had current J1 eye examinations.

The inspectors reviewed five NDE inspector certifications and found them to be acceptable in accordance with the above specification except one NDE inspector certification for MT/PT was not signed by a Level III as required by their written practice and American Society for Nondestructive Testing (ASME), *Recommended Practice No. SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing*. This issue was discussed with a Contractor representative. All the NDE inspectors had current J1 eye examinations.

Adequacy of Final Records:

The inspectors reviewed Traveler 2156-TR-23-12 for door #5 for completeness and accuracy and found the Traveler adequately detail the work. The Supplier had been keeping the traveler up-to-date with documentation of completed work activities.

Conclusion:

The inspectors concluded the Contractor's oversight of OIW was adequate. OIW was generally implementing its Quality Assurance program during performance of the BNI purchase order in an acceptable manner. Several issues were identified regarding the Supplier: (1) using an RFI (rather then the required SDDR) to obtain approval to deviate from the purchase order (lithium grease); (2) using OEMs to calibrated selected M&TE without first placing the OEMs on the approved vendors list; (3) failing to have engineering approved procedures for performing commercial grade upgrade dedication; (4) failing to have a procedure to specify the control of welding materials; (5) failing to ensure drawings show the applicable WPS at the weld symbol or

in the notes; (6) failing to specify the correct weld rod on a fabrication drawing; and (7) failing to have a level III sign an NDE inspector's certification for MT/PT. The inspectors discussed these issues with a Contractor representative at the completion of the inspection. Later the Contractor representative informed the inspectors the Supplier committed to address these issues.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_ HLW_X_ LAW___ LAB___ BOF___ **Quality Class:** ITS_X_ BOP___

Dangerous Waste Permit Affecting: Yes___No_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-61

Inspector Name(s): Evarts/Wallace/McCormick-Barger **Dates of Inspection:** December 7/8, 2005

Item(s) Inspected:

The Department of Energy, Office of River Protection (ORP) inspectors performed a review of Wagstaff, Inc., (Supplier – Purchase Order 24590-QL-MRA-HCTH-00002) HLW/PTF Lidding Equipment Machine fabrication work at their Spokane, WA fabrication shop. The Supplier was hired by the Contractor (BNI) to fabricate important-to-safety equipment and components for use at the Waste Treatment and Immobilization Plant (WTP) site, located at Hanford Washington. ORP periodically inspects selected suppliers to both assess BNI's oversight of WTP material and service suppliers and to confirm adequate quality of the products provided by the selected suppliers.

Design/Installation Documents Reviewed:

24590-QL-POA-HCTH-00002-01-00001, Rev. 00D, *Wagstaff ASME NQA-1 Quality Assurance Manual, Revision 3.04, 02/21/05.*

24590-WTP-3PS-MJW0-T0001, *Engineering Specification for HLW and PTF Cask Lidding Machines,* Revision 2, dated June 4, 2004.

24590-WTP-3PS-EKP0-T0001, *Engineering Specification for Electrical Requirements for Package Equipment,* Revision 2, dated January 5, 2004.

1999 National Electrical Code.

Supplier Quality Representative (SQR) Oversight of Wagstaff

The inspectors obtained and reviewed selected portions of BNI's Wagstaff purchase order and Material Acceptance Plan (MAP) for the Lidding Equipment Machine fabrication work. The inspectors also reviewed all of the related SQR reports written since the purchase order was issued to the Supplier. The MAP was typical of most MAPs reviewed in the past for fabricated work. For example, the SQR was to review weld procedures, welder and inspector qualifications, and materials used and observed first activities for each new process employed by the Supplier. SQR reports documented these inspection activities and met the requirements specified in the MAP. However, based on the issues described below, SQR activities did not identify significant quality assurance program weaknesses that should have been evident when

reviewing weld procedure, staff qualification requirements, and work in progress. These issues and other issues raised in earlier ORP supplier inspections indicated SQR training or other improvement initiatives may be warranted to ensure supplier quality programs are adequate for the work being performed by the suppliers.

The issues described below highlighted the importance of BNI Supplier Quality Program oversight, which resulted in the Supplier being placed on BNI's Approved Supplier List, including review of procedures and programs to ensure the QAMs are adequately implemented during prescribed fabrication work. BNI stated they had recently improved their process to include reviewing related procedures and programs and thought they had address earlier supplier programs such as Wagstaff's.

Quality Assurance Program Review:

The inspectors performed a review of the Wagstaff Quality Assurance Program during the site inspection. Because of numerous quality issues identified early during the inspection and discussed below, the BNI Lead Supplier Quality Representative, (LSQR) informed the inspectors they had performed a pre-ORP inspection site assessment of Wagstaff two weeks earlier, using the ORP typical inspection plan, and had identified many of the same issues identified by the inspectors. The LSQR stated they were performing this assessment at all of their NQA-1 suppliers, but had not gotten to Wagstaff before ORP announced its intention to inspect this Supplier. The inspectors' then asked for a briefing of this pre-visit inspection and was shown a preliminary report containing these issues. Although ORP does not encourage or condone pre-ORP inspection BNI assessments, BNI was advised that in the future, if significant performance issues are know, BNI should inform ORP of these issues and recommend delaying the inspection until BNI has had an opportunity to effect improvements at the supplier's site. The request for delay should be accompanied by appropriate justification including a description of planned actions to address the issues.

The inspectors reviewed various portions of Wagstaff's QAM during inspection of the programs described below. For the sections reviewed, the QAM generally met NQA-1 requirements. However, procedures used by Wagstaff to implement the QAM lacked appropriate detail to ensure consistent compliance with the intent of the QAM. For example, M&TE procedures were approved by the person who wrote and used the procedure but was not reviewed by the Quality Assurance Manager and did not have appropriated guidance regarding developing and maintaining quality records. As discussed below, this was evident in most if not all areas reviewed.

Calibration Program Review:

The Wagstaff calibration laboratory was well established and implemented. A data base was available listing site Measuring and Test Equipment (M&TE) and containing the history of calibration for the M&TE. The calibration technician was able to demonstrate the process used to ensure M&TE was calibrated as required and records were available of each M&TE calibration activity reviewed. From an examination of stored M&TE, the inspectors verified M&TE were properly labeled with uniquely assigned M&TE serial numbers and calibration due

dates. Records from the Supplier's calibration lab sub-contractor indicated calibrations were performed to national standards and the sub-contractor was on the Supplier's Approved Supplier List (ASL).

The only issue identified regarding M&TE, concerned the lack of adequate procedures describing the activities performed by the calibration technician. For in-house calibrations, the calibration procedures described the general practices employed, but did not, for example, specify the requirements to document as-found and as-left calibration data. These procedures did not contain documentation of review by the Quality Assurance Organization and did not contain appropriate quality guidance expected for quality level work, nor did they contain revision levels or any other typical procedural control process. Nevertheless, appropriate calibration records were being generated and maintained at the calibration laboratory.

Audit Program

NQA-1 states planned and scheduled audits shall be performed to verify compliance with all aspects of the quality assurance program. To verify this, the inspectors requested a copy of the Supplier's current audit schedule. The audit schedule was based on performing audits of work being performed on each NQA-1 purchase order. Because of the various stages of completion of the purchase orders, some aspects of the Supplier's QAM were not scheduled to be reviewed in any scheduled time-frame.

From review of several selected audits, the inspectors were not able to conclude a representative sample of in-house activities was being adequately assessed to ensure compliance to the QAM. Furthermore, a number of compliance issues were documented but reference to Corrective Action Requests (CARs) or Preventive Action Requests (PARs) were not indicated in the audit report.

Supplier Deficiency Disposition Request (SDDR) / Request for Information (RFI) Program

The inspectors were informed the Supplier did not use RFIs to obtain clarifications and used SDDRs extensively to obtain clarifications or deviations from purchase order requirements. The inspectors reviewed all of the SDDRs and found them to be well written, containing adequate information, and when required, justification for deviations with purchase order requirements. All but two of the SDDRs were approved or otherwise addressed by BNI. The two remaining SDDRs were pending BNI action at the time of the inspection.

Installation Program Adequacy:

The inspectors reviewed the Inspection/Test Plan (Submittal #24590-QL-POA-HCTH-00002-06-00001, Revision 00C) as required by the above specification and found it to be acceptable and approved by BNI.

Acceptability of Material Being Used:

The inspectors reviewed the Supplier's purchase orders for materials used to fabricate the Lidding Machine and found the material ordered was acceptable in accordance with the Supplier's fabrication drawings. The Supplier used the Commercial Grade Upgrade process to upgrade commercial grade material to Quality material. The inspectors reviewed the Supplier's procedure and found the procedure was a Quality Assurance (QA) procedure but no approving signatures from the QA or Engineering group was indicated. The Supplier was implementing their procedure acceptably; however, there was no objective evidence engineering had reviewed the procedure for concurrence that all the critical characteristics addressed in the procedure for upgrading material was acceptable. Since the upgraded material in question was bulk, and the Supplier had obtained independent analytical data to support the Material Test Supports supplied by the sub-supplier, the material received is not an issue with the BNI purchase order. This issue was discussed with a BNI representative.

Work Activities:

The inspectors reviewed six welding procedures and found them to be marginally acceptable in accordance with the above specification because the Supplier was under a Corrective Action Request (CAR) to bring the welding procedures in compliance with AWS D1.1.

The inspectors reviewed two NDE procedures and found them to be under a Supplier's CAR for not complying with the above listed specification and ASME Section V.

The inspectors asked to review the Supplier's weld filler metal material storage and issue procedure and was told that the Supplier did not have a procedure in place for issuance of weld filler material. The inspectors found the Supplier kept the weld filler metal under lock and only a few Wagstaff personnel were allowed to issue the weld filler material. This issue was discussed with a BNI representative.

The inspectors verified the Supplier's electrical control panels fabricated for the HLW and PTF Machines and LAW Container Receipt Conveyors Control Panels were listed and labeled by a UL 508 shop, thus complying with the engineering specification requirements.

The inspectors reviewed the Engineering Specification for Electrical Requirements for Packaged Equipment to verify the Supplier was implementing this procedure in their shop. With exception of not segregating the 24 volt DC wiring from 120 volt AC power, as required per paragraph 6.4.4 of the engineering specification, the inspectors found the electrical equipment conformed to the specification. The sub-contractor agreed this item was overlooked and immediately re-routed the 120 volt wiring, thus meeting the above requirement.

The inspectors reviewed ten random Wagstaff Corrective Action Requests for compliance with the Supplier's Corrective Action Procedure. The inspectors found several reports with numerous action items that had been closed without documenting the completion of their action item, thus not meeting the requirements of their own corrective action procedure/process.

The inspectors reviewed two Nonconforming Product Review Reports (24711 & 24712) for compliance with the Supplier's procedure for Control of Nonconforming Items. The Supplier initiates a hard copy of the report in the Quality Control office; these records are inputted into a database and become the record copies. The hard copy is maintained for three years and than disposed. The inspectors found not all of the appropriate information on the hard copy was transferred to the record copy. Example: The hard copy's disposition was "Accept as is" based on SDDR 015, the record copy had no description why this item was accepted as is. Also both of these reports were closed without a signature in the "Customer Approval" block, even though the Quality Assurance Manager stated the signature was a procedural/contractual requirement.

Training and Qualification of Personnel:

The inspectors reviewed three welder certifications and found them to be marginally acceptable in accordance with the above specification because the Supplier was under a Corrective Action Request to bring the welding certifications incompliance with AWS D1.1.

The inspectors asked to review the written practice for qualifying NDE personnel and was given an incomplete procedure to review. The procedure was without a NDE Level III signature indicating acceptance of the procedure. Without a written practice, none of the NDE inspectors were certified for MT/PT. The NDE inspectors did have current eye examination to J1 test. This issue was discussed with a BNI representative.

The inspectors reviewed one Quality Control inspector certifications and found the Supplier did not have a procedure for certifying QC inspectors. Without a Supplier's certifying procedure the inspector was not certified. The QC inspector did have a current American Welding Society Certified Welding Inspector (CWI) certification and a current eye examination to J1 test. This issue was discussed with a BNI representative.

Adequacy of Final Records:

The inspectors reviewed the Supplier's work package 0538593401-010210H1, Revision 2 and found the document confusing to understand and the supporting documentation was just as confusing. For example, where the welding inspector signed off for visual weld examination, the document did not reference the visual weld procedure or code used for acceptance criteria.

BNI Follow-up Actions:

As stated above, BNI had conducted a pre-inspection review and had identified a number of the issues described above. Following completion of this inspection, ORP inspectors briefed BNI on the issues identified above. At the time of the exit, BNI supervision acknowledged the issues identified and indicated they would take appropriate actions to communicate the issues to the Supplier and to take other actions to ensure the issues were adequately addressed before allowing any materials to be shipped from the Supplier's shop.

Subsequent to the inspection, on December 15, 2005, ORP met with BNI to discuss the actions they were taking to address the concerns listed above. BNI stated they had immediately removed

the Supplier from their ASL and had issued a letter and Supplier Corrective Action Report (SCAR) to the Supplier documenting the issues identified by them and the inspection team. The inspectors obtained a copy of the letter and SCAR (CCN: 132498, and SCAR 24590-WTP-SCAR-QA-05-157, dated December 9, 2005. The SCAR addressed most of the issues identified by the inspectors. BNI also stated they were planning a peer review of the Wagstaff SQR inspections the week of December 19, 2005, and a Quality Assurance Audit of Wagstaff the first week in January 2006.

BNI stated the last audit of Wagstaff had identified a number of performance issues and, in hind sight, should have flagged Wagstaff for additional actions. As a result of their failure to take more aggressive actions at Wagstaff at the time of the previous audit, BNI is reviewing other NQA-1 Supplier performance audits to see if additional oversight is needed at other supplier facilities to preclude performance similar to what was identified at the Wagstaff fabrication facility.

Conclusion:

The results of this inspection indicate Wagstaff did not have an appropriately implemented NQA-1 program. Two weeks prior to this inspection, BNI had identified a number of the issues described above, and they notified Wagstaff that corrective actions would have to be taken before materials could be shipped to the WTP. BNI gave the Supplier the option of documenting the issues on internal corrective action documents rather then a BNI generated SCAR and would withhold approval to ship completed fabrications until the corrective action documents were adequately addressed and closed. BNI stated the additional issues identified during this inspection led BNI to formally issue a SCAR, suspend work, stop shipments, and remove the Supplier from its ASL. In addition, BNI initiated a peer review of SQR inspection performed at the Supplier's site and has scheduled a QA audit for early January 2006.

The problems identified indicate BNI did not implement an adequate supplier oversight program to ensure Wagstaff materials and services complied with appropriate quality requirements. BNI identified many of the issues described in this inspection note just prior to the inspectors' arrival and were taking actions to get them resolved by the Supplier. Subsequent to this inspection, BNI initiated actions to address weaknesses in its oversight of supplier quality representative and supplier quality auditors.

Although BNI had taken some actions to address Wagstaff, Inc. performance issues prior to this inspection, the issues identified above are a continuation (more of the same) of issues identified earlier at Eaton Metal Products and Diamond B Constructors, and reported in Inspection Report A-05-AMWTP-RPPWTP-002, dated July 13, 2005 (05-WTP-132). This indicates the corrective actions taken by BNI to address supplier oversight weaknesses have not been effective. Failure to adequately assess Wagstaff, Inc. quality assurance performance is a Finding against QAM Policy 07.1, *Control of Purchased Items and Services,* subsection 3.7.1 regarding the requirement to adequately assess the quality assurance performance of suppliers **(Finding A-05-AMWTP-RPPWTP-004-F04)**.

To determine if this quality breakdown is limited to this Supplier and corrective actions taken by BNI to address oversight issues is effective, ORP plans to increase the frequency of supplier inspections until ORP has obtained an adequate level of confidence that BNI supplier oversight is acceptable. Furthermore, ORP is closing Assessment Follow-up Items A-05-AMWTP-RPP-002-A03 and A-05-AMWTP-RPP-002-A06, opened to track corrective actions for Diamond B Constructors and Eaton Metal Products respectively, and will track BNI's corrective actions to address these supplier issues along with BNI's efforts to address the Finding discussed above.

Submitted By: _MD Evarts___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__ No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-62

Inspector Name(s): RI Taylor **Dates of Inspection:** December 13, 2005

Item(s) Inspected:

The inspector witnessed pressure testing (hydrostatic or pneumatic) at various locations within the PTF facility during the month of December 2005.

Design/Installation Documents Reviewed:

ASME B31.3, 1996.

Procedure – 24590-WTP-GPP-CON-3504, *Pressure Testing of Piping, Tubing, and Components,* Revision 5, dated November 7, 2005.

Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the *Hanford Waste Treatment and Immobilization Plant,* Revision April 2005.

Acceptability of Material Being Used:

The inspector verified piping material or spools were installed in accordance with the piping codes referenced on the pressure test data sheet listed below.

Work Activities:

The inspector verified the proper test boundaries were specified, valve line-ups were thorough, and the required test parameters had been specified. The inspector verified the calibration of the pressure gauge was current, the appropriate calibration stickers were affixed, and the gauge range conformed to the requirements of the above procedure. The inspector observed the conduct of hydrostatic/pneumatic testing in accordance with the Contractor's established requirements and the applicable code. The inspector verified the system tests conformed to established requirements regarding leakage and time at pressure.

If the listed test below is a Dangerous Waste Permitted system, the inspector verified the test was performed acceptable in accordance with the permit.

The inspector witnessed the following pressure tests:

- 24590-PTF-DSTR-CON-05-0023, 6" and 8" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0037, 6" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0039, 8" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0040, 6" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0041, 8" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0042, 6" - PWD Plant Wash & Disposal System
- 24590-PTF-DSTR-CON-05-0043, 3", 6", and 8" - PWD Plant Wash & Disposal System

Adequacy of Final Records:

The inspector reviewed the final pressure test reports and concluded the reports were completed acceptable.

Conclusion:

The inspector concluded the Contractor had accomplished hydrostatic/pneumatic testing of the above listed pressure tests in accordance with established requirements.

Submitted By: _RI Taylor___ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-63

Inspector Name(s): Brian Harkins **Dates of Inspection:** December 2005

Item(s) Inspected:

Review of the closed occurrence report EM-RP--BNRP-RPPWTP-2005-0021, *Solar Truck Pack model ES 1224 (battery recharging unit) incident (small explosion).*

Program Documents Reviewed:

- Occurrence Report EM-RP--BNRP-RPPWTP-2005-0021

Remarks/Comments:

The inspector reviewed the closed occurrence report on the Solar Truck Pack explosion that occurred at the Pretreatment Building on August 30, 2005. The only corrective action listed was "All other Solar Truck Pack model ES 1224 have been removed from service pending a determination of what caused the failure". The inspector verified the second truck pack was removed from service (danger tagged) while it was determined what caused the explosion. Based on the manufactures recommendation, the Contractor removed the cell covers of the battery from the truck pack that exploded. The inspection found indications that the battery cell cap seals had not been installed correctly and concluded that the seals had allowed flammable gases to escape the battery and to accumulate in the truck pack case were they had subsequently been ignited by the battery pack switch when the worker turned the pack to the off position.

The Contractor removed the battery covers from the remaining battery pack and verified that the cell seals were correctly installed. Based on the inspection of the battery cell seals being correctly installed, the Contractor approved the remaining truck pack to be returned to service.

The inspector also worked with Environment, Safety, and Health to write a safety bulletin (2005-15 dated September 2005) and a data collection sheet (DCS 960) to ensure the lessons learned from this event was communicated to other sites.

Conclusion:

The inspector concluded BNI had adequately investigated and closed the issues associated with this occurrence.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: December 19, 2005 **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-64

Inspector Name(s): Debra Wallace **Dates of Inspection:** December 19, 2005

Item(s) Inspected:

The inspector performed a surveillance inspection of work in progress on the following electrical equipment at the Simulator Building as per Construction Work Package SEM0003:

- Panelboard E - 208/120 volt three phase, four wire panelboard with 225-amp main breaker and branch circuits 1-42.
- Panelboard E1 - 208/120 volt three phase, four wire panelboard with 100-amp main breaker and branch circuits 1-8.
- Panelboard DPE – Not installed at this time.

Design/Installation Documents Reviewed:

1999 National Electrical Code.

Construction Work Package SEM0003.

Drawing Change Notice 24590-BOF-VDCN-E-05-00072, dated November 15, 2005.

Remarks/Comments:

The inspector notified the Contractor of the following deficiency:

- Article 250-30(a)(1) & 250-28(d) requires a bonding (grounding) jumper to be sized based off of the derived phase conductors as per Table 250-66.

  DCN 24590-BOF-VDCN-E-05-00072 depicts a #4 AWG grounding (bonding) conductor routed in two 3" flexible metal conduits (C-023 & C-036) from 112.5 KVA Transformer 03 to Panelboard DPE. The grounding (bonding) jumpers are required to be #1/0 AWG conductors based off of the 500 kcmil phase conductors (2 sets of 250 kcmil conductors). Note: These conductors are not installed at this time.

  The field engineer stated the correct size ground conductor will be installed during this outage and prior to final acceptance. A Vendor Document Change Notice (VDCN) will be generated to incorporate this change.

Verification of installation of the correct sized ground conductor and the processing of the VDCN to change the drawing will be tracked as assessment follow-up item A-05-AMWTP-RPPWTP-004-A01.

Submitted By: D.O. Wallace_ **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___ HLW___ LAW_X__ LAB___ BOF___ **Quality Class:** ITS___ BOP_X__

Dangerous Waste Permit Affecting: Yes_X__No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-65

Inspector Name(s): MD Evarts **Dates of Inspection:** December 15, 2005

Item(s) Inspected:

The inspector performed a welding surveillance on a closure weld to vessel RLD-VSL-00004 (LAW C-3 Tank), nozzle 12, field weld number 1.

Design/Installation Documents Reviewed:

Weld Record 24590-LAW-FWCL-CON-04-0103 (WR25)

ISO Drawing 24590-LAW-P3-RLD-ZF00104001, *LAW Vitrification Building Isometric,* Revision 1, dated October 27, 2004.

Acceptability of Material Being Used:

The inspector verified the correct spool was being installed at the correct nozzle on the above vessel.

Work Activities:

The inspector witnessed the field welding engineer and Caliber inspector performed in-process inspections per the WR25 and the Weld Control Manual. The inspections verified correct material, preheat, fit-up, cleanliness, joint configuration, and tacks. Caliber inspection on December 19, 2005, identified the Contractor had issued 1/16" diameter welding electrode for WPS P45-T-AG. Furthermore, Caliber identified the wrong WPS on the WR25; the Contractor should have referenced P45, P8-T-AG, since they were welding P45 material to P8 material. Both WPS' only referenced 3/32" or 1/8" welding electrode. The Contractor changed the WPS immediately to the correct WPS and had the welder return the 1/16" welding electrode to the rod room before any welding had occurred. The inspector talked to the field welding engineering group to understand how 1/16" welding electrode could be issued to a welder when the WPS did not reference that size of electrode. The Contractor stated they would look into this matter.

The Contractor review the other four nozzle tank welds to verify the correct WPS was reference and they had used the correct electrode size. The four other nozzle welds referenced the correct WPS but 1/16" welding electrode was also issued for those welds. The inspector determined using the 1/16" welding electrode was a violation of ASME B31.3 Section 328.2.1(a) which

requires the Contractor to use ASME Section IX, paragraph QW-200.1(b). ASME Section IX, paragraph QW-200.1(b) states; "Contents of the WPS. The completed WPS shall describe all of the essential, nonessential, and, when required, supplementary essential variables for each welding process used in the WPS". Welding electrode is a nonessential variable so the Contractor needed to add it to the WPS if they wish to use that size electrode.

The Contractor generated Corrective Action Report 24590-WTP-CAR-QA-05-322 and Construction Deficiency Report 24590-WTP-CDR-CON-05-0260 to document and address these errors.

Conclusion:

The inspector concluded the Contractor welded the RLD-VSL-00004, nozzle 12, field weld number 1, in accordance with the above requirements except the Contractor issued a WR-25 with the wrong WPS which they corrected immediately and issued welding electrodes to the welder which was not used on this weld. The other four nozzle welds were welded with the 1/16" welding electrodes. This issue was identified by the Contactor's third party inspector (Caliber), and the Contractor issued a CDR and CAR to investigate and address the issue.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X__ HLW___ LAW___ LAB___ BOF___ **Quality Class:** ITS_X__ BOP___

Dangerous Waste Permit Affecting: Yes_X__No___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-66

Inspector Name(s): MD Evarts **Dates of Inspection:** December 20, 2005

Item(s) Inspected:

The inspector performed a follow-up inspection on assessment Finding A-05-AMWTP-RPPWTP-003-F02 from Inspection Note A-05-AMWTP-RPPWTP-003-72 for closure.

During revision of the Weld Control Manual, Welding Procedure Specification (WPS) P8-T-o was revised removing the note that autogenous (without adding filler metal) tack welds were acceptable. The supporting Procedure Qualification Record's (PQRs) 1041, 1184, and 1444 did not allow welding without adding filler metal. Nevertheless, prior to revising this manual, the Contractor had been using these WPS to perform numerous autogenous tack welds. Failure to comply with the requirements of SRD Safety Criterion 4.2-2 is considered Finding A-05-AMWTP-RPPWTP-003-F02.

The Contractor responded to this Finding in a letter to the Department of Energy, dated December 20, 2005 (CNN: 132488).

Design/Installation Documents Reviewed:

Welding Control Manual – 24590-WTP-MN-CON-01-001, Revision 19, dated November 30, 2005.

Corrective Action Report 24590-WTP-CAR-QA-05-220, Revision 0.

Work Activities:

The inspector verified the Contractor implemented the following corrective actions as commented in the above CAR report and written response to DOE:

- The inspector verified the Contractor issued letter CCN129517 to all field welding engineers to heighten the awareness of individuals responsible for reviewing the Weld Control Manual to pay attention to detail when using and reviewing the Weld Control Manual.

- The inspector verified the Contractor qualified a new Procedure Qualification Record (1511) for autogenous welding and added it to the machine welding procedures as required by the above CAR. This issue had minimal technical significance since

removing PQR 492 from the WPS was a clerical error, the original PQR was tacked using autogenous, all the welders were qualified using this process, and all the welds were either RT'd or UT'd and found acceptable. Adding the new PQR 1511 to the above WPS puts the Contractors welding program back into compliance with ASME Section IX.

Conclusion:

The inspector concluded the Contractor has implemented the commented corrective actions from the above CAR. Based on the above, assessment Finding A-05-AMWTP-RPPWTP-003-F02 is considered closed.

Submitted By: MD Evarts **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF__, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-67

Inspector Name(s): Brian Harkins **Dates of Inspection:** December 2005

Item(s) Inspected:

Review of the closed occurrence report EM-RP--BNRP-RPPWTP-2005-0006, *Carpenter Cuts Energized 117V & 220 V Circuit with Power Tool During Repairs to Door Frame.*

Program Documents Reviewed:

- Occurrence Report EM-RP--BNRP-RPPWTP-2005-0006

Remarks/Comments:

The inspector reviewed the closed occurrence report on the carpenter that cut the energized 117V & 220 V circuit with a power tool during repairs to the door frame of the vehicle maintenance shop on December 12, 2005.

The corrective actions listed were:

1. Develop multiple craft STARRT Card and conduct STARRT Card meetings with all craft groups present for jobs requiring multiple craft interaction.

   Target Completion Date: 03/31/2005 **Tracking ID:** 24590-WTP-RITS-QAIS-05-216

2. Reinforce to all craft the importance of identifying all hazards prior to the start of work and implement effective controls. When hazards are noticed that were not initially identified exercise Pause Work Authority or Stop Work Authority immediately. New hazards must be discussed and documented on the STARRT Card or a new STARRT Card executed, and new controls imposed before re-start of work.

   Target Completion Date: 03/15/2005 **Tracking ID:** 24590-WTP-RITS-QAIS-05-216

3. Develop an instruction requiring that all power cables inside conduit be de-energized and locked out when conduit is in the path of risk during adjacent cutting, burning, or shearing to prevent an electrical hazard if loss of tool control occurs.

   Target Completion Date: 04/08/2005 **Tracking ID:** 24590-WTP-RITS-QAIS-05-216

The inspector verified all three corrective actions were completed. The multiple craft STARRT card was implemented and the training conducted. The inspector attended some of the STARRT training sessions. The pause/stop work training was included in the safety leadership training and work stand downs. The inspector attended some of the training sessions. The inspector verified a management directive was sent out to all site construction superintendents on April 20, 2005.

The management directive gave general guidance to review work areas to determine if energized components are present. If energized components are found they were to pause or stop work until the component was relocated, de-energized, mechanically protected, and placed in a safe condition. No specifics were included in the management directive like the distance that an energized component can be from the work to be exempted from the management directive, what type of work activities the management directive applied to, who was to be trained on the management directive, or how long the management directive was in effect. No mention was made of training new employees or placing the requirement in a site procedure.

Conclusion:

The inspector concluded BNI had adequately closed the corrective actions committed to in the occurrence report. The management directive (third corrective action) at best was a one time attempt to raise awareness of ISMS principles to analyze the hazards and develop controls to mitigate the hazards.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: December 20, 2005 **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF__, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-68

Inspector Name(s): Brian Harkins **Dates of Inspection:** December 2005

Item(s) Inspected:

Review of the closed occurrence report EM-RP--BNRP-RPPWTP-2005-0002, *Near Miss Fall from Rebar Wall.*

Program Documents Reviewed:

- Occurrence Report EM-RP--BNRP-RPPWTP-2005-0002

Remarks/Comments:

The inspector reviewed the closed occurrence report on the near miss fall from a rebar wall that occurred on January 3, 2005, in the PT building. There were no corrective actions specified in the occurrence report. The real purpose for this occurrence report was to document a situation where life safety equipment performed as intended. The event involved human error (slip) with life safety equipment performing as intended thus no corrective actions were identified.

Conclusion:

The inspector concluded that BNI had adequately closed this occurrence report.

Submitted By: Brian Harkins_ **Reviewed By:** _____ **Approved by:** _____
Date: __December 20, 2005_ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF__, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-69

Inspector Name(s): Brian Harkins **Dates of Inspection:** December 2005

Item(s) Inspected:

Review of the closed occurrence report EM-RP--BNRP-RPPWTP-2005-0008, *Supplier Quality Representative Auto Accident With Injuries Glasgow Scotland 0530 UTC 18 Feb 05.*

Program Documents Reviewed:

- Occurrence Report EM-RP--BNRP-RPPWTP-2005-0008

Remarks/Comments:

The inspector reviewed the closed occurrence report on the supplier quality representative auto accident that occurred on February 5, 2005, in Glasgow, Scotland. There were two corrective actions;

1. Inform all Supplier Quality Representatives of this incident, the base and contributing causes, and the need for additional concentration when driving in the UK.

2. Recommend to all Supplier Quality Representatives on international travel to utilize public transportation (where safe and feasible) or taxi for transportation while outside the U.S.

Both corrective actions were closed by the same supplier quality alert (05-003). The inspector reviewed the supplier quality alert and it did address the items committed to in the above corrective actions. No process to periodically reissue this supplier quality alert or to inform new employees of the lessons learned from this event was found.

Conclusion:

The inspector concluded that BNI has adequately closed this occurrence report.

Submitted By: Brian Harkins_ **Reviewed By:** _____ **Approved by:** _____
Date: __December 20, 2005_ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF___, HLW___, LAW___, LAB___, BOF_X_, **Quality Class:** ITS___, BOP_X_

Inspection Note Number: A-05-AMWTP-RPPWTP-004-70

Inspector Name(s): Wallace/Bruggeman **Dates of Inspection:** December 19-20, 2005

Item(s) Inspected:

The inspectors reviewed the following documentation contained in Construction Work Package SEM0003 for accomplishing electrical modifications performed at the Simulator Building:

- System/Equipment Safety Tagout Permit Request.
- Scope of work to isolate Transformer XFMR-03.
- Training Requirements.
- Simulator Building Zero Energy Check Process.
- Copy of System/Equipment Safety Tagout Permit RI-05-001, dated December 12, 2005.

The inspectors also attended the pre-job/safely speaking briefing and witnessed the zero energy check, taken at transformer XFMR-03 (December 20, 2005), prior to starting work that day.

Design/Installation Documents Reviewed:

NFPA 70E - 2004 Edition.

Construction Work Package SEM0003.

24590-WTP-GPP-SIND-008, *System and Equipment Lockout/Tagout Procedure,* Revision 8, dated October 28, 2005.

Work Activities:

The inspectors compared the equipment identified to be isolated by the requested Lock & Tagout Permit, provided in the work package, to the actual components tagged out. The inspectors found the danger tags installed (MBPBBG11X/MBP and MBPBBG11X/MIS) did not match the components requested on the Lock & Tagout (LOTO) Permit in the work package. The inspectors learned the LOTO permit had been revised but the work package did not reflect this change. The inspectors relayed this information to the Contractor. The Contractor immediately updated the work package by identifying the permit had been superseded by LOTO permit RI-05-001 (dated 12-12-05), added a copy of the new permit to the work package, and revised the steps to indicate how Transformer XFMR-03 was isolated. These actions brought the work package in line with how the LOTO was actually performed.

The inspectors reviewed the new LOTO permit, RI-05-001, for compliance with the Lockout/Tagout Procedure. The Permit Requestor is required (paragraph 3.3.4.9) to

independently verify the permit boundaries are acceptable, and all tags/locks are installed correctly, and sign for acceptance of the permit. Furthermore, the First Worker was to sign the form after verifying the tags/locks were installed correctly. Because the form did not have a specific block for the Permit Requestor or First Worker to sign for acceptance, it was not evident by the permit this function had been performed. This was because the Tagging Authority (TA) was the first signature on the permit (in the workers block) and the original Permit Requestor was not available. As a result, another person assumed the Permit Requestor's acceptance responsibilities and signed the permit in the same worker block. When questioned, the declared new Permit Requestor stated his and the First Worker's verification had been performed as a group function by all the workers who signed on to the form as workers. This could only be verified by specifically asking the workers and Permit Requestor if they actually verified the tags and locks were installed, since their signature block and signatures did not specifically indicate they had performed this function.

The Zero Energy Process in the work package identified this verification was performed in the UPS Bypass Switch. Zero energy was actually verified at Transformer XMFR-03.

Conclusion:

Although procedures had not been violated, the results of this inspection identified the following areas for process improvements in the work control process involving LOTO:

- If the requested LOTO permit is revised by the Tagging Authority, the changes should be reviewed by the Utility Group for verification the arc flash calculation hasn't changed, the personal protective equipment is still the same, etc.

- All deviations should be documented in the work package, and initialed and dated by the responsible person.

- A copy of the LOTO permit should be included in the work package.

- When the Permit Requestor independently verifies the permit boundary is acceptable and all tags/locks are installed correctly, a block should be added on the permit for his/her acceptance signature, making it very clear this function is performed independently from the Tagging Authority. The same provisions should be added for the First Worker.

- If a lock cannot be applied, and a Danger tag is used as the sole means of controlling the isolation device, a requirement should be added in the work package to perform zero energy checks any time the work area is vacated, prior to resuming work where a hazard may exist.

On the positive side, the following documents (supplied by the Utility Group) added great value to the Construction Work Package:

- Arc Flash Calculation.
- Zero Energy Process (minimum personal protective equipment).

- Scope of work to isolate the equipment.
- Training Requirements.

Submitted By: D.O. Wallace **Reviewed By:** _____ **Approved by:** _____
Date: _____ **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF__, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-71

Inspector Name(s): Brian Harkins **Dates of Inspection:** December 2005
Jeff Bruggeman

Item(s) Inspected:

Review of the closed occurrence reports:

- EM-RP--BNRP-RPPWTP-2005-0024 *Electrical Shock While Conducting Assured Grounding Inspection.*
- EM-RP--BNRP-RPPWTP-2005-0025 *LO/TO Procedure Violated During Cutting of Buried Temporary Argon and Propane Lines.*
- EM-RP--BNRP-RPPWTP-2005-0026 *Electrical Near Miss During Assured Grounding Activities at HLW.*

Program Documents Reviewed:

Occurrence Reports

- EM-RP--BNRP-RPPWTP-2005-0024
- EM-RP--BNRP-RPPWTP-2005-0025
- EM-RP--BNRP-RPPWTP-2005-0026

Remarks/Comments:

The inspectors reviewed the closed occurrence reports listed above. Because these three occurrences were identified as a negative trend in hazardous energy control, the Contractor decided (with the concurrence of the Facility Representative) to close these three occurrences by rolling them into a recurring (category R) occurrence report (EM-RP--BNRP-RPPWTP-2005-0027). The three reports were rolled together because the root cause analysis team was still conducting their review when the three occurrence reports were due. The identification of corrective actions for these three occurrences would come from the root cause analysis team review and would be documented in the recurring occurrence report.

The inspectors attended the event critiques, reviewed the short term corrective actions, and observed the Contractor stand downs for each of the three events. Additional documentation on occurrence EM-RP--BNRP-RPPWTP-2005-0025 is documented in inspection note A-05-

AMWTP-RPPWTP-004-27. The details of the other two events were documented in memos to management. The occurrence detail memos are contained in the occurrence files maintained by the onsite personnel.

Conclusion:

The inspectors concluded BNI has adequately closed the occurrence reports listed above.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: December 22, 2005 **Date:** _____ **Date:** _____

INSPECTION NOTES

Facility: PTF_X_, HLW__, LAW_ _, LAB___, BOF__, **Quality Class:** ITS___, BOP___

Inspection Note Number: A-05-AMWTP-RPPWTP-004-72

Inspector Name(s): Brian Harkins **Dates of Inspection:** December 2005

Item(s) Inspected:

Review of closed occurrence report EM-RP--BNRP-RPPWTP-2005-0028, *Potential Subcontractor Exposure to Chromium in Excess of ACGIH TLV.*

Program Documents Reviewed:

- Occurrence Report EM-RP--BNRP-RPPWTP-2005-0028

Remarks/Comments:

The inspector reviewed the closed occurrence report on the potential subcontractor exposure to chromium in excess of ACGIH TLV. The occurrence report contained one corrective action; "Subcontract serial letter issued to CB&I for corrective action plan on permit compliance issues and on failure to re-evaluate safety analyses when conditions change". The inspector verified CB&I had submitted their corrective action plan. The corrective action plan addressed issues with ventilation, air monitoring/sampling, PPE, welding processes, and training.

CB&I had completed some of the corrective actions but due to CB&I demobilizing from the site, work on the remaining actions had stopped and will only be completed if they resume work again on the WTP site. This event had been incorporated in the site lesson learned to capture these lessons for other subcontractors and BNI direct hire personnel.

In reviewing this event, the inspector documented the specific work area (photos), reviewed the work activity, attended the critique, and briefed management on the event. The inspector, with the assistance of DOE ES&H, met with an Industrial Safety and Health Subject Manner Expert (ISH SME) to review the event and determine if the Contractor's logic for determining the sample result was abnormal was valid. The inspector supplied photo's of the work area, sketches of the workers position, laboratory results, and dimensions of the work area to the ISH SME. Based on the recommendation of the ISH SME, the inspector agreed to the Contractor's request to add verbiage stating the laboratory results were not representative of what the worker received.

Conclusion:

The inspector concluded that BNI has adequately closed this occurrence report.

Submitted By: Brian Harkins **Reviewed By:** _____ **Approved by:** _____
Date: December 22, 2005 **Date:** _____ **Date:** _____