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U. S. DEPARTMENT OF ENERGY  
ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT  
OFFICE OF WASTE MANAGEMENT

VITRIFICATION PROJECTS DIVISION

AUDIT NUMBER 93EA-WV-AU-01

DOE-WEST VALLEY PROJECT OFFICE  
QUALITY ASSURANCE PROGRAM IMPLEMENTATION  
WEST VALLEY DEMONSTRATION PROJECT

# AUDIT REPORT

WEST VALLEY, NEW YORK

FEBRUARY 22-26, 1993

102.7

## **EXECUTIVE SUMMARY**

### **U. S. DOE AUDIT NO. 93EA-WV-AU-01 WEST VALLEY DEMONSTRATION PROJECT QUALITY ASSURANCE PROGRAM**

The Vitrification Projects Division (EM-343) conducted an audit, during the period of February 22-26, 1993, of the West Valley Demonstration Project (WVDP) to determine the adequacy, effectiveness, and implementation of the WVDP Quality Assurance (QA) Program applicable to the High-Level Waste (HLW) acceptance activities associated with the waste form production. The audit was performed in accordance with line organization responsibilities described in the Secretary of Energy Notice 6E-92 "Department Organizational and Management Arrangements" and implemented to meet the requirements of the Office of Civilian Radioactive Waste Management (OCRWM), "Quality Assurance Requirements Document" (DOE/RW-0214, Rev. 4, Incl. ICN 4.1).

The audit team commends the DOE-West Valley Project Office (WVPO) and West Valley Nuclear Services (WVNS) for their utmost cooperation and the professionalism displayed during the course of the audit. Interaction with WVPO and WVNS personnel demonstrates their comprehensive understanding of the applicable QA requirements. Additionally, the immediate increased level of WVPO and WVNS management attention to the audit team's concerns and observations was noteworthy.

The audit team would like to express sincere appreciation for the positive attitudes of personnel contacted and the assistance provided by WVPO and WVNS personnel. This assistance contributed greatly to the success of the audit. It was obvious to the team that both WVPO and WVNS personnel displayed ownership and exhibited pride in their QA Program.

The major concerns identified by the audit process were in the areas of design control and the control of purchased items and services. In the area of design control, the basis for quality level assignment has not been defined, the design package for the lifting grapple was not available, and canister drawings did not include pertinent weld data. In the area of control of purchased items and services, a review of the manufacturer's data packages for 18 test canisters identified several miscellaneous discrepancies. This is an indication that an inadequate review was performed by both the manufacturer prior to release of the packages and by WVNS upon receipt of the packages.

The program was determined to be effective for all the criteria audited except criteria 3 and 7 which are considered marginally effective based on the deviations/observations identified as further discussed in this report.

Overall adequacy and implementation of the WVDP QA Program was deemed by the audit team to be effective. A description of audit activities, results, and observations are presented in the following audit report. Specific details of audit findings are provided in Deviation and Corrective Action Reports, which are enclosed within this report.

# **AUDIT REPORT**

**DOE/EM-343 QUALITY ASSURANCE AUDIT  
NO. 93EA-WV-AU-01**

**WEST VALLEY DEMONSTRATION PROJECT  
QUALITY ASSURANCE PROGRAM**

**WEST VALLEY PROJECT OFFICE  
WEST VALLEY, NEW YORK  
FEBRUARY 22-26, 1993**

## **I. AUDIT SCOPE**

The audit was performed to determine the adequacy and effectiveness of implementation of the West Valley Demonstration Project (WVDP) Quality Assurance (QA) Program for the waste acceptance activities associated with the waste form production. This audit was in accordance with the line organization responsibilities described in the Secretary of Energy Notice 6E-92, "Department Organizational and Management Arrangements" and implemented to meet the requirements of Office of Civilian Radioactive Waste Management (OCRWM) RW-0214. The criteria audited were those that were identified as either marginally effective or indeterminate during Audit No. 92EA-WV-AU-001. Implementation of corrective actions (CA) from Audit Nos. 91EA-WV-AU-001 and 92EA-WV-AU-001 were also evaluated. Two additional areas were reviewed to evaluate any adverse affects on the WVDP QA Program implementation as it relates to High-Level Waste (HLW) activities. These were, 1) the Functional Appraisal performed by the Idaho Field Office in November 1992, and 2) formal allegations made regarding the Bell Power Corporation QA program.

### **A. PROGRAMMATIC REQUIREMENTS:**

The QA Program criteria reviewed to assess the adequacy and effectiveness of the WVDP QA Program implementation included the following:

- (2) QA Program
- (3) Design Control
- (5) Instructions, Procedures, and Drawings
- (7) Control of Purchased Items and Services
- (8) Identification and Control of Items
- (9) Control of Processes
- (11) Test Control
- (12) Control of Measuring and Test Equipment
- (14) Inspection, Test and Operating Status
- (16) Corrective Action

- (17) QA Records
- (19) Software Control

West Valley Project Office (WVPO) and West Valley Nuclear Services (WVNS) personnel were interviewed, and applicable records and documents pertinent to the above program criteria were reviewed by the audit team members to verify implementation of the QA program requirements.

## **B. PROGRAM DEFINING DOCUMENTS:**

The basis for the audit is contained in the applicable requirements and criteria identified in the following documents:

- (1) WVDP Quality Assurance Program Description No. WVDP-074, QAPD-2 and QAPD-3
- (2) WVPO Quality Procedures (QPs)
- (3) WVNS Quality Assurance Procedures (QAPs)
- (4) DOE/EM/WO/O2 Rev. 1, "Vitrification Projects Division High-Level Waste Quality Assurance Program Description"
- (5) DOE/RW-0214, Rev. 4 and ICN 4.1, DOE/RW- "Quality Assurance Requirements Document" (QARD)
- (6) ASME NQA-1-1989, "Quality Assurance Requirements for Nuclear Facilities" (including applicable Supplements and Appendices)

## **II. AUDIT PARTICIPANTS**

### **A. Audit Team Members:**

- L. Wade, MACTEC, Audit Team Leader (ATL)
- J. Conway, EM-343, Audit Manager
- S. Crawford, Tech. Specialist, BDM/SAIC
- J. Flaherty, Tech. Specialist, BDM/SAIC
- K. Grisham, EM-343
- J. LeVea, Jr., BDM/SAIC
- L. Sirianni, BDM/SAIC
- \* W. McClanahan, BDM/SAIC
- \* (Evaluated Items addressed in Attachment 6 and participated in the closeout of 1991 and 1992 open items).

### **B. Observers:**

- T. Rodgers, CER Corporation (RW-3)
- J. Gilray, U.S. Nuclear Regulatory Commission (NRC)

### **III. PRE-AUDIT MEETING**

A pre-audit meeting was held on February 22, 1993, at 9:00 a.m. WVPO and WVNS representatives gave an overview of their organization, a current status of the program and activities, and the identification of contacts during the audit. Lou Wade, ATL, presented the audit scope and objectives, audit team assignments, introduction of the audit team and observers, schedule of daily activities, and the method for handling concerns identified during the course of the audit.

### **IV. CONDUCT OF AUDIT**

The audit was conducted according to the requirements of the Vittrification Projects Division (EM-343) Standard Practice Procedure No. 4.02, "Administration and Conduct of Quality Assurance Audits," Revision 3, dated August 24, 1992. Using checklists developed specifically to correspond to the scope of the audit, lines of inquiry were pursued by the audit team to evaluate the adequacy and effectiveness of implementation of the WVPO Quality Assurance Program Description (QAPD), WVDP-074, QAPD-2 and QAPD-3, and its compliance with DOE/RW-0214 and DOE/EM/WO/02.

A daily briefing for WVPO and WVNS management was conducted by the ATL at 8:00 a.m. to discuss concerns and observations noted from the previous day.

### **V. SUMMARY OF AUDIT RESULTS**

Using the checklists previously discussed, the following information was obtained through review of pertinent documents and interviews conducted with cognizant WVPO and WVNS personnel for each QA Program criteria. The deviations and/or observations noted for the appropriate criteria are discussed in detail in Section VI, Deviations and Observations. The following attachments are included as part of the audit report:

- Attachment 1      Verification and Closeout of Open Items from Previous Audit
- Attachment 2      Meeting Attendees and Contacts
- Attachment 3      Objective Evidence Reviewed
- Attachment 4      Effectivity Chart
- Attachment 5      DCARs
- Attachment 6      DOE-ID Functional Appraisal of WVDP and Allegations against Bell Power Corporation

### Quality Assurance Program (Criterion 2) (Training only)

The evaluation of Criterion 2 was conducted through interviews with cognizant personnel in the WVPO Program Integration Office (PIO), the WVNS Training and Development Department (T&DD), and a review of personnel training and qualification records. The staff were well informed about the Training Program. WVPO/WVNS staff received training by formal classroom training, briefings, weekly "tool box" meetings, and reading assignments. This review of the Training Program was based on QA Program requirements and limited to training which supports the quality effort. This review did not address the adequacy or development of the Training Program which will be addressed in future assessment activities.

A sample of training courses and personnel training/qualification records were selected and reviewed to determine compliance with program requirements. During this review it was identified that a Lead Auditor's annual assessment had not been documented as required (ref. DCAR No. 93EA-WV-AU-01-D01). Considerable progress has been achieved in automating the training records by the PIO and T&DD. Information was readily available. Plans for implementation of DOE System 80 personnel training, qualification and certification records were finalized. Verification of implementation of DOE System 80 will be conducted in future assessment activities.

The audit team identified one DCAR for Criterion 2. This Criterion is considered effective.

### Design Control (Criterion 3)

The evaluation of Criterion 3 was conducted through interviews with cognizant personnel and reviews of pertinent documentation. The audit team reviewed the design hierarchy and waste acceptance documentation in the context of previously identified DCARs and Observations and against recently issued OCRWM and EM-343 Program and technical requirements.

The WVDP Safety Analysis Report (SAR) is being prepared on a time phased modular basis. Although WVPO responses to a June 1991 EM-343 audit DCAR implied that the SAR would be revised by November 11, 1992. The overall SAR has not yet been revised to reflect the current WVDP safety and operating provisions. The following are examples of SAR modules prepared to date:

WVDP-SAR-001, R1 -Project Overview and General Information  
WVDP-SAR-002, R2 -Existing Plant and Operations  
WVDP-SAR-003, R1 -Vitrification Systems (Incl. Interim Storage)  
WVDP-SAR-004, R7 -Supernatant Treatment (Incl. Sludge Mobilization)  
WVDP-SAR-005, R3 -Liquid Waste Transfer

DCAR No. 91EA-WV-AU-001-02 had been issued in June 1991 because the WVNS "Q" List, June 9, 1989, was not consistent between the SAR and system Design Criteria (DC) documents for the assignment of Quality Levels based on health, safety, environmental, operational, programmatic, and performance considerations per WVNS procedure QM 2. QM 2 states that the WVNS "Q" List is not the NRC directed list of structures, systems, and components required for 10CFR60 regulated facilities (i.e., NUREG 1318 items). The audit team concurs, since the new OCRWM "QA Requirements and Description" Document (DOE/RW-0333P), does not identify any conditions applicable to EM-343 vitrification facilities, with the possible exception of the HLW canister. A revised Project "Q" List was issued by WVNS on February 19, 1993. Although the "Q" List entries are consistent with the SAR and DC documents, those documents do not necessarily reflect the current facility status. WVNS procedure QM 3 identifies "quality level classification of items and services" as design input, and further requires documentation of the sources of design input. Nonetheless, the basis for assignment of quality levels was not documented, and it appeared that some structures, systems, and components had not been properly classified based on the system hazard classification, occurrence reporting level, and waste acceptance importance. (ref. DCAR No. 93EA-WV-AU-01-D02)

DOE/RW-0214 requires waste form producers (vitrification facilities) to identify items and activities important to waste acceptance. Neither the WVDP QAPD (WVDP-074, Appendix I) nor WVNS letter WD:93:0214 (2/17/93) identified a list of "items" under the scope of DOE/RW-0214. The audit team considered this to be a nonconforming condition. Consequently, WVNS issued letter WD:93:0255 (2/25/93), to identify "Waste Acceptance Process Items." The audit team did not have sufficient time to review the list for correctness or for consistency with the assignment of quality levels.

The EM-WAPS (Waste Acceptance Product Specifications) had been issued February 19, 1993, just prior to this audit. The WAPS, along with the DOE/RW Waste Acceptance System Requirements Document (WASRD), replaces the Draft June 1991 version of the DOE/RW Waste Acceptance Preliminary Specification which had been the basis for the WVDP Waste Form Compliance Plan (WCP) and Waste Form Qualification Report (WQ) (ref. Observation No. 5 of Audit No. 92EA-WV-AU-001). WVNS issued letter WD:93:0252 (2/25/93), to establish a schedule for revision of the WCP and portions of the WQR prepared to date.

The design drawings for the HLW canisters and design basis for the canister grapple were reviewed by the audit team. The canister drawings had been revised to incorporate most of the comments identified by Observation No. 6 of Audit No. 91EA-WV-AU-001. However, canister drawings 900D-1092 Sheet 1 Rev 4 (Production Canisters) and 900D-4868, Sheet 1, Rev 0 (Test Canisters), did not reflect the canister identification weld numbers, weld symbols, required Nondestructive Examination (NDE), or axial orientation. As a result, test canisters fabricated by Ledco Metal Works (LMW), placed both canister identification numbers on the same axial line rather than on opposite sides as indicated by the WQR. (ref. Observation No. 93EA-WV-AU-01-B01)



The design basis and specification requirements for the canister grapple were consistent with the requirements of the DOE/RW-WASRD and the EM-WAPS discussed above. Load test and performance test completion was documented by the designer/fabricator and accepted by WVNS. Although WVNS Purchase Order 19-45231-N-EK assigned design responsibility to Remotec, Oak Ridge, TN, and Equipment Specification WVNS-EQ-309 required a "design report, including design drawings and calculations," to be submitted to WVNS prior to release for fabrication, there was no evidence that a design report had been submitted to or approved by WVNS. As a result, there are no designer's calculations or certification to demonstrate that design specification 3.23 of WVNS-EQ-309, for limitations on stresses within the load bearing members of the canister grapple, has been met. (ref. DCAR No. 93EA-WV-AU-01-D03).

The audit team identified two DCARs and one Observation for Criterion 3. This Criterion is considered marginally effective.

#### **Instructions, Procedures and Drawings (Criterion 5)**

The evaluation of Criterion 5 was conducted through interviews with cognizant WVPO and WVNS personnel and reviews of pertinent documentation. WVPO personnel in the Regulatory Compliance Office, Technical Program Office and the Quality Verification Manager and WVNS personnel in the Information Services Branch, Vitrification and Site Design Engineering Branch and Quality Assurance Department were interviewed. Reviews of Policy Manuals, procedures, records, WVPO surveillance logs and surveillance/walkdown reports were performed.

WVPO and WVNS have established and effectively implemented necessary controls to govern quality affecting instructions, procedures and drawings to ensure that sufficient detail and appropriate controls are provided with adequate documentation to verify satisfactory accomplishment. WVPO actively monitors participant procedural practices of Waste Acceptance Activities related to HLW form production to assure implementation and adequacy.

The audit team did not identify any DCARs or Observations for Criterion 5. This Criterion is considered effective.

#### **Control of Purchased Items and Services (Criterion 7)**

The audit team reviewed two procurement files for the application of vendor controls for "waste acceptance items."

<u>Purchase Order</u>	<u>Vendor</u>	<u>Item/Equipment</u>
19-57084-N-EK	LMW	Test Canisters
19-45231-N-EK	Remotec	Canister Grapple

WVNS Surveillance Reports, Quality Releases, Hold Point Releases, equipment data packages, operating manuals, and technical advisories were reviewed. In addition, the status of WVNS reviews of Catholic University of America (CUA) (ref. DCAR No. 03 and Observation No. 8 Audit No. 92EA-WV-AU-001) was checked by the audit team.

An updated copy of the WVNS Acceptable Suppliers List (ASL), dated December 30, 1992, was issued January 4, 1993. Hellier Associates (NDE) and LMW (canister fabricator) had been added to the ASL resolving DCAR No. 92EA-WV-AU-001-03. Remotec (canister grapple designer and fabricator) was also listed on the ASL.

The equipment specification for the Canister Grapple, WVNS-EQ-309, Rev 0, which is the basis for the design and fabrication of the canister grapple, required submittal of a "design report, including drawings and calculations" prior to release for fabrication. There was no evidence that a design report had been provided by Remotec, nor that calculations had been performed by Remotec (the designer) to demonstrate compliance with design requirement 3.23 of the equipment specification. (ref. DCAR No. 93EA-WV-AU-01-D03)

Data packages for 18 canisters, purchased by WVNS for testing at Pacific Northwest Laboratory (PNL), were reviewed. A number of miscellaneous discrepancies were noted which indicate a need for improvement in the document review process, at the fabricator's facility and at WVNS. (ref. Observation No. 93EA-WV-AU-01-B02)

Surveillances and liaison visits to CUA are continuing into 1993 to monitor and evaluate the quality assurance and quality control implementation for vitrified waste form testing.

The audit team identified one Observation for Criterion 7. Additionally, the DCAR identified for Criterion 3 is also applicable to Criterion 7. This Criterion is considered marginally effective.

#### Identification and Control of Items (Criterion 8)

Evaluation of Criterion 8 was conducted by selecting three installed components in (Grinder, I.D. No. 65-T-03; Slurry Pump, I.D. No. 65-G-03; and Valve, I.D. No. GT-508) the Cold Chemical Building.

The corresponding drawings, purchase requisitions, receipt inspection reports, valve data sheets, grinder spec sheets, and pump spec sheets were used to verify that identification and control of the selected components had been maintained from receipt of the item through installation. The results of this evaluation indicated that the requirements for identification and control of items were maintained from receipt through installation. The associated records were readily retrievable, and the personnel involved were knowledgeable.

The audit team did not identify any DCARs or Observations for Criterion 8. This Criterion is considered effective.

### Control of Processes (Criterion 9)

Evaluation of the control of processes was performed by interviews with cognizant personnel in the WVNS Quality Engineering (QE) and Quality Services (QS) departments. To date, special processes, such as welding, heat treatment, and NDE related to the waste acceptance process have not been performed. However, special processes have been conducted for other activities related to the WVDP, and the controls for these processes will be utilized for special processes conducted for waste acceptance process activities in the future. Objective evidence was reviewed to determine that the requirements contained in procedures QM-9 "Control of Process" and QAP 9-1 "Instructions for Control of Special Processes" were followed.

Objective evidence was reviewed to assure that special processes were performed in compliance with approved process control procedures by qualified personnel using qualified equipment. The QA Nondestructive Examination Procedures Manual (WVDP-108) and the Written Practice for Training Qualification and Certification of Nondestruction Examination Personnel (WVDP-109) were reviewed. It was noted that WVDP-109 meets the requirements of American Society of Mechanical Engineers (ASME) NQA-1, ASME Code Sections I, III, V and VIII, and SNT-TC-1A. Specific WVNS NDE procedures related to liquid penetrant, magnetic particle, ultrasonic, and visual examinations were prepared by Level II Examiners and approved by a Level III Examiner.

Qualification reports for 10 NDE personnel were reviewed to assure that the requirements of procedure QAP 2-2 "Training and Certification of Nondestructive Examination Personnel" and WVDP-109 were satisfied. The Level III Examiner for WVNS is an individual from Hellier Associates, and he was so designated in a letter dated April 21, 1989, from the President of WVNS to WVNS staff members. The qualification packages contained annual eye examinations, certification, qualification and qualification verification forms, training records, and a summary resume.

With regards to welding control, the following documents were reviewed: a) Welder/Welding Operator Qualification Records for nine welders, b) nine Inspection, Instruction and Data Sheets (IIDS), c) 40 surveillance reports related to visual examination of welds, and d) Surveillance and Source Inspection Plans (SSIP) for eight items (e.g., HVAC Control Panel, melter fabrication). Typically, the SSIPs contained a weld map format, weld inspection procedures, weld repair procedure, weld procedure qualification records, and welder qualification records.

The audit team did not identify any DCARs or Observations for Criterion 9. This Criterion is considered effective.

### Test Control (Criterion 11)

The evaluation of Criterion 11 was conducted by interviews with cognizant WVPO and WVNS personnel and review of pertinent documentation. Personnel in the WVPO Technical Program Office, Regulatory Compliance Office, the Quality Verification Manager, and WVNS personnel in the Site and

Vitrification Engineering and Quality Assurance Departments were interviewed. Quality manuals, records, procedures, test requests, test plans, peer reviews, WVNS Short-Term Action Plan (tracking list), WVNS audit of CUA, and WVPO surveillance logs and surveillance/walkdown reports were reviewed.

WVNS has established a test control program which was designed to address the requirements of DOE/RW-0214, Section 11 and Appendix B, Section 3.1. However, through interviews with WVNS technical and QA personnel, it was determined that testing (including experimental and developmental testing) currently being conducted and/or controlled by WVNS was outside the scope of the DOE/RW-0214 requirements. This conclusion was based on the fact that testing currently being conducted by WVNS was experimental/developmental in nature with indeterminate use towards HLW form qualifications. The audit team was informed that a final "qualification run" of an experimental/developmental test would be conducted to qualify the test to DOE/RW-0214 requirements, if it was determined that this test result will be used for HLW form qualification. To date, the only test subjected to a qualification run was the Test Series SF-12, Vitrification Qualification Run II (WVNS-TRQ-019/WVNS-TP-019). (ref. Observation No. 93EA-WV-AU-01-B03)

WVPO and WVNS have established and effectively implemented necessary controls to monitor and govern the current test control activities (i.e., testing outside the scope of DOE/RW-0214).

The audit team identified one Observation for Criterion 11. This Criterion is considered effective.

#### Control of Measuring and Test Equipment (Criterion 12)

Evaluations of the control of measuring and test equipment (M&TE) were performed by interviews with cognizant personnel in the WVNS QS department. QS is responsible for the calibration of M&TE used on the WVDP. Purchase Requisitions (PR) and Purchase Orders (PO) were reviewed for the purchase of four M&TE and six calibration services to Production Services, Inc. and Quality Inspection Services, Inc. (ref. Observation No. 93EA-WV-AU-01-B04). With the exception of three POs for new items and one PO for calibration services, all the POs contained specific requirements (e.g., certificates of accuracy, calibration, and compliance) for new M&TE and calibration of WVNS M&TE. It was noted that the PRs required at least three signature approvals, including QA, but the POs only contained the signature of an individual from the Purchasing Department.

As noted by a review of applicable documentation, the sequence of events for external calibration is as follows: a PR is generated which results in a PO to a supplier, the calibrated instrument is receipt inspected by a WVNS inspector, an IIDS is completed and accepted by management, an acceptance tag is placed on the instrument, a Quality Release (QR) form

is completed, and the instrument is sent to the QS Department for controlled storage until further use. All calibration service suppliers are required to have a system that conforms to MIL-STD-45662A, and these suppliers are either the original equipment manufacture or a calibration facility approve by WVNS.

An internal recall system (reference procedure WV-109) has been established to assure mandatory recall of M&TE and measurement standards to preclude use beyond their calibration due date. The Work Control Center (WCC) has overall responsibility for the Instrument Calibration Recall (ICR) activity. For internal calibration, the basic sequence of events is as follows: Engineering issues J-9 and J-10 work documents that identify ICR requirements to the WCC, WCC inputs information into the Instrument Calibration Database and issues an Instrument Calibration Job Card (ICJC) which controls the work related to the calibration, the work is performed and the completed ICJC is returned to WCC who maintains an instrument history card.

A sample of 10 items of M&TE was selected, and the records were reviewed to determine compliance to the specified requirements (e.g., calibration frequency, labeling of equipment, etc.) contained in procedures QM 12 "Measuring and Test Equipment Control" and QAP 12-1 "Control and Calibration of Standards and Measuring and Test Equipment." Storage practices for standards and equipment, M&TE log, and Instrument Data Packages (IDP) were reviewed. The IDPs contained WVNS Instrument Data Card, Equipment Inspection Record Card, calibration certifications, calibration reports, POs, and completed J-9/J-10, IIDS, and QR forms.

Implementation of CA identified on WVNS DCAR No. 92-022 (ref. remedial finding in Criterion 12 for Audit No. 92EA-WV-AU-001) was also verified.

The audit team identified one Observation for Criterion 12. This Criterion is considered effective.

#### Inspection, Test, and Operating Status (Criterion 14)

Evaluations of the Inspection, Test & Operating (IT&O) Status were performed through interviews with cognizant WVPO and WVNS personnel and review of pertinent documentation. The IT&O Status activity has been delegated to WVNS and is monitored by WVPO. An evaluation of the IT&O Status was performed for adequacy to the specified requirements. The program being implemented is composed of various procedures and work control processes, (i.e., QMs, QAPs, EPs, SOPs, etc.). To date no HLW systems have been turned over to WVNS and as such the verification of implementation was limited to Non-HLW, Balance of Plant, activities. Through the review of the Work Control Process (WCP), implementing procedures, and the overview effort by WVNS, it is the auditors opinion that an IT&O Status program is in place and is being effectively implemented. The program includes the key elements of an IT&O program such as: work status is maintained through the use of appropriate indicators, valves and switches are tagged as required, lockout and tag log books maintain current status, items requiring calibration are readily identified, and independent inspections and surveillances are performed by QA. A review of procurement documents found that IT&O

requirements were not passed on to the manufacturer of the test canister (LMW). (ref. Observation No. 93EA-WV-AU-01-B05)

The audit team identified one Observation for Criterion 14. This Criterion is considered effective.

#### Corrective Action (Criterion 16)

Evaluation of Criterion 16 was conducted by reviewing the WVPO system used to identify and track audit and surveillance findings through closure. Also, the WVPO process for evaluating conditions adverse to quality to determine if the condition was reviewed for its significance, along with the process for requesting immediate corrective action (CA).

The CA program was further examined during the closure of Observation Nos. 92-EA-WV-AU-01-B09, B11, B12, and B13. Closure of those observations included both the WVPO and WVNS programs for tracking audit findings through closure.

The results of this investigation indicated that the requirements of the CA program are being implemented. The associated records were retrievable and the involved personnel were knowledgeable.

The audit team did not identify any DCARs or Observations for Criterion 16. This Criterion is considered effective.

#### Quality Assurance Records (Criterion 17)

Evaluation of the WVDP Records Management System was conducted. Areas evaluated included records identification, collection, storage (protection and retrieval), and disposition. Interviews were conducted with cognizant WVPO PIO and WVNS Information Services Records Management personnel.

Project records are identified in the WVPO and WVNS procedures. Currently, a major effort is underway to list and categorize all West Valley Project records for the DOE 1993 Records Inventory and Disposition Schedule (RIDS). The RIDS effort has been combined with a records collection effort. This combination has enhanced the awareness of the records program and the timely turnover of records into the records system. The project maintains records in temporary storage prior to transfer to archival storage off-site. Adequate systems and procedures exist to protect, preserve, and retrieve records. Records personnel and WVDP management are aware of records requirements.

The audit team did not identify any DCARs or Observations for Criterion 17. This Criterion is considered effective.

#### Computer Software Control (Criterion 19)

This portion of the audit focused on two areas, Computer Software Control and the evaluation of WVPO/WVNS responses to previous audit findings. It was noted that software essential to waste acceptance was not identified in the Software Quality Assurance Plan (SQAP).

(ref. Observation No.93EA-WV-AU-01-B06). During the course of the audit, WVNS developed a list of software important to waste acceptance. The list will be incorporated into the SQAP, and implementing QA procedure QM 3-1, "Software Control" will be revised to reflect the DOE/RW-0214 requirement. WVNS has targeted a 30-day review and approval cycle for the SQAP and procedure.

Observation 15 of Audit No. 92EA-WV-AU-004, which concerns the verification and validation of the ORIGEN-2 computer program will be closed based on the following activities which are in progress:

OCRWM has provided funding to Oak Ridge National Laboratory (ORNL) to perform verification and validation of the Origin 2 code. WVNS has developed a plan to have the WVDP version of the ORIGEN-2 code analyzed by Pacific Northwest Laboratories (PNL). The results of the PNL analysis will be compared to the ORNL work to determine the areas of applicability to the WVPO version of the code. The expected completion date is 6 months following the receipt of the ORNL documentation.

The audit team identified one Observation for Criterion 19. This Criterion is considered effective.

## **VI. DEVIATIONS AND OBSERVATIONS**

### **DEVIATIONS**

**Refer to Attachment 5**

### **OBSERVATIONS**

#### **Observation NO. 93EA-WV-AU-01-B01 (Criterion 3)**

Drawings 900D-1092 (Sh 1), Rev. 4, (Production Canisters) and 900D-4898, Rev. 0 (Test Canisters) were revised and/or issued to add weld related data to the HLW canister fabrication drawings. These referenced drawings did not include weld related notations for the two canister identification numbers as indicated by the following:

- A. No weld numbers (i.e., W9 and W10), weld symbols, and required NDE were identified on the drawings for the canister identification number welds.
- B. The lack of weld call out on the drawings, at the canister identification numbers, resulted in no indication on the drawings that Visual and Liquid Penetrant (VT & PT) examinations are required on the canister number welds per the canister specification WVNS-FA-114, Rev. 4.
- C. The drawings do not provide for angular axial separation (i.e., 180°) of the two canister identification number welds as described in the WQR (draft), Section 2.3 (The test canisters were produced by LMW with both weld identifications on the same axial line).

A written response is required for this observation.

**Observation No. 93EA-WV-AU-01-B02 (Criterion 7)**

Review of Manufacturers Data Packages for 18 HLW test canisters, purchased under PO 57084, identified a number of miscellaneous discrepancies indicating an inadequate document review by the fabricator LMW and by WVNS upon receipt. The following anomalies were identified.

- A. Three Process Sheets (Travelers) identify final machining of lifting flange and neck occurred prior to weld or following load test.

WV 068A Final Machine (10/3/92)	Weld and rough machine (10/5/92)
WV 069A Final Machine (10/4/92)	Weld and rough machine (10/7/92)
WV 075A Final Machine (11/14/92)	Load test (11/11/92)

- B. Supplier Nonconformance reports (SNR 19-57084-1, 2, 3) reference applicable drawing 900D-1092, Rev. 3. The applicable drawing in affect at the time which was issued with the PO, was Rev.4 dated February 13, 1992.

- C. PT is required by WVNS-FA-114 on canister identification welds (LMW weld numbers W106/W107). PT reports, dated October 20-24, 1992, indicate ID numbers were examined. Eleven of the 18 canister weld maps in the canister data packages do not reflect that PT was performed.

- D. Assigned weld numbers are not referenced on the process sheets although welds can be identified by part description. LMW assigned weld numbers are not the same as identified on WVNS drawings.

- E. Canister shell production numbers are not recorded on the process sheets although other parts are so identified.

A written response is required for this observation.

**Observation No. 92EA-WV-AU-01-B03 (Criterion 11)**

The testing currently being conducted at WVDP by WVNS does not fall within the scope of DOE/RW-0214 requirements. However, the same program will be utilized for waste form qualification testing. The following anomalies were identified.

- A) A threshold has not been established for determining when a "qualification run" is required to qualify test data in accordance with the requirements of DOE/RW-0214 when additional engineering or peer reviews are not required for waste form qualifications.

- B) A review of test procedures and test requests revealed that the format in EP-11-003 was not being complied with. Test procedure WVNS-TP-027 did not contain prerequisite steps and signoffs of their completion as required nor was the body of the procedure in the format as required. Test Request WVNS-TQR-054 did not address the "Quality Level" for the activity within the "Objectives" of the test request as required.



- C) The program does not provide for a systematic review of test procedures for the establishment of WVPO and/or WVNS "Inspection" and/or "Hold Points." Furthermore, the program does not specify which organization will identify and release the Inspection/Hold Points established.

A written response is required for this observation.

**Observation No. 93EA-WV-AU-01-B04 (Criterion 12)**

Hummel/Distribution memo FO:92:0029 (6/18/92), directed that POs, requiring certificate of accuracy and M&TE which is in use and is being sent off-site for calibration, should incorporate Attachment A and B, respectively. The attachments are to be incorporated into procedure QM 12 "Measuring and Test Equipment Control." Contrary to this, the following POs were issued to material suppliers and calibration service suppliers without Attachments A and/or B.

58713 (9/3/92)	(Cal)	Product Services
59163 (9/30/92)	(Cal)	Product Services
58577 (9/4/92)	(Cal)	Quality Inspection Services
59963 (11/2/92)	T6114 (Caliper)	

Since the audit, additional information has been obtained regarding this observation. WVNS realized in October 1992 that requirements were not always imposed on the PR. However, the IIDS and/or calibration certificates did specify the proper requirements. As a result of this the following actions were taken:

- A) Revised QM 12 and QAP 12-1 to specify the requirements to be imposed.
- B) Identified a procurement QE who has primary responsibility for calibration of new and existing M&TE and advising the requester of the requirements.
- C) Established standard IIDSs for new and calibration of M&TE.
- D) Advised all calibration committee members of the requirements, including the primary purchasing individual responsible for procurement of new and calibration of existing M&TE.
- E) Identified the need for a training program, and planning for the training of appropriate personnel on procedure QM 12.

Based on the above actions taken by WVNS, a response to this observation is not required.

**Observation No. 93EA-WV-AU-01-B05 (Criterion 14)**

Section 2.3 of procedure QM 14, Rev. 4 requires that procurement documents include a statement or address requirements for the status of inspections and test activities. Contrary to this, Criterion 14 was not specified for PO 570843, LMW for the test canisters. However, the PO did require that LMW comply with the requirements of NQA-1 which imposes Criterion 14. Additionally, a review of the canister data packages determined that the

status of inspections and tests performed on the canister was provided via work travelers, process sheets and drawings. In view of this, the concern was not considered to be an adverse finding and as such a DCAR was not issued.

A written response is required for this observation.

**Observation No. 93EA-WV-AU-01-B06 (Criterion 19)**

DOE/RW 0214, Rev. 4 requires software, essential to Waste Acceptance, be listed in the SQAP WVDP-161. The current SQAP, Rev. 0, does not provide this list. However, during the course of the audit, WVDP developed an Appendix, to be incorporated into the SQAM, that lists the essential software. Since the audit, the SQAM has been revised to incorporate Appendix A "Software Essential to Waste Acceptance Process." In addition to revising the SQAP, QAPD 3 and QM 3-1 will be revised to delete the reference concerning identification of "essential software" in the Waste Compliance Plan. Per WVNS Letter CD: 93:0024 (2/25/93), from R.A. Palmer to T.F. Kocialski, the appropriate revisions will be completed within 30 days. Considering that none of the essential software has been used to date and the remedial action taken by WVNS, this is considered an isolated case and is not considered an adverse finding and as such a DCAR was not written.

A written response is required for this Observation.

The Observations requiring a response, will be entered into the Commitment Tracking and Reporting System and will be tracked through closure.

**Positive Observations**

- Effort and degree of quality in the implementation of CA from Audits No. 91 & 92EA-WV-AU-001.
- Obvious visibility of both organizations' ownership of the QA Programs.
- Management attention and resources provided to take remedial action to correct concerns identified during the audit.
- The use of the RIDS to promote the records turnover of the completed records to the master records center.


**SUMMARY**

Since the DCARs and Observations described previously did not relate to significant conditions adverse to quality, the audit team has determined that overall implementation of the WVDP QA Program is effective. Accordingly, the audit team is recommending that EM-343 accept the WVDP QA Program for the continuation of waste acceptance activities related to the HLW form production at the WVDP.


## VII. POST AUDIT-MEETING

The audit team held a post audit meeting on February 26, 1992, at 11:00 a.m. The ATL presented a summary of the audit team's conclusions and a brief description of each DCAR and observation to WVPO and WVNS management. The Observers, from the NRC and RW, were given the opportunity to comment. The NRC representative was in basic agreement with the conclusions of the audit team whereas the RW representative declined to comment. Closing comments were given by both WVPO and WVNS representatives.

## VIII. AUDIT TEAM LEADER/QAPM CONCURRENCE:

  
E. R. Wade, ATL

4-6-93  
Date

  
J. T. Conway, QA Program Manager

4/6/93  
Date

## **ATTACHMENT 1**

### **VERIFICATION AND CLOSURE OF OPEN ITEMS FROM PREVIOUS AUDITS**

One of the objectives of Audit No. 93EA-WV-AU-01 was to verify implementation of CA and close open items from Audit Nos. 91EA-WV-AU-001 and 92EA-WV-AU-001. Appropriate personnel were contacted during the course of the audit to provide documentation and clarification to support the information provided by two WVNS interface contacts. The team was successful in being able to recommend closure of all open items from these two previous audits. A summary of the DCARs and observations that were closed and the basis for closure are identified below.

#### **91EA-WV-AU-001-D02**

This DCAR will be closed based on the issuance of the revised "Q-List," dated February 19, 1993. The Q-List is consistent with the current versions of the SAR (WVNS-SAR-xxx) and Design Criteria documents (WVNS-DC-xxx), but these documents do not necessarily reflect the current facility or system status for applicable Quality Level. (ref. DCAR No. 93EA-WV-AU-01-D02)

#### **91EA-WV-AU-001-D03**

This DCAR will be closed based upon the following:

Part A - WVNS Engineering procedures EP-3-002, 003, 007, and 011 were revised and were verified during the audit. WVPO does not perform design control activities. These are delegated to WVNS.

Part B - Initial sludge mobilization systems operations were carried out under WVNS design criteria documents WVNS-DC-022 and WVNS-DC-013, which were approved in 1985. In 1989, the Project Office directed that a separate sludge mobilization system document be prepared. WVNS-DC-046, Rev.0, was approved on July 24, 1992.

Part C - Rev. 0 of WVNS-DC-046 has incorporated the changes of EBAR 1253.

#### **91EA-WV-AU-001-B05**

This observation will be closed based upon QAP 9-2, Rev 5, dated November 5, 1992, which states in para.3.4, "The designated level III shall be certified to Hellier, Inc. written practice." Certification for R.E.Cameron, the Level III examiner from Hellier, was verified to be current to certify WVNS personnel in the areas of PT, RT, MT, UT, & ET.

#### **91EA-WV-AU-001-B06**

This observation will be closed based on a review of the WVDP WCP (WVNS-WCP-001), Rev. 4; WVNS Canister Fabrication Specification WVNS-FA-114, Rev 5; and Canister Drawings 900D-1092, Rev. 5 and 900D-4898, Rev 1. Discrepancies identified, by the 6/91 audit Observation No. 6, were corrected or clarified in the current revisions of the documents noted above.

**92EA-WV-AU-001-D01**

This finding will be closed by memorandum EO:92:0145 (12/16/92). This memorandum included a schedule for completion of all remaining System Descriptions.

**92EA-WV-AU-001-D02**

This finding will be closed by issuance of NCR 92-109 to address the discrepant dimensions reported on IIDS 92-384. A review of 20 percent of the IIDS forms was performed to determine if other cases of improper use could be found. This was shown to be an isolated incident of misuse and the results of this review were reported in WVNS Surveillance No. 92-516. However, other errors were found in the proper completion of IIDS forms and the documents were recalled from the Master Records and corrected. QS and QE personnel were retrained in the proper use of the IIDS. Training was completed on December 2, 1992, and training attendance sheets were verified.

**92EA-WV-AU-001-D03**

This finding will be closed by the addition of Hellier and LMW to the ASL. Gage Lab is an equipment manufacturer rather than a calibration service contractor, and did not require addition to the ASL. CUA had prepared and submitted a Management Corrective Action Plan for WVNS in May 1992. WVNS conducted monthly surveillances and/or liaison visits from June 1992 to January 1993. Monthly visits to CUA are continuing in 1993.

**92EA-WV-AU-001-B01**

This observation will be closed when WVNS and WVPO issued DOE System 80 implementation plans and schedules on February 25, 1993. WVNS will be in compliance by September 1, 1993, and WVPO will be in compliance by May 15, 1993. This activity will be monitored during future assessment activities as part of the qualification and training requirements verification.

**92EA-WV-AU-001-B05**

This observation will be closed by memorandum WD:93:0252, (2/25/93) which provided the requested schedule dates for revision of the WCP and WQR packages 1, 2 and 3.

**92EA-WV-AU-001-B07**

This observation will be closed as agreed in the November meeting at WVDP by annotation of the HLW activities on the CY93 E&A schedule.

**92EA-WV-AU-001-B09**

This observation will be closed by memorandum FE:92:0079 (12/22/92). Procedures SOP-00-30, WVDP 106, QM 8, and EP-8-001 were rereviewed for adequacy of equipment identification and found to be adequate. No further action was required.

**92EA-WV-AU-001-B11**

This observation was closed by memorandum FE:92:0079 (12/22/92) and WVNS surveillance 92-516. QCR 90-012 was rereviewed to evaluate if the information needed to be placed on an NCR form. It was determined that the QCR was the correct form because the inspector was requesting direction from the cognizant engineer. A nonconformance was not involved and this was in accordance with QAP 15-3. Twenty percent of all QCRs were reviewed to determine if they were being properly used. The results were documented in WVNS surveillance 92-516. QS personnel were retrained on December 22, 1992, to ensure correct use of QAP 15-3 and QCRs and training attendance sheets were reviewed to verify the retraining.

**92EA-WV-AU-001-B12**

This observation will be closed by issuance of QAP 15-1, Rev. 8, dated December 21, 1992. Timeline requirements were added to ensure that NCRs are issued within 2 weeks of identifying a problem. Commitment dates must be within 30 days of the disposition of the NCR unless other justification can be provided.

**92EA-WV-AU-001-B13**

This observation will be closed by revising procedure, WVPO-AP-205, Correspondence and Commitment Control Tracking. The procedure, including the Request for Immediate Corrective Action (RICA) form, was changed to require that a unique number identification be assigned to each RICA. That number is obtained from a log and is recorded on the RICA form. The Correspondence Tracking System printout identifies each RICA by its unique number.

**92EA-WV-AU-001-B14**

The 93EA-WV-AU-01 audit has produced evidence that during the RIDS effort for 1993, an informal campaign to familiarize project participants with records practices and concepts together with collection and transfer of records to the records system has improved the WVDP ability to retrieve records. Procedures have been improved to provide guidance concerning records packaging, identification, and shipment. Records Management Procedures document the processing of project records. Project participants transfer records to storage in a timely manner. Supplementing existing records occurs by physically locating the additional material with the original material. As the 1993 RIDS process continues, the records system will be utilized more efficiently by site personnel.

**92EA-WV-AU-001-B15**

This observation will be closed based upon action taken by OCRWM and by cooperative efforts taken by ORNL, WVNS and PNL. ORNL will initiate work to verify and validate the ORIGIN 2 computer code. The work has been funded by OCRWM. WVNS will obtain the results of the ORNL verification and validation and contract PNL to perform the validation of the WVDP version of ORIGIN 2. The region of applicability will be determined by comparing the results of the WVDP version with the ORNL results. The work will be completed 6 months after receiving the ORNL documentation. The use of ORIGIN 2 at WVDP will be controlled per the requirements of procedure QM 3-1 and implementing procedures.

**ATTACHMENT 2**  
**MEETING ATTENDEES AND CONTACTS**

Pg. 1 of 2

A = ATTENDED PRE-AUDIT MEETING  
 B = CONTACTED DURING THE AUDIT  
 C = ATTENDED POST-AUDIT MEETING

NAME/ORGANIZATION	A	B	C		NAME/ORGANIZATION	A	B	C
WVPO					WVNS			
R. PROVENCHER	X	X	X		R. FARCHMAN		X	X
P. VANLOAN	X		X		W. POULSON	X		X
P. ABRAMS	X	X	X		R. HUMPHREY	X		X
T. JACKSON	X	X	X		G. CENTRICH	X		
J. YEAGER	X		X		R. LAWRENCE	X		X
W. KETOLA	X	X	X		R. GESSNER	X		
M. HINMAN			X		J. LITTLE	X		
B. MAZUROWSKI	X	X	X		D. SHUGARS	X	X	X
W. HAMEL			X		J. HUMMEL	X	X	X
E. HAGAMAN			X		S. JALOWIEC			X
					J. GERBER	X	X	
WSRC/WVNS					D. BONENBERGER	X	X	
J. PROWSE		X			D. CROUTHAMEL		X	X
F. DAMEROW		X			R. WERCHOWSKI		X	X
D. SMITHMEYER		X			V. DES CAMP			X
M. SCHIFFHAUER		X			L. DOMES		X	X
J. REYNOLDS		X			J. DEMPSTER		X	X
J. NESSELBUSH		X			J. REYNOLDS		X	
K. O-AHOFFF		X			J. MAREK		X	X
V. ARAKALI		X			M. DENSEL			X
D. TRACY		X			D. DEMPSTER		X	X
S. MCKINZIE		X			K. SCHNIEDER		X	X
R. CRAIG		X			M. SCHWEICKERT		X	X
E. RILEY		X			K. HUBAR			X

[illegible]



**ATTACHMENT 3****OBJECTIVE EVIDENCE REVIEWED****CRITERION 2**

QAP 2-3, Rev. 4, 6/11/91, "Qualification of Quality Assurance Audit Personnel"  
 WP-1, Rev. 3, 5/28/92, "WVDP-109 Written Practice for Training, Qualification and Certification of Non-Destructive Examination (NDE) Personnel"  
 QM 2-1, Rev. 6, 12/11/91, "Training and Indoctrination"  
 QM 2-2, Rev. 6, 12/11/91, "Training and Qualification Requirements for Inspection, Test, and NDE Personnel"  
 M 2-3, Rev. 6, 12/11/91, "Qualification of Quality Assurance Program Auditors"  
 QM 2-4, Rev. 2, 11/3/92, "Management Assessment of Quality Program Effectiveness"  
 QAP 2-1, Rev. 4, 6/11/91, "Qualification of Inspection and Test Personnel"  
 QAP 2-2, Rev. 3, 6/11/91, "Training and Qualification of Non-Destructive Examination (NDE) Personnel"  
 AP-246, Rev. 0, 12/31/92, "Implementation of Training"  
 QP-643, Rev. 5, 7/24/92, "Quality Assurance Indoctrination and Training of DOE-WVPO Personnel"

Course #	1032	NQA-1 Training
	1108	
	1225	
Course #	1012	Facility Surveillance/Self Assessment
	1013	
Course #	1025	OSHA Training
	1037	
	1204	
	1208	
	1222	

Personnel Qualification, Training, and Certification Records (including resume's, Employment and Education verification).

B. Mazurowski	D. Shugars	W. Ketola	D. Kuhn
R. Provencher	P. Mussel	P. VanLoan	G. Jones
J. Jackson	L. Huber	S. Metzger	J. Hummel
R. Carter	D. Dempster	E. Matthews	D. Crouthamel

**CRITERION 3****Safety Analysis Report Modules**

WVNS-SAR-001, Rev. 1, Draft E (11/92)	Overview and Evaluation
WVNS-SAR-002, Rev. 1, (12/86)	Vitrification System
WVNS-SAR-004, Rev. 7, (6/91)	Supernatant Treatment System
WVNS-SAR-005, Rev. 3, (6/91)	Liquid Waste Transfer System

**Design Criteria Documents**

WVNS-DC-004, Rev. 0, 6/21/84	CTS Canister-40
WVNS-DC-005, Rev. 2, 6/21/84	Slurry Feed Ceramic Meeter-200
WVNS-DC-006, Rev. 2, 6/21/84	Canister Turntable-410
WVNS-DC-007, Rev. 2, 6/21/84	Concentration/Feed Make-up Tanks-100A and B
WVNS-DC-013, Rev. 2, 4/14/88	Supernatant Treatment System
WVNS-DC-022, Rev. 3, 1/20/92	Vitrification of High Level Waste
WVNS-DC-046, Rev. 0, 7/24/92	Sludge Mobilization System

**Design and Fabrication Specifications**

WVNS-FA-114, Rev. 5, 11/2/92	HLW Canisters
WVNS-EQ-309, Rev. 0, 4/23/90	Canister Grapple

**Drawings**

900D-1092, Rev. 5/2, 10/29/92	CTS WVNS Canister
900D-4898, Rev. 1/0, 10/29/92	Test Canisters

**Waste Form Compliance Plan**

WVNS-WCP-001, Rev. 4, 10/9/92	Waste Form Compliance Plan
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**Q-List**

Memo FB: 93:0024, 2/19/93

Forwarded as Attachment A-1 to WVDP responses, 1/11/93

**CRITERION 5**

WVPD-002, QM 3, Rev. 7  
WVPD-074, QAPD-2, App. A, Rev. 2  
Procedure WVPO 1.3.1, Rev. 1  
Procedure WVPO-QP-642, Rev. 5  
Procedure WVPO-QP-644, Rev. 3  
Procedure WVPO-AP-107, Rev. 2  
Procedure WVNS-WV-100, Rev. 6  
Procedure WVNS-EP-5-001, Rev. 4  
Procedure WVNS-EP-3-003, Rev. 10  
Procedure WVNS-EP-3-007, Rev. 15  
Procedure WVNS-EP-3-011, Rev. 12  
Procedure WVNS-EP-1-001, Rev. 3  
Document Number WVNS-DC-022, Rev. 1, Draft N, per ECN 3688  
Document Number WVNS-CD:92:0249, Rev. 9, 10/21/92  
Document Number WVNS-CL:93:0030, Rev. 9, 10/21/92  
Document Number WVNS-TRQ-054, ER 2483  
Document Number WVNS-900D-4898, ER 2321  
Document Number WVNS-900E-1092, ER 718

**Test and Inspection Records (NDE, dimensional, leak test, weight, load test)**

**CRITERION 8**

Bell Power Corp. - Receiving Inspection Report, 1/29/92 for 1" diameter SW 12111 Vogt gatevalve  
 Certificate of Compliance for 1" diameter SW 12111 Vogt gate valve.  
 Valve list, Rev. 13, 10/30/92  
 Valve data sheet WVNS-VSL-008, Rev. 11  
 Valve spec sheet WVNS-VSL-008, Rev. 13  
 Bell Power Receipt Inspection Plan RIP-WV-003, Rev. 0, 1/15/92  
 Bell Power Corp./WVNS Dwg. No. 47324-P-0357 Rev. B, 2/5/92  
 WVNS Dwg. No. 905D-067, Rev. 5, sheet 2  
 WVNS specification WVNS-CS-139, Rev. 4, section 15165, Grinders  
 WVNS specification WVNS-CS-139, Rev. 4, section 15160, Pumps  
 WVNS Pump Spec Sheet WVNS-CS-139, Rev. 4, exhibit 15160-II pg. 1-5  
 Bell Power Corp. - Receipt Inspection Plan, RIP-WV-003, Rev. 0, 1/15/92 for pumps  
 Warren Rupp Certificate of Conformance, 5/22/92 for pump #65-G-03

**CRITERION 9**

WVPD-109 (5/28/92)-"Written Practice for Training and Certification of NDE Personnel  
 WVDP-108-"WVNS QA Nondestructive Examination Procedures Manual"  
 QAP 9-1, Rev. 2, (6/11/91)-"Instruction for the Control of Special Processes"  
 QM 9, Rev. 6, (12/11/91)- "Control of Processes"  
 VIT-CIP-033, Rev. 1, (7/24/92- "Construction Inspection Plan for Vitrification Facility Mechanical, I&C and Electrical Installation  
 WVNS-CS-139, Rev. 3, (5/18/92)-"Vitrification Facility Mechanical, I7C and Electrical Installation"  
 Welder and Welding Operator Qualification record for nine WVNS welders  
 Maintenance Welder Performance Qualification coupons for nine WVNS welders  
 Surveillance and Source Inspection Plan for Meeter Fabrication  
 Hold Point Release Forms  
 Ten Inspection, Instruction and Data Sheet for Visual Inspection of Welds  
 Ten Surveillance reports for welding activities from Jan. 1992 to Feb. 1993  
 Four J-1 Work Authorization  
 Surveillance and Source Inspection Plan for HVAC Control Panel  
 NDE Qualification Records for ten WVNS personnel

**CRITERION 11**

WVPD-002, QM 3, Rev. 7  
 WVPD-074, QAPD-2, Rev. 2  
 WVPD-114, Engineering Procedures Index, Dated 2/10/93  
 WVPD-114, Engineering Procedure Matrix, Table 1-1, Dated 11/11/91  
 Procedure WVNS-EP-1-001, Rev. 3  
 Procedure WVNS-EP-3-007, Rev. 15  
 Procedure WVNS-EP-3-011, Rev. 12  
 Procedure WVNS-EP-3-019, Rev. 2  
 Procedure WVNS-EP-3-020, Rev. 2  
 Procedure WVNS-EP-5-001, Rev. 4  
 Procedure WVNS-EP-11-003, Rev. 5  
 Document Number WVNS-TRQ-027, Rev. 0, ER 2078

Document Number WVNS-TP-027, Rev. 0, ER 2413  
 Document Number WVNS-PR-0001, ER 2453  
 Document Number WVNS-PR-0002, ER 2508  
 Document Number WVNS-TRQ-054, ER 2483  
 WVNS Audit of The Catholic University Of America, Audit EA-92-04  
 WVNS Short-Term Action Plan (tracking list), Dated 2/19/93  
 WVNS Letter Number CD:93:0026, Dated 2/26/93  
 WVPO Surveillances of WVNS Numbers; S92-030E, S92-047E, S93-002E  
 WVPO Facility Walkdowns of WVNS Numbers; WFH-93-017, WFH-93-015  
 PARADOX WVDP INTERNAL & EXTERNAL AUDIT Data Base from 9/1/92 to 2/26/93

## **CRITERION 12**

QAP 12-1, Rev. 5, (12/11/92), "Control and Calibration of Standards and Measuring and Test Equipment"  
 QM 12, Rev. 5, (12/11/91), "Measuring and test Equipment Control"  
 WV-109, Rev. 3 (1/3/92), "Instrument Calibration Recall Tracking System"  
 SOP 41-21, Rev. 0, (FC2 9/9/92), "Calibration Procedure for Thermometers"  
 Memo #FD:92:0029 from J. Hummel dated 6/18/92 on the subject "Purchase Order Notes for Measuring and Test Equipment"  
 Instrument Data Packages for ten M&TE  
 M&TE Log Book  
 Documentation package for corrective action taken for finding identified in Audit 92EA-WV-AU-01.  
 Six Purchase Requisitions/Purchase Orders for calibration services  
 Four Purchase Requisitions/Purchase Orders for M&TE  
 58713 (9/3/92)(Cal) Product Service  
 59163 (9/30/92)(Cal) Product Services  
 58577 (9/4/92)(Cal) Quality Inspection Services  
 59963 (11/2/92)T6114 (Caliper)

## **CRITERION 14**

QM 14, Rev. 4, "Inspection, test and Operating Status"  
 QAP 14-1, Rev. 3, "Review of Inspection, Test and Operating Status"  
 QM 10, Rev. 6, "Inspection"  
 QAP 10-1, Rev. 4, "Inspection"  
 QAP 10-3, Rev. 5, "Surveillance"  
 QM 11, Rev. 5, "Test Control"  
 QAP 11-1, Rev. 3, "Test Control"  
 SOP 000-04, Rev. 2, "Lock, Tag and Confirm Procedure"  
 SOP 015-40, Rev. 1, "Operation of the Equipment Status System"  
 Surveillance Reports;  
 SR 93-034-(WVDP-106, SOP 000-04 and SOP 070-03) Tag and Lockout  
 SR 93-017-(SOP-032-02) Verify Temperature Indicating Controller Status  
 SR 93-019-(OSR/TR #3) HEPA Filter Status  
 SR 92-535-(SOP 071-02) Status of LWTS Evaporator  
 Purchase Order 57084 for 18 Test Canisters  
 Purchase Order 51362 for the Meeter  
 Specification WVNS-FA-114, Rev. 5  
 E & A Schedules for the 4th quarter of FY-92 and the 1st quarter of FY-93.

**CRITERION 16**

DOE CTS for Audits and Surveillances 2/1/93  
 External Surveillance, Audit or Occurrence 2/4/93  
 Report Items With Action Remaining  
 WVNS Procedure WV-101, Rev. 11, Open  
 Items Control System  
 DOE CTS for RICAs 2/23/93  
 DOE letters, Rowland to Paulson  
 dated 2/12/93, 5/15/92, 10/9/92  
 J2-Commitment Item 9240032  
 RICAs 2/4/92, 7/1/92  
 Fourth Quarter FY 1991 Trend Analysis Report  
 Fourth Quarter FY 1992 Trend Analysis Report  
 WVPO Audit/Surveillance Report S92-020E  
 RCA #92-020  
 WVNS procedure EM-6, Rev. 7, Groundwater Sampling

**CRITERION 17**

QP-644, Rev. 3, 4/22/92, "Identification and Control of DOE Generated Records"  
 QM-17, Rev. 5, 12/11/91, "Quality Records"  
 WV-730, Rev. 8, 01/29/93, "Records Management and Storage"  
 EGG-ID, "Records Coordinator Manual"  
 RM-1, Rev. 1, 2/18/93, "Preparation, Review, Approval, and Distribution of Records  
 Management Procedures"  
 RM-2, Rev. 1, 2/19/93, "Records Receipt Control and Processing"  
 RM-3, Rev. 1, 2/19/93, "Records, Storage, Preservation, Safekeeping, and Retrieval"  
 RM-4, Rev. 4, 2/19/93, "Performing RIDS Inventory, Retention Reviews, Records  
 Recategorization, and Selection of Records for Disposition"  
 RM-5, Rev. 1, 11/16/92, "Processing and Issuing Controlled Documents"  
 File cabinets 438212, 160678, 75373  
 Document Indexing System  
 Purchase Order 45231 "Waste Canister"  
 HF:92:1105 "Records Management Implementation Plan"  
 EH:93:0006 "Records Access List Jan 25, 1993"  
 FC:93:0018 "NDE Certifications"  
 A91-020E "Audit-WVNS Analytical & Process Chem Lab"  
 S92-006E "Surveillance - WVNS Analytical & Process Chem Lab"  
 S92-020E "Surveillance - Computer Software"  
 S92-027E "Surveillance/Verification Corrective Action Resolution  
 WVNS HLW QA Program Qualification"  
 S92-038E "Surveillance WVNS Criteria 1 & 2 NQA-1"  
 WD:93:0218 "Determination of DOE-80 Records"  
 WZ:92:0176 "Audit EA92-10, Commerical Archives, Inc."  
 Transmittal 2/22/93 Auditor Qualification  
 Transmittal 1/15/92 Action Tracking #0001:91 - 0063:91  
 Transmittal 9/25/92 Surveillance Reports  
 Transmittal 12/14/92 Quality Releases  
 Transmittal 12/22/92 Inspections

Transmittal 1/12/93 Inspections  
Transmittal 2/5/93 Procedures  
Transmittal 10/9/92 Construction Inspection Plan

The Records Management System was used to gather objective evidence in documentation during the review of other criteria during this audit.

#### **CRITERION 19**

List of computer software important to waste acceptance developed by WVNS during the audit.

Letter from John W. Bartlett, Director OCRWM, to RW-321, stamped JAN 8 1992 (the date is incorrect. It should be 1993, not 1992), subject FY 1993 programmatic funding for the Oak Ridge Field Office to support the Office of Systems and Compliance.

WVNS letter # CD:93:0025 from R. A. Palmer to T. F. Kocialski, Dated Feb. 25, 1993, subject Validation of ORIGIN-2.

Memo WD:93:0255, 2/25/93-Waste Acceptance Process Items at WVNS

**ATTACHMENT 4**

**EFFECTIVITY CHART**

STATUS SUMMARY OF CRITERION FOR 93EA-WV-AU-01				
CRITERION	FINDINGS	OBSERVATIONS	REMEDIAL	EFFECTIVENESS
2	1	0	YES	E
3	*2	1	YES	M
5	0	0	NO	E
7	*1	1	NO	M
8	0	0	NO	E
9	0	0	NO	E
11	0	1	YES	E
12	0	1	NO	E
14	0	1	NO	E
16	0	0	NO	E
17	0	0	NO	E
19	0	1	YES	E

E=EFFECTIVE 10 M=MARGINALLY EFFECTIVE 2 I=INDETERMINATE 0 N=NOT EFFECTIVE 0

OBSERVATIONS 6 DCARS 3 OVERALL RATING E

\* DCAR 93EA-AU-01-D03 is applicable to both criterion 3 and 7.



# ATTACHMENT 5

## Deviation Corrective Action Report (DCAR)

DCAR No. 93EA-WV-AU-01-D01 Revision 0 Page 1 of 2

Date of Discovery 2/25/93 Evaluated Organization WVNS

Evaluated Organization Representative D. Shugers

Corrective Action taken immediately None

Activity Indoctrination and Training-Criterion 2

Location WVNS

Requirement(s) not met See Attached

Deviation description See attached

Corrective Actions Required:

Yes

No

- Root cause analysis

X

- Action to prevent recurrence

X

- Action regarding similar work

X

Provide Response by: May 7, 1993

Initiator John LeVea

Date 4/6/93

QA Program Manager James T. Conway

Date 4/6/93

Program Manager John Mc Intire

Date 4/7/93

Division Director John E. Ehl

Date 4/7/93

Proposed Corrective Actions

Scheduled completion date

Evaluated Organization Representative Date

Evaluation of Proposed Corrective Actions

Acceptable

Comments

Unacceptable

Evaluator

Date

Program Manager

Date

QA Program Manager

Date

Corrective Actions Complete:

Verified by

Date

Program Manager

Date

Verification Approved

Division Director

Date

Requirement not met:

Para. 5.2 of QAP 2-3, "Qualification of Quality Assurance Audit Personnel," Rev. 4 (6-11-91) requires the QAM to perform an annual assessment of each Lead Auditor's performance to extend qualification, require retraining, or require requalification. Evidence of this evaluation shall be the QAM signature and date in the appropriate block of Attachment "A."

Deviation Description:

A Lead Auditor's annual assessment was not documented as required. The certification lapsed on May 6, 1988 (certified on May 6, 1987). The requalification was not performed until December 21, 1989, a period of 2 years and 7 months between requalifications. The Lead Auditor performed audits EA87-04 (September 18, 1987) and EA89-03 (May 24, 1989). The certification lapsed again on December 21, 1990, although audits were found to support requalification.

## Deviation Corrective Action Report (DCAR)

DCAR NO. 93EA-WV-AU-01-D02 Revision: 0 Page 1 of 2

Date of Discovery: 2/23/93 Evaluated Organization: WVNS

Evaluated Organization Representative: R. Lawrence and D. Shugers

Corrective Action taken immediately: None

Activity: Design Control - Criterion 3 Location: WVDP

Requirement(s) not met See Attached

Deviation description See Attached

Corrective Actions Required:

Yes

No

- Root cause analysis

X

- Action to prevent recurrence

X

- Action regarding similar work

X

Provide Response by: May 7, 1993

Initiator: Sid Crawford

Date: 4/6/93

QA Program Manager: [Signature]

Date: 4/6/93

Program Manager: [Signature]

Date: 4/7/93

Division Director: [Signature]

Date: 4/7/93

Proposed Corrective Actions: \_\_\_\_\_

Scheduled completion date: \_\_\_\_\_

Evaluated Organization Representative: \_\_\_\_\_ Date: \_\_\_\_\_

Evaluation of Proposed Corrective Actions

Acceptable \_\_\_\_\_

Comments \_\_\_\_\_

Unacceptable \_\_\_\_\_

Evaluator \_\_\_\_\_

Date \_\_\_\_\_

Program Manager \_\_\_\_\_

Date \_\_\_\_\_

QA Program Manager \_\_\_\_\_

Date \_\_\_\_\_

Corrective Actions Complete:

Verified by \_\_\_\_\_

Date \_\_\_\_\_

Program Manager \_\_\_\_\_

Date \_\_\_\_\_

Verification Approved

Division Director \_\_\_\_\_

Date \_\_\_\_\_

Requirements not met:

Para. 2.5 of DOE/RW-0214, requires items to be classified to determine the applicability of the quality assurance (QA) program. Para. 2.5 further requires QA program requirements to be selectively applied.

Attachment "A" of WVNS procedure QM 2, "Quality assurance Program," provides guidance for the determination of quality levels A, B, C, and N. Para. 3.2 of WVNS procedure QM 3, "Design Control," identifies quality level classification of items and services as "design input."

Para. 3.8.2 of QM 3, requires design documentation to "include not only final design documents....but also documentation which identified the important steps, including the sources of design inputs that support the final design."

Deviation Description:

The specific basis for assignment of equipment and component quality levels (i.e. Safety, Service, Hazard, Occurrence Reporting, Waste Acceptance, etc.) is not documented in design documents (or other documents) such as Design Criteria (DC), SAR, or Q-List.

# Deviation Corrective Action Report (DCAR)

DCAR No. 93EA-WV-AU-01-D03 Revision 0 Page 1 of 1

Date of Discovery 2/25/93 Evaluated Organization WVNS

Evaluated Organization Representative K. Schnieder and B. Brill

Corrective Action taken immediately None

Activity Design Control-Criterion 3 Location WVDP

Requirement(s) not met See Attached

Deviation description See Attached

Corrective Actions Required:

Yes

No

- Root cause analysis

X

- Action to prevent recurrence

X

- Action regarding similar work

X

Provide Response by: May 7, 1993

Initiator Sid Crawford

Date 4/6/93

QA Program Manager James T. Conroy

Date 4/6/93

Program Manager John M. Hest

Date 4/7/93

Division Director Ralph E. Hest

Date 4/7/93

Proposed Corrective Actions \_\_\_\_\_

Scheduled completion date \_\_\_\_\_

Evaluated Organization Representative \_\_\_\_\_ Date \_\_\_\_\_

Evaluation of Proposed Corrective Actions

Acceptable \_\_\_\_\_

Comments \_\_\_\_\_

Unacceptable \_\_\_\_\_

Evaluator \_\_\_\_\_

Date \_\_\_\_\_

Program Manager \_\_\_\_\_

Date \_\_\_\_\_

QA Program Manager \_\_\_\_\_

Date \_\_\_\_\_

Corrective Actions Complete:

Verified by \_\_\_\_\_

Date \_\_\_\_\_

Program Manager \_\_\_\_\_

Date \_\_\_\_\_

Verification Approved

Division Director \_\_\_\_\_

Date \_\_\_\_\_

Requirement not met:

DOE/RW Waste Acceptance Preliminary Specification (WAPS), June 1991, and subsequent Waste Acceptance (WA) criteria documents require the "producer" to design a "suitable lifting grapple" which could be used at the repository."

Equipment Specification WVNS-EQ-309, Rev. 0, April 23, 1990, requires the grapple to be designed "such that stresses in load bearing members are less than 1/3 of material yield stress or 1/5 of material ultimate stress at rated load, whichever is less." Para. 9.3.3.H further requires seller submittal for WVNS approval of a "design report including design drawings and calculations," prior to release for calibration.

Deviation Description:

PO File 19-45231-N-E/C does not include any evidence that a Design Report was submitted to or approved by WVNS. A formal design report providing stress calculations in load bearing members could be provided as a part of the lifting grapple documentation.

**ATTACHMENT 6****DOE-ID FUNCTIONAL APPRAISAL OF WVDP****BACKGROUND:**

DOE-ID conducted a Functional Appraisal at WVDP during the period of November 2-6, 1992. The formal report was issued on December 12, 1993, and a copy was provided to the WVDP Program Manager at EM-343. The appraisal covered numerous DOE Orders as they applied to environmental management systems, quality assurance, air quality, water quality, RCRA, SARA Title III, occurrence reporting, NEPA, waste minimization, toxic and chemical materials, ground water, environmental quality assurance, emergency preparedness, firearms safety and environmental health physics. Following the appraisal, the team conducted a management assessment of WVPO.

A review of the DOE-ID report was conducted by EM-343 to determine if any findings were related to High-Level Waste activities and if any actions were identified for DOE-HQ follow-up.

**AUDIT FOLLOWUP:**

A review of the WVNS and WVPO responses to the appraisal findings was included as an item for followup during the February audit at West Valley at the request of the Program Manager.

The review performed during the audit consisted of talking with WVNS and WVPO personnel, reviewing the response memorandums and reviewing documentation referenced in the appraisal report. WVPO had responded separately regarding concerns related to conduct of the WVPO Management assessment for 1992 and the adequacy of quarterly reports. This response memorandum had been forwarded to DOE-ID

February 19, 1993. A draft response from WVNS had been reviewed by the WVPO and returned with comments. This response memorandum should be revised and issued by the second week of March.

**CONTACTS:**

Mike Snider - WVNS  
Rick Provencher - WVPO  
Barbara Mazurowski - WVPO

**ANALYSIS OF RESULTS:**

The number of concerns, findings and observations identified in the report are as follows:

1. Concerns - Environmental Management Systems - 4
2. Findings - Compliance category III - 14
3. Observations - 16

**IMPACT:**

1. There were no findings, observations or concerns related to HLW.
2. There were no findings, observations or concerns that required direct EM-343 action.

**OBSERVATIONS:**

- Problem areas identified were primarily in the ES&H arena and did not affect HLW processes.
2. Generic problems identified in the QA review could become programmatic if not corrected immediately. Corrective actions were verified to be in process.
  3. Bell Power QA Program concerns were compared to the Union Allegations and only one of the seven concerns was duplicated in the Union Allegation letter. Concerns were primarily in the Cold Chemical Building. Color coding of tools used on stainless steel and carbon steel was the duplicated concern.
  4. QA Program findings (4) identified in section 2.3 of the appraisal report have been adequately addressed and corrective action is scheduled for completion by July 1, 1993.
  5. Section 3, "Status of previous findings," indicated only 4 of 15 findings were closed from a November 1991 Occupational Safety Appraisal. This was not addressed in the draft response reviewed and this was brought to the attention of WVNS personnel.
  6. Section 5 of the appraisal report was directed toward the WVPO management assessment process and adequacy of the quarterly reports. WVPO took exception to concerns in this area and did not indicate any corrective action would be taken to ensure quality improvement in this activity. A separate response memorandum was sent to address concerns within WVPO.

**RECOMMENDATIONS:**

1. WVNS should provide the current status of the November 1991 Occupational Safety Appraisal findings in the response report.
2. WVNS and WVPO should include external findings and corrective action commitments in the internal tracking system and review delinquent actions in the weekly management meetings to ensure appropriate attention is focused upon closing open actions from external sources as well as internal action items.
3. WVPO review of WVNS procedures needs to focus on technical requirements as well as quality requirements to ensure all requirements are addressed.
4. WVPO should consider the concerns identified in the management assessment and quarterly report areas and include these in a quality improvement program. The assessments should be more performance based oriented and reports should address the requirements identified in the PEG documents.

**EVALUATION:**

Positive action has been taken by WVNS to correct identified deficiencies in the QA Program. The NCR and QCR documents that had not been dispositioned have now been closed, procedure changes have been scheduled and recommendations to address open action items from the 1991 appraisal appeared to receive favorable acceptance when discussed with Mike Snider. EM-343 should request a copy of the final response memorandum through the WVPO.

The WVPO responses were positive with the exception of areas concerning the management assessment and quarterly report. These activities have been discussed within EM-343 in the past and are areas that need some quality improvement to be more meaningful to all parties concerned. DOE-ID evaluation of the WVPO response should be requested by EM-343.



**ALLEGATIONS AGAINST BELL POWER CORPORATION****BACKGROUND:**

On December 18, 1992, the U.A. Plumbers and Pipefitters, Local 36 sent a letter to William Poulson, President of WVNS in which 15 areas of concern were listed in the Bell Power Corporation (BPC) quality control at the WVDP construction site. BPC is the subcontractor selected to construct the Vitrification facility at WVDP.

Action was taken by WVNS on December 21, 1992. Action taken included:

1. Logging the allegation into the Employee Concerns System.
2. Senior management level meeting to establish a course of action. A two-phase approach to the investigation was established.
3. Formal documentation of the allegations in accordance with Occurrence Investigation and Reporting procedure, WV-987.
4. Provided WVPO with a copy of the letter and conducted a briefing.
5. Issued a Technical Advisory with a copy of the letter and requested an investigation and response from BPC.
6. WVNS QC commenced independent walkdowns and inspections.

Phase I - Preliminary results of the BPC and WVNS investigations were reviewed with WVPO on December 29, 1992, and a meeting was held with the NRC on January 4, 1993, to advise them of the letter and present the results of the preliminary investigations.

As a result of Phase I activity, it was determined that workers were not subjected to undue safety hazards and risks, and there was not just cause to issue a stop work order.

Phase II - the plan consisted of establishing an independent review team of experts to perform an in-depth assessment of each of the 15 allegations and recommend appropriate corrective action. This team consisted of personnel from Westinghouse Hanford Co.; E.J. Riley, Inc.; WVNS QA; DOE-WVPO and New York State. The team was referred to as Team A. The results of this team were given to another team designated as Team B and consisting of personnel from WVNS, WVPO and Hellier Associates, Inc. This team performed root cause analysis on the significant deficiencies identified by Team A and made recommendations for improvement.

As a result of the combined Phase I and Phase II activities, recommendations for improvement were identified by BPC, WVNS, Team A and Team B. At the time of the audit, WVNS was in the process of finalizing the report and consolidating recommendations into effective corrective actions. Each recommendation is to be entered into the WVNS Commitment Tracking System to ensure active followup. All corrective action is to be completed by March 31, 1993.

**AUDIT FOLLOWUP:**

review of the status and adequacy of the allegation investigation was included as an item for review and followup during the February audit at West Valley at the request of the Program Manager.

The review performed during the audit consisted of talking with WVNS and WVPO personnel, reviewing the draft response report, reviewing some Nonconformance Reports and Surveillance Reports resulting in deficiencies reported by the investigation teams.

### **CONTACTS:**

Dave Crouthamel - WVNS  
 John Cwynar - WVNS  
 Dave Shugars - WVNS  
 Rick Provencher - WVPO  
 Barbara Mazurowski - WVPO

### **ANALYSIS OF RESULTS:**

The 15 allegations were characterized in the following manner:

1. Six allegations are unfounded, no further action will be taken.
2. Two allegations are unfounded, corrective action was taken to improve current practice.
3. One allegation was previously identified, corrective action is being implemented.
4. Six allegations were verified and corrective action has been initiated. The allegations were items 1, 2, 3, 10, 11 and 13.

### **IMPACT:**

1. No defects were found in piping that will carry HLW. All welds of critical systems are 100 percent inspected by radiography.
2. All weld defects were found in the nonradioactive utility systems such as air, demineralized water, cooling water and steam where pressure and temperature are low. The area affected was the Cold Chemical Building.

### **OBSERVATIONS:**

1. WVNS provided leadership in the investigation because the union allegations were addressed to WVNS. Discussions revealed that WVPO would have been the lead if the union allegations had been sent to them.
2. The WVPO has actively participated in the investigation by being represented on Team A. Bob Carter of E.J. Riley, Inc. was contracted to be the official WVPO representative to the team. Barbara Mazurowski and Bill Hunt from WVPO participated as observers on Team A.
3. All 15 allegations were investigated by Team A. The investigation included inspection of welds, documentation reviews, inspection of anchor bolts, review of surveillance reports, random selection and interview of craft, inspection and supervisory personnel.
4. Review of the Team A Evaluation Report revealed a well organized and technically sound approach to the investigation. Recommendations were made to correct deficiencies identified.
5. Team B conducted a detailed Root Cause Analysis of the four most significant areas of concern identified by Team A. Recommendations for corrective action were provided to WVNS.
6. WVPO has scheduled a direct surveillance of the Bell Power Corp. welding activities during March 1993. This will supplement the increased surveillance activities to be performed by WVNS.

### **RECOMMENDATIONS:**

1. The draft report which was reviewed during the audit was difficult to follow because of attempts to summarize the activities and recommendations of BPC, WVNS, Team A and Team B. It was difficult to determine if all recommendations had been addressed in the corrective action plan. This was discussed with WVNS and they agreed to prepare a matrix to summarize all recommendations and include the matrix as an attachment to the report. This activity was started during the audit and was progressing well. The final report should be available by mid-March.
2. Various corrective actions in the report indicated that specific personnel had been retrained or would be retrained. Verbal input indicated that all training had been done but there was not a documented status to verify that training had been completed. A request for a status report was made to WVNS. This was done and documentation was presented that indicated that retraining had taken place. This will be clarified in the final report.
3. WVNS needs to determine what inspection level will be needed to provide confidence that the problems have been corrected and document this plan as part of the corrective action program.

### **EVALUATION:**

The actions taken by the WVNS/WVPO team in conducting this investigation have been thorough and technically sound. The team has been responsive in acting upon the allegations and have committed to have all actions completed by March 31, 1993. This was a job well done and the team is to be commended for taking this matter very serious and responding in a very positive manner.