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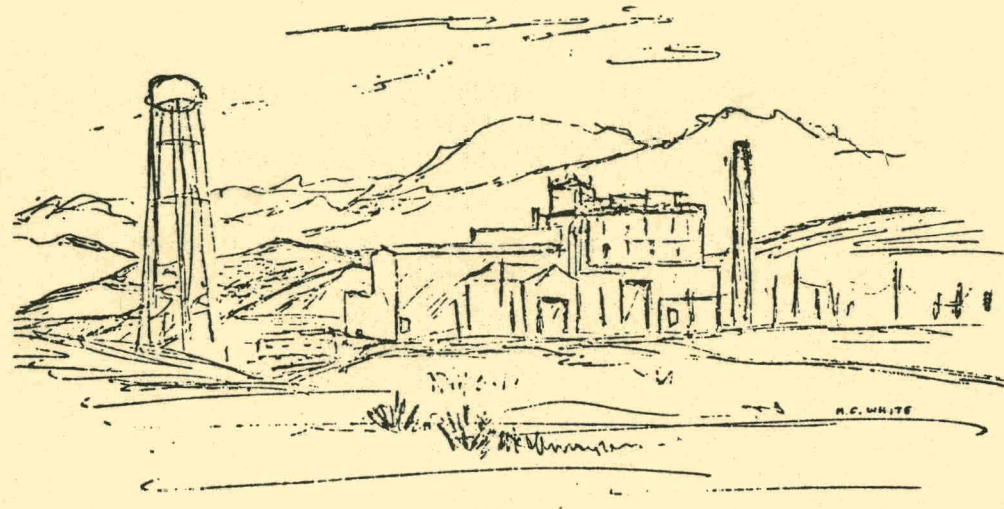
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# COMMERCIAL WASTE AND SPENT FUEL PACKAGING PROGRAM

## QUARTERLY REPORT

for the period  
OCTOBER THROUGH DECEMBER 1980

JANUARY 1981



Prepared for the  
UNITED STATES DEPARTMENT OF ENERGY  
NEVADA OPERATIONS OFFICE  
Under Contract DE-AC-08-80NV10061

WESTINGHOUSE ELECTRIC CORPORATION  
ADVANCED ENERGY SYSTEMS DIVISION - NEVADA OPERATIONS  
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## INTRODUCTION

This document is a report of activities performed by Westinghouse Advanced Energy Systems Division-Nevada Operations at the E-MAD Facility, Area 25, Nevada Test Site, in meeting subtask objectives during the first quarter of Fiscal Year 1981. These activities include the receipt and setup of the Plasma Welder for weld development; continuation of the Drywell Interaction Tests and the 2 kw Drywell Test; completion of the 2 kw Fuel Temperature Test and the 3 kw Soil Temperature Test; major overhaul of the Wall Mounted Handling System; installation of the major part of the RAM System; and disassembly and packaging of the R-MAD windows.

## GLOSSARY

AESD-Large	Westinghouse Advanced Energy Systems Division at Large, Pennsylvania
AESD-Nevada Operations	Westinghouse Advanced Energy Systems Division located at the Nevada Test Site
AGNS	Allied General Nuclear Services
ARD	Westinghouse Advanced Reactor Division
DOE/NV	United States Department of Energy, Nevada Operations Office
EDP	Experimental Demonstration Package
E-MAD	Engine Maintenance, Assembly and Disassembly Building, Area 25, NTS
HEDL	Westinghouse Hanford Engineering Development Laboratories
R-MAD	Reactor Maintenance, Assembly and Disassembly Building, Area 25, NTS
BWIP/NSTF	Basalt Waste Isolation Program/Near Surface Test Facility
LLNL	Lawrence Livermore National Laboratories

## OBJECTIVES

- Fabricate support equipment and receive first mockups for use in the EDP Plasma Welder Development Program. Receive, check out and set up the welder. Prepare and initiate a Weld Development Program.
- Complete the 2 kw Fuel Temperature Test.
- Complete the 3 kw Soil Temperature Test.
- Issue required Technical Operating Procedures for transferring fuel assembly D-15 from the West Process Cell to the Hot Bay; calorimetry and canisterization, and to transfer fuel assembly to Lag Storage Pit. (Operations to be performed in early January.)
- Revise and reissue Technical Operating Procedures required for the January 1981 fuel assembly D-15 transfer to Climax; receipt of fuel assembly D-09 from Climax and its placement in the Lag Storage Pit.
- Complete the overhaul of the Wall Mounted Handling System.
- Disassemble, inspect, and package the R-MAD shielding windows for shipping to the vendor for refurbishment.
- Analyze current Safety Assessment Document (SAD) for revision to include scheduled activities and new E-MAD systems.



## HIGHLIGHTS

- Test profile conditions of the 2 kw Fuel Temperature Test were met, and the test was completed on December 31, 1980. Test data acquisition was discontinued.
- The 3 kw Soil Temperature Test was completed and data acquisition was discontinued on December 31, 1980.
- Issued all required procedures for fuel assembly D-15 transfer to Hot Bay, calorimetry, encapsulation and transfer to the Lag Storage Pit.
- Issued procedures required for the Climax fuel exchange.
- Received EDP Plasma Welder, set up in Cold Bay and initiated Welder Development Program.
- Completed a major overhaul of the Wall Mounted Handling System.
- Disassembled, inspected and packaged the R-MAD shielding windows for refurbishment by the vendor.
- Completed analysis of the SAD to propose revisions necessary for currently scheduled activities and newly installed E-MAD systems.

## NARRATIVE SUMMARY

### WORK TASK NUMBER

### ACTIVITY

1.2.4.2.1

#### Canister Cutter

There were no canister cutter activities during this time period.

1.2.4.2.2

#### Pit Adapters

Preliminary drawings for the new Lag Storage Pit seismic grid were reviewed and comments were prepared for the final design review in early January.

1.2.4.2.3

#### EDP Plasma Welder Development

Support equipment to be used during the Weld Development Program was fabricated and the Plasma Welding system was received in November, 1980. The system was set up in the Cold Bay and the first practice weld was completed. A Development Program and schedule of activities were prepared and initiated. Mockups for use in the program are being machined.

1.2.4.2.4

#### EDP Ultrasonic Weld Inspection System

Quality Assurance personnel completed design review of the Ultrasonic Weld Inspection System - Mechanical Fixturing Device and transmitted their comments to Pittsburgh.

1.2.4.2.5

#### Grapples

Modifications to the LLNL grapple for use on the EDP package were finalized.

WORK TASK NUMBER

ACTIVITY

1.2.4.2.7

Safety Assessment Document (SAD) Update

Current Department of Energy requirements for the update of the Safety Assessment Document are being analyzed.

1.2.4.2.9

Data Acquisition

- a. Drywell Interaction Test (Drywell 1,2,3 Array)  
Highest thermocouple temperatures, after 2,532 hours of operation were:

<u>Fuel Assembly</u>	<u>Drywell</u>	<u>Canister(°F)</u>	<u>Liner(°F)</u>
B-43	1	180.7	138.0
B-41	2	196.5	153.1
B-03	3	211.6	165.9

- b. 2 kw Drywell Test

At 2,832 hours of operation, the maximum canister temperature was 312.8°F; the nearest liner temperature was 254.0°F.

- c. 2 kw Fuel Temperature Test

WN-TOP-023, covering operation of the 2 kw Fuel Temperature Test was revised, to add a data channel and correct a minimum vacuum gage reading, and the revision was published.

A definition of the final test profile condition was received from AESD-Large and LLNL and the tests were completed. Temperature controllers were disconnected at 1,600 hours on December 31, 1980, and test data acquisition was discontinued. At 2,390 hours of operation, the temperature of the centermost thermocouple in the fuel assembly was 526.7°F and the highest canister temperature was 356.1°F.

WORK TASK NUMBER

ACTIVITY

Briefings were held and Hot Bay preparations completed for moving the spent fuel assembly (D-15) from the West Process Cell to the Hot Bay for calorimetry and encapsulation. (See Work Tasks 1.4.2.2.3 and 1.6.5.1.2, section d.)

d. 3 kw Soil Temperature Test

The Soil Temperature Test data acquisition was terminated at 0800 hours on December 31, 1980. At 6,558 hours of operation at 3 kw, the maximum canister thermocouple temperature was 721.8°F. Temperature of the nearest liner thermocouple at that time was 684.8°F.

Power to the heater was reduced, with one-half kilowatt of power being applied to prevent rust and moisture collection.

1.2.4.2.10

Drywell Evaluation

Preliminary assessment of thermocouple damage from water accumulation in the drywells was completed.

1.2.4.2.11

Acoustic Emission

A final report describing the acoustic emission engineering development program results is in progress.

1.4.2.2.3

Climax Fuel Transfers

Two procedures were revised and issued in preparation for the January, 1981 Climax Fuel Exchange using fuel assembly D-15: WN-TOP-012 for preparing and shipping Climax Fueled Canisters and WN-TOP-017, for receiving fueled canisters from Climax and installing in temporary

WORK TASK NUMBER

ACTIVITY

storage. Guidelines and references were upgraded in both procedures, and TOP-012 was also revised to permit loading of the Surface Transport Vehicle (STV) with a fueled canister which has been previously prepared for shipment.

1.6.5.1.2

Capability Maintenance

- a. AESD-Nevada staff members conducted tours of the E-MAD facility for 21 groups.
- b. Safety
  - (1) Lectures and training classes were presented to all E-MAD personnel for Industrial Safety, Emergency Response, Radiation Safety, First Aid and Cardiopulmonary Resuscitation.
  - (2) A safety and radiological orientation lecture was presented to Westinghouse and contractor personnel prior to the shield window disassembly operation in the Cold Bay.
- c. Operator Qualification and Training
  - (1) Four technicians were qualified on the turntables and one technician was qualified on the V-202 Remote Bridge Crane.
  - (2) Classroom training consisted of 204 hours; lectures, 379 hours; and hands-on training, 1,046 hours.
  - (3) One-hundred hours of training in the Bell Telephone 2000 Dimension System being installed at E-MAD, were required.

WORK TASK NUMBER

ACTIVITY

d. Documentation

- (1) The following Technical Operating Procedures were revised, approved and published:
  - (a) WN-TOP-009, "Transfer Spent Fuel Assembly from Temporary Storage to Fuel Temperature Test Assembly and Transfer to West Process Cell" was revised to delete a duplicated step.
  - (b) WN-TOP-014, "The Spent Fuel Calorimeter System" was revised to reflect actual operating conditions and to document the orientation of a fuel assembly when installed into a canister.
- (2) Technical Operating Procedures for handling a fuel assembly during calorimetry (WN-TOP-027) and for transfer of a canister to the Weld Pit (WN-TOP-028) were prepared, approved and published.
- (3) Three Specifications were completed and published, covering hoist equipment proof testing and recertification and maintenance of the E-MAD spacer car, flatcars, and emplacement installation vehicle; also, the Specification covering the calibration procedure for the Astro-Arc Welder was revised and published.
- (4) Six Facility Equipment Operating Procedures were completed, approved and issued.

e. Facility and Equipment Maintenance/Repair

- (1) A major overhaul of the Wall Mounted Handling system was completed as scheduled.

WORK TASK NUMBER

ACTIVITY

- (2) Annual maintenance was completed on the Warner-Swasey Crane and semi-annual maintenance on the Railroad Transport System (RTS) was accomplished.
- (3) Temporary liners for Drywells 2 and 3 were fabricated and installed.
- (4) The canister evacuation and varian leak detector systems were calibrated, checked out, and are operational.

f. Energy Conservation

The Energy Conservation Employees Awareness Program kickoff meeting was held November 18, 1980, with all E-MAD employees in attendance.

g. Audits

- (1) An audit of AESD-Nevada Operations is being performed by the DOE/NV Audit Staff.
- (2) A DOE Facility Utilization Team audited E-MAD facility and equipment utilization on December 3, 1980.

1.6.5.1.3.1

AGNS Heater

There were no AGNS Heater activities during this time period.

1.6.5.1.3.2

CAM/RAM and Stack Monitoring Engineering Support

Sound barrier panels were fabricated and installed on the CAM (Constant Air Monitor) units. Installation of the RAM (Remote Air Monitoring) System continues; the system in the East Gallery was completed, checked out, and is operational.

WORK TASK NUMBER

ACTIVITY

1.6.5.1.3.3

Activation of the East Process Cell

The R-MAD shield windows were transferred from R-MAD to the E-MAD Cold Bay. Disassembly and inspection were completed and the cover glasses and shield glasses were packaged for shipment and stored on pallets in the Cold Bay. Window housings and trim frames were loaded on a rail flatcar and moved to R-MAD for storage.

1.8.2

Project Control

- a. Detailed logic diagrams were completed and issued for FY 1981 work tasks.
- b. Milestones and deliverables were identified for all anticipated FY 1981 tasks, and were revised and finalized as information became available.

1.8.4

Quality Assurance

Four potential suppliers were surveyed during this reporting period. The product lines of these suppliers were lead glass refinishing, radiation counting devices, ASME code welding materials and metal fasteners. Three of the four suppliers evaluated had acceptable manufacturing capabilities and quality programs and their names have been added to the Westinghouse Approved Supplier List.

Corrective action for the observations provided during the DOE/NV QA/Sandia Overview QA September 3 and 4 quality audits was developed, documented and implemented.

Twenty-six CAM/RAM monitors and the Plasma Arc Welder were source inspected and released for shipment to E-MAD.



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