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REGION I

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Licensee:	Duquesne Light Company One Oxford Center 301 Grant Street Pittsburgh, PA 15279
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Shippingport, Pennsylvania
Inspection Period:	January 24 - February 27, 1995
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Approved by: W J Lazarus 3/14/95
W. J. Lazarus, Chief — Date
Reactor Projects Section 3B

Inspection Summary

This inspection report documents the safety inspections conducted during day and backshift hours of station activities in the areas of: plant operations; maintenance and surveillance; engineering; and, plant support.

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EXECUTIVE SUMMARY
Beaver Valley Power Station
Report Nos. 50-334/95-06 & 50-412/95-06

Plant Operations

The Unit 1 reactor core was re-loaded for fuel cycle eleven. All refueling activities, including fuel assembly ultrasonic testing and reconstitution, were completed with no significant complications, and indicated a very good level of performance.

Operator error caused an inadvertent safety injection signal during restoration of the Unit 1 solid state protection system. The plant was in cold shutdown at the time, and no injection actually occurred. Better self-checking by the operator could have precluded the event. Operations Department managers have been placing more emphasis on the need for self-checking.

Maintenance

The overhaul of motor operated valves by mechanical maintenance was accomplished by well-skilled mechanics using comprehensive procedures. The results of these overhauls were successful in that no leakby has been evident following system restorations to normal operating temperature and pressure. Excellent system engineering involvement was noted regarding the inspection of the terry turbine governor valve stem and the evaluation of current generic issues with valve stem binding. Evaluation of VOTES testing procedures was noted as being very thorough and implementation of these procedures at the job site was very good.

The quality of maintenance by Instrumentation and Control personnel on Masoneilan Air Actuators was very good. The technicians were found to be very knowledgeable on the construction and operation of the actuators. However, procedure compliance was a weakness in that steps were performed out of sequence without first consulting supervision. Subsequent review found the reordered procedure steps to be technically correct and acceptable.

Inadequate venting following outage maintenance resulted in failure of a Quench Spray pump. Corrective actions were taken to prevent recurrence.

Recommendations by the Maintenance, Engineering and Assessment Department to resolve longstanding deficiencies with Target Rock solenoid operated valves were found to be technically well based. The initial implementation of these recommendations was not fully successful as one operating procedure was not correctly updated and the overhaul of two reactor vessel head vent valves was completed incorrectly. Corrective actions were taken and the subsequent overhaul of the head vent valves was successful as demonstrated by the proper stroking of these valves and the elimination of previously experienced leakby.

As demonstrated by river water flow testing, the replacement of some Unit 1 river water lines has resulted in a significant improvement in the flow of river water to the emergency diesel generators and recirculation spray heat exchangers. Diesel generator load testing was successfully completed without complications. The pre-test briefing was considered to be extremely thorough in ensuring each participant in the test fully understood his individual responsibilities prior to test commencement.

Safety injection testing was also satisfactorily completed, however, no one questioned an inconsistency between pump flows or the precision needed in setting the system throttle valves. The licensee subsequently adopted a more precise method of setting these valves. The licensee also intends to work toward getting system engineers more involved in major surveillance tests on their systems.

Engineering

The design of the river water supply piping to the emergency diesel generators (EDGs) was changed during the refueling outage. The change significantly increased the available flow margin of the system and reduced the susceptibility of this piping to microbiologically influenced corrosion.

A root-cause analysis for Unit 2 component cooling water expansion joint deficiencies was thorough, but corrective actions to prevent recurrence could have been more complete. A flange bolt torque value was changed, but after 14 months the change was not captured in a manner to ensure that the value is used during future maintenance activities. The licensee does plan to capture the information at some point in the future.

Good follow-up on previously identified deficiencies was noted on two occasions. Liquid penetrant examinations were conducted to ensure that a design change on the Unit 1 disc pressurization lines continued to be effective; and visual inspections were performed on Unit 1 hot leg resistance temperature detector (RTD) thermal insulation to validate the results of qualified life calculations. The thermal insulation inspection unexpectedly revealed thermal degradation of the RTDs. Further investigation showed that the insulation was not installed properly.

Senior management demonstrated strong involvement and oversight to ensure all possible actions were taken to minimize the potential for fuel failures during the eleventh operating cycle.

Thorough, technically accurate evaluations were performed for the replacement of a Unit 1 quench spray pump impeller which provided good justification for the conclusion that this change in impeller size did not involve an unreviewed safety question. Evaluation of the leak repair of a Unit 1 component cooling water valve was sufficient.

Plant Support

The licensee's establishment of safe radiological controls during outage activities was evident during the maintenance activities observed by the inspectors. In particular, the extensive use of new mini-HEPA units helped to reduce the airborne concentration at these job sites. Health physics sensitivity towards the proper control of high radiation areas was also evident. In one instance, health physics supervision identified an individual within a high radiation area who did not have his dose rate meter turned on as required. This was a **non-cited violation**. The inspectors also reviewed the internal dose assessments for selected individuals. The licensee's methodology was found to be consistent with that prescribed in the applicable regulatory guides.

Security force personnel identified a firearm on a contractor during the routine search at the primary access facility. The response by site security was appropriate, and site security was not compromised. An unresolved item was closed regarding diesel fuel oil sampling methods. A design change has been approved to establish a new sample point. Results via this new sample point have demonstrated consistency with actual particulate concentration in the storage tank.

Safety Assessment/Quality Verification

An effective shutdown safety policy was established and implemented throughout the Unit 1 outage. Plant management involvement and presence was evident throughout the plant. The handling of several issues showed that plant management was committed to safety and quality. Many examples of good follow-up and resolution of previous problems were evident during this inspection period.

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DETAILS

1.0 MAJOR FACILITY ACTIVITIES

Unit 1 began the period in a refueling outage with the core off-loaded to the spent fuel pool. Refueling of the reactor vessel was performed between February 5 and 8. Plant heatup commenced on February 27. At the end of this inspection period Unit 1 was in Mode 4, hot shutdown, while startup continued. Unit 2 operated at full power throughout this inspection period. No significant operational events occurred at either unit during this inspection period.

2.0 PLANT OPERATIONS (71707, 60705, 60710)

2.1 Operational Safety Verification

Using applicable drawings and check-off lists, the inspectors independently verified safety system operability by performing control panel and field walkdowns of the following systems: emergency diesel generator 1-2 auto-start alignment, vital buses I-IV power supply alignment, low head safety injection, quench spray, and battery room ventilation. These systems were properly aligned.

The inspectors also walked down the Unit 1 reactor coolant pump oil collection system. The inspectors confirmed that the potential oil leakage points required to be protected by 10 CFR 50, Appendix R were protected. Some deficiencies were identified in the sealing of seams in the system and in the placement of one of six lower drain hoses. These were corrected. Also, the licensee is making procedure enhancements to ensure restoration of this system following maintenance. The inspectors noted that the licensee's containment closeout surveillance, which had not yet been performed, inspects the as-left condition of this system and should ensure operability of this system.

The inspectors observed plant operation and verified that the plant was operated safely and in accordance with licensee procedures and regulatory requirements. Regular tours were conducted of the following plant areas:

- Control Room
- Auxiliary Buildings
- Switchgear Areas
- Access Control Points
- Protected Areas
- Spent Fuel Buildings
- Diesel Generator Buildings
- Safeguards Areas
- Service Buildings
- Turbine Buildings
- Intake Structure
- Yard Areas
- Containment Penetration Areas
- Containment Building

A Unit 1 containment close-out inspection was also completed. Overall conditions were satisfactory. During the course of the inspection, discussions were conducted with operators concerning knowledge of recent changes to procedures, facility configuration, and plant conditions. The inspectors verified adherence to approved procedures for ongoing activities observed. Shift turnovers were witnessed and staffing requirements confirmed.

The inspectors found that control room access was properly controlled and a professional atmosphere was maintained. Inspectors' comments or questions resulting from these reviews were resolved by licensee personnel.

Control room instruments and plant computer indications were observed for correlation between channels and for conformance with technical specification (TS) requirements. Operability of engineered safety features, other safety related systems, and onsite and offsite power sources were verified. The inspectors observed various alarm conditions and confirmed that operator response was in accordance with plant operating procedures. Compliance with TS and implementation of appropriate action statements for equipment out of service was inspected. Logs and records were reviewed to determine if entries were accurate and identified equipment status or deficiencies. These records included operating logs, turnover sheets, system safety tags, and the jumper and lifted lead book. The inspectors also examined the condition of various fire protection, meteorological, and seismic monitoring systems.

2.2 Unit 1 Refueling Operations

The licensee's preparations for and conduct of refueling activities were assessed to determine if these activities were performed safely and in accordance with regulatory requirements. Areas reviewed and observed included: the core reload safety evaluation, fuel pin ultrasonic testing, fuel assembly reconstitution, fuel movement during core reload in containment and the spent fuel pool, and replacement of the reactor vessel upper internals assembly.

Core Reload Safety Evaluation

The core reload safety evaluation was performed by Westinghouse Corporation. The licensee also performed a safety evaluation based on the Westinghouse documentation. The licensee's evaluation was reviewed and approved by the Onsite Safety Committee. No problems were noted by the inspectors during review of these documents. The inspectors also compared the final core configuration with the Westinghouse analyzed configuration. No discrepancies were noted.

Fuel Assembly Ultrasonic Testing and Reconstitution

The ultrasonic testing (UT) inspection of the off-loaded core and reconstitution of three fuel assemblies was observed by the inspectors. Fuel movements within the spent fuel pool for these activities were well controlled with good supervisory oversight. Technical specification requirements for fuel movements were properly verified prior to each shift. The interface between Westinghouse personnel and Beaver Valley personnel was very professional. No deficiencies were noted by the inspectors during their observations. Details of the fuel inspection results and corrective actions are discussed in Section 4.4.

Core Reload

Fuel movement operations in the containment building and the spent fuel pool were very good. The requirements of the Beaver Valley refueling procedures were adhered to at all times, communications were clear, and the refueling senior reactor operators maintained close supervisory control over all movements. Several minor problems were handled in a conservative manner with a focus on safety. The Westinghouse personnel who operated the fuel movement equipment demonstrated a high level of skill and procedural knowledge.

Reactor Vessel Upper Internals Assembly Replacement

The placement of the upper internals assembly into the reactor vessel was well coordinated between the multiple disciplines involved. During the pre-evolution briefing, the refueling supervisor ensured each individual was aware of his specific responsibilities. The procedure was rigorously adhered to, and refueling personnel ensured adequate clearance existed between the assembly storage stand guide studs and the upper internals. One complication did arise, but was handled in a controlled and safe manner. Specifically, while the upper internals was positioned over the reactor vessel, operations personnel were unable to reduce the water level in the refueling cavity. This prevented the landing of the assembly into the vessel. Although a safe condition did exist, the Operations Manager prudently elected to return the upper internals assembly back to its storage location. The inability to drain the refueling cavity was attributed to freezing of the non-safety related refueling water storage tank fill line. Subsequent relanding of the upper internals assembly was completed without complication.

2.3 Unit 1 Safety Injection Signal

On February 19, 1995, a safety injection (SI) signal was generated due to human error while the plant was in a cold shutdown condition. During the restoration of the 'A' train solid state protection system (SSPS), an operator mistakenly placed the "mode selector switch" in the normal position from the test position. The test position prevents engineered safety feature actuations by removing 120Vac power from the slave relays. With the "input error inhibit switch" already in normal, the SSPS sensed the actual plant conditions of low pressurizer pressure and low main steam line pressure and thus generated a safety injection signal. No actual injection into the reactor coolant system occurred due to the plant configuration at the time of this event, which included the charging pumps in pull-to-lock. All systems that were operational at the time of the event functioned normally in response to the SI signal. These include, for example, the auto-start of the number 1 emergency diesel generator, change-over of charging pump suction from the volume control tank to the refueling water storage tank and closure of several containment isolation valves. Operators properly reset the safety injection signal and restored the equipment to the normal line-ups. The inspectors reviewed the sequence of events recorder and did not identify any safety concerns with the equipment that responded to the SI signal. The inspectors also interviewed the operator involved and concluded that better self-checking during such routine evolutions could have precluded this error. Licensee management has reached similar conclusions and has taken appropriate corrective action. Even before this event, the inspectors have noted that Operation's management (and shift supervisors) from both units have been placing a proper emphasis on the need for self-checking.

3.0 MAINTENANCE (62703, 61726, 71707)

3.1 Maintenance Observations

The inspectors reviewed selected maintenance activities to assure that: the activity did not violate Technical Specification Limiting Conditions for Operation and that redundant components were operable; required approvals and releases had been obtained prior to commencing work; procedures used for the task were adequate and work was within the skills of the trade; activities were accomplished by qualified personnel; radiological and fire prevention controls were adequate and implemented; QC hold points were established where required and observed; and equipment was properly tested and returned to service.

The maintenance work requests (MWRs) listed below were observed and reviewed. Unless otherwise indicated, the activities observed and reviewed were properly conducted.

3.1.1 Valve Maintenance Activities

MWR 022359	MOV-CH-311	Pressurizer Auxiliary Spray Isolation: Anti-rotation key replacement and repack.
MWR 030067	MOV-RH-720A	Residual Heat Removal Return Isolation: Internals inspection and repair.
MWR 023360	MOV-RC-865C	Safety Injection Accumulator Isolation: Valve disassembly and yoke replacement.
MWR 028141	MOV-SI-867B	Boron Injection Tank Inlet Isolation: Valve disassembly, disc modification.
MWR 027099	MOV-RC-865A	Safety Injection Accumulator Isolation: Valve disassembly and yoke replacement.
MWR 031491	PCV-RC-455C	Power Operated Relief Valve: Overhaul and repair valve leak-by.

The maintenance on the above valves was accomplished with well skilled mechanics and good supervisory oversight. Foreign material exclusion controls were verified as being properly implemented. Quality control personnel were found to be knowledgeable of the appropriate inspection criteria. The MWRs and corrective maintenance procedures were well documented with good detail to accomplish the tasks at hand. Maintenance personnel properly stopped the jobs to obtain additional documented work instructions when changes to the scope of work were identified. Engineering support involving the machining of new yoke assemblies for the accumulator isolation valves was good.

3.1.2 Auxiliary Feedwater Pump Turbine Governor Valve Inspection (MWR 027734)

Due to corrosion previously identified with the Unit 2 governor valve stem and generic industry issues, it was necessary to inspect the Unit 1 governor valve stem (see NRC inspection reports 50-412/93-30 and 94-20). Information Notice 94-66, "Overspeed of Turbine Driven Pumps Caused by Governor Valve Stem Binding," discusses the various stem failure mechanisms. These include galvanic corrosion between the valve stem and spacers in the packing assembly, crevice corrosion, and pitting corrosion. A build-up of deposits on the stem will result in interference between the stem and packing. Unit 1 has not experienced any difficulties with the governor valve. As discussed in the information notice, licensee personnel verified that the washers in the packing space were of the same material as the valve stem (410 stainless steel). Disassembly of the valve revealed minor pitting. The licensee evaluated the stem condition and determined it was acceptable for continued use. Due to very recent concerns involving the nitrating process for stem hardening, the licensee elected not to use a new valve stem procured from the vendor. Valve stem failures at Calvert Cliffs have led to the identification that the vendor (Dresser-Rand) has reduced the stem hardness design specification. The newer valve stems have been found to be metallurgically inferior. The protective coating on the old stems, even in the pitted areas, had restricted stem corrosion to shallow areas that had not penetrated into the base metal. The inspectors discussed these issues with the system engineer and were informed that enhanced monitoring of governor performance during the pump surveillance tests will continue. Additionally, the governor valve will be disassembled for inspection again during the next refueling outage. The system engineer plans on pursuing permanent resolution of this issue via the industry users group in conjunction with Dresser-Rand. An inconel valve stem is currently under development by the vendor. The inspectors considered the licensee's decision to use the old stem along with continued enhanced monitoring to be prudent. The system engineer involvement with the maintenance, generic industry issues, and assurance of continued proper turbine performance was considered by the inspectors to be excellent.

3.1.3 Remove, Replace, Modify and Test the Operator on MOV-SI-863B (MWR 912330)

The inspectors observed the final static testing on MOV-SI-863B (the 'B' train low head to high head safety injection isolation valve). The testing was performed by Liberty Technical Services using VOTES testing equipment. The test procedure was written by Liberty Technical Services, and was thoroughly reviewed by the licensee. The Nuclear Engineering Department reviewed the procedure for technical accuracy, and evaluated the titanium epoxy used to mount the VOTES sensor for compatibility with the valve. The response to these evaluations was documented in two Engineering Memorandums which were attached to the procedure. The procedure was also reviewed and approved by the licensee's Onsite Safety Committee. The level of review and evaluation of the procedure was outstanding. Performance at the job site was very good. The vendor representative was well supervised and assisted, and demonstrated expertise in his field.

3.1.4 Maintenance on TV-CH-200B/C (MWRs 038392, 038393)

The actuators on TV-CH-200B/C were removed and rebuilt as part of the effort to repair the valves due to excessive leakage noted during Type-C containment leak-rate testing. The inspectors observed the reinstallation and testing of TV-CH-200C, and reassembly of TV-CH-200B. All the work was done in accordance with corrective maintenance procedure 1/2 CMP-75-MASON-38-1I "Masoneilan Model 38 Actuator Maintenance." The instrumentation and control (I&C) technicians working on the actuators had been through extensive training on the construction of the actuators, and were very knowledgeable about their operation. During the reinstallation of TV-CH-200C, the Masoneilan Air Actuator Component Engineer was at the job site, and provided good supervision of the maintenance. Procedural use was very good during reinstallation of TV-CH-200C, with one exception. One of the steps in the procedure required the technicians to adjust the valve packing. The adjustment was critical to obtaining valid test data during subsequent steps. The lead technician decided to skip the packing adjustment step because packing adjustment is typically a mechanical maintenance vice an I&C activity. The Component Engineer prevented the technicians from skipping the step, and explained that this particular procedure was written with the intent that I&C technicians would adjust the packing.

During reassembly of TV-CH-200B, the quality of work was excellent, but use of the procedure was a weakness. The procedure steps were performed out-of-order without first consulting a maintenance supervisor for guidance. The re-ordered procedure steps were technically correct, and the order was eventually found to be acceptable to the responsible supervisor. However, maintenance personnel are expected to consult a supervisor prior to performing procedure steps out-of-order.

The procedure issues noted above were discussed with the Director of I&C. He stated that he would evaluate the issues and reinforce procedure performance requirements and expectations with appropriate individuals.

3.1.5 Failure of Quench Spray Pump 1A at Unit 1

During relay testing of the engineered safety features actuation system, quench spray pump 1A (QS-P-1A) was automatically started in accordance with the procedure. Plant operators thought the pump was running normally, but just prior to shutting down the pump they noticed that pump discharge pressure was at 10 psig. Normal discharge pressure for the pump is about 150 psig. Additional investigation of this problem showed that the pump had seized, apparently due to air binding. The inspectors reviewed the event with the licensee and agreed with the licensee's conclusion that the failure was due to inadequate venting of the quench spray system prior to return to service following several outage maintenance activities. Following this event, the licensee installed a new pump impeller, prepared and used system venting instructions prepared specifically for this system, verified that the system was filled using ultrasonic testing, and demonstrated operability by operational surveillance tests. Several issues relating to the replacement impeller being larger than the original were evaluated and resolved as described in Section 4.5 of this report. The adequacy of venting guidance is still under review by the licensee. The inspectors concluded that this pump and system were restored to operability and that the corrective actions taken would prevent recurrence.

3.1.6 Unit 1 Reactor Vessel Head Vent Maintenance

In response to previous deficiencies with Target Rock solenoid operated valves (SOVs), the Maintenance, Engineering and Assessment Department formed a task force to develop corrective actions. In particular, the reactor vessel head and pressurizer vapor space vent valves (SOV-RC-102A, B and 103A, B) have experienced leakby problems over the last several years at Unit 1. Additionally, the downstream vent valves to containment atmosphere (SOV-RC-105) and the primary relief tank (SOV-RC-104) have experienced damaged pilot seats due to valve fluttering while stroking the upstream valves.

The potential for pilot seat damage was attributed to an incorrect sequence of operation of the valves. It was concluded that when venting to containment or the primary relief tank, SOV-RC-105 or 104 should be opened first, followed by the respective reactor coolant vent valve. By opening the downstream valve first, a pressure transient on this valve is prevented when the upstream vent valve is subsequently opened. The inspectors reviewed the following procedures to verify that they were properly updated to reflect this desired sequence of operation: (1) 1OM 6.4F Filling and venting the Reactor Coolant System (RCS); (2) 1OM 6.4W Venting the RCS to Atmospheric Pressure; (3) 1OM 7.4I Collapsing the Pressurizer Bubble; (4) 1OM 51.4D Cooldown from Hot Shutdown to Cold Shutdown; and (5) 1OST RCS Vent System Test. The inspectors concluded that all of these procedures were properly updated with the exception of 1OM 51.4D. The December 23, 1994, revision of this procedure incorrectly directed the opening of RCS vent valves SOV-RC-102A and B prior to opening the vent to the PRT (SOV-RC-104). This error has subsequently been corrected to reflect the proper sequence of operation.

To correct the leakby of these valves, maintenance personnel replaced the internals for those head vent system valves which were leaking by. The main disc, pilot disc/seats and stem were replaced with factory built and matched trim sets. In addition, the corrective maintenance procedure was upgraded to provide specific detailed information needed for the overhaul of these model Target Rock valves. Previously, a generic procedure was used which covered the overhaul of different model Target Rock valves. The inspector reviewed 1/2 CMP-75-Target Rock-4M, "Overhaul of Style 1032110-7 SOV Globe Valve." The procedure was found to contain well detailed instructions for valve internals reassembly and critical measurements. The instructions were very specific on how to obtain the minimum clearance for pilot disc lift. If the valve is reassembled with less than .035 inches of pilot disc lift, then the valve will not stroke under differential pressure.

The inspector observed the overhaul of the first vent valve worked by the licensee (SOV-RC-102B). The inspectors considered the licensee's initial supervision of the vendor's activities to be weak. The overhaul of SOV-RC-102B was completely turned over to the vendor who rapid[illegible] reassembled procedure was not used and the vendor did not understand the importance of quality control (QC) verification of the critical measurements. The NRC inspector questioned the quality control inspector on the need for verification of these measurements who at the time was reviewing the maintenance procedure. When the QC inspector realized that the valve was reassembled without the proper verifications, he directed that the valve be disassembled and then reassembled again so all required measurements could be verified. The inspector also discussed his concerns regarding procedure usage and vendor oversight with maintenance supervision. The inspectors were satisfied with the subsequent reassembly of the valve as the maintenance was completed in a deliberate and controlled manner with proper procedure usage and QC verification of critical measurements. The determination of the actual available pilot disc lift was properly measured and verified to ensure the valve will stroke.

Following installation of the valve internals into the valve bodies, it was identified that SOV-RC-102A and 103A would not stroke under differential pressure. Subsequent disassembly of these valves revealed that the pilot lift was incorrect at .001 inches vice .035 inches. A review of the documented work instructions and interviews with those involved in the overhaul, revealed that the critical dimensions had been properly set and verified during the valve assembly on the workbench. During the disassembly, the connecting tube for SOV-RC-103A was found to be rotated out of position by 90 degrees even though it is pinned in its position. This resulted in the incorrect pilot lift setting. If the connecting tube was incorrectly installed during the assembly on the workbench, the final measurements would have revealed this discrepancy. The licensee has been unable to determine how the connecting tube was rotated out of position following initial assembly on the workbench. Subsequently, these valves were reassembled in the proper manner and installed in the system.

Overall, the inspectors found the SOV Task Force recommendations to be technically well based to eliminate future problems with Target Rock valves. The upgraded overhaul procedure in particular was very thorough. The initial implementation of the recommended corrective actions was not fully successful. The licensee plans on applying lessons learned from the head vent valve maintenance towards the overhaul of Target Rock valves during the upcoming Unit 2 outage. Although complications did arise, the final results of the head vent system valve overhauls were successful in that the leakby has been eliminated.

3.2 Surveillance Observations

The inspectors witnessed/reviewed selected surveillance tests to determine whether properly approved procedures were in use, details were adequate, test instrumentation was properly calibrated and used, technical specifications were satisfied, testing was performed by qualified personnel, and test results satisfied acceptance criteria or were properly dispositioned. The operational surveillance tests (OSTs) listed below were observed and reviewed. Unless otherwise indicated, the activities observed and reviewed were properly conducted without any notable deficiencies.

3.2.1 Unit 1 Reactor Plant River Water Full Flow Testing

The inspectors observed the reactor plant river water full flow test on the 'B' train, and reviewed the data for the 'A' and 'B' train tests, which were performed using surveillance procedures 1OST-30.12A/B. The results of both tests showed significant improvement over previous tests. Replacement of the river water piping to the emergency diesel generators (EDGs) was responsible for the improvement. During the current refueling outage, the licensee installed new, larger diameter river water supply lines to the EDGs. The routing of the lines was also changed so that one river water header supplies only its respective EDG. Previously, the original, smaller lines were configured to supply both EDGs from either header. The result of the piping change is that each EDG now receives more than twice the river water flow achieved in earlier design basis flow tests. The recirculation spray heat exchangers also receive more flow because of the increased flow to the EDGs. In the past, flow to the recirculation spray heat exchangers had to be throttled to minimum requirements to provide required flow to the EDGs.

The inspectors noted two minor weaknesses in the test procedure: (1) The procedure still does not account for the decrease in flow to components other than the recirculation spray heat exchangers due to changes in river level. During past tests, because of the limited flow to the EDGs, this was a significant concern. Evaluation of river level changes should show that the current flows provide enough margin to account for all design basis river conditions. The licensee is working on this evaluation. (2) The procedure does not have acceptance criteria for the river water lineup with the control room air conditioning units in service. This is the lineup that the plant will see during the initial phase of certain design basis accidents. The flows seen during this lineup were acceptable. The River Water System Engineer stated that he would evaluate this comment.

3.2.2 Safety Injection System Full Flow Test

The inspectors observed selected parts of the safety injection (SI) system full flow test. The surveillance was performed using procedure 1OST-11.14. The inspectors noted some inconsistencies during balancing of the high head safety injection lines. Each of the three high head pumps were operated under two different scenarios. First, they were operated with the balance throttle valves in the position established during the last performance of the test. Next, they were operated at a flow rate of 545 to 550 gallons per minute. This second run was used to determine which pump was the strongest by comparing the three discharge pressures at a known flow. The 'B' high head pump was determined to be the strongest pump; however, during the run with a known throttle valve position, the 'B' pump flow was 25 gallons per minute less than the 'A' pump flow. If the 'B' pump was indeed the strong pump, and the throttle valves were in a known position, this should not have happened. No one involved with the test questioned this inconsistency, so the inspectors brought the condition to the attention of the Outage Shift Manager and the Unit 1 Operations Manager. The Operations Manager explained that setting the throttle valves involved some amount of error, and was the most likely explanation for the inconsistency. The inspectors then asked if anyone had evaluated the flow setting error against the error assumed by the accident analysis. The licensee researched this question and found that the potential error in setting the throttle valves was more than the error assumed in the accident analysis. The licensee corrected this problem by changing the test procedure to accurately measure the position of the throttle valves with a depth micrometer. The Unit 2 full flow test had already incorporated this methodology. The inspectors noted that the SI System Engineer was not directly involved with this OST, but was the most likely individual on the licensee's staff to recognize the problem with the SI flow balance throttle valves. Licensee management has stated the intent to get the system engineers more involved with major OSTs in the future.

3.2.3 Unit 1 Diesel Generator No. 2 Automatic Load Test

This test involved the simulation of a loss of off-site power in conjunction with a safety injection signal. This surveillance was performed using procedure 1OST-36.4. The diesel starts from ambient conditions and energizes the auto connected loads through the load sequencer. Due to the multiple groups involved with the test and its complexity, this evolution was designated as an Infrequently Performed Test or Evolution (IPTE). Thus additional management oversight was provided. The pre-test briefing clearly informed all personnel that performance of the test in a deliberate and safe manner took precedence over outage schedule. The need for self-checking by all involved personnel was emphasized. Additionally, the test director ensured each member of the test crew fully understood their individual responsibilities prior to the commencement of the test. The inspectors considered the thoroughness of the briefing and its emphasis on safety to be excellent. Prior to the initiation of the test, the inspectors independently verified prerequisites were satisfied and systems were lined up accordingly. No deficiencies were identified. The actual conduct of the test was well coordinated between the various locations with good command and control by the test director. The test was completed with satisfactory results.

4.0 ENGINEERING (37551,71707,90712, 92700, 92903)

4.1 Review of Written Reports

The inspectors reviewed Licensee Event Reports (LERs) and other reports submitted to the NRC to verify that the details of the events were clearly reported, including accuracy of the description of cause and adequacy of corrective action. The inspectors determined whether further information was required from the licensee, whether generic implications were indicated, and whether the event warranted further onsite follow-up. The following LER was reviewed:

Unit 1:

94-04 Shutdown Due to Inoperable River Water Header

The events involved with this LER were discussed in Inspection Report 50-334/94-11. Unit 1 was shutdown due to a leak in the river water piping which branches off the 'A' river water header to supply the emergency diesel generators. The leak was most likely caused by microbiologically influenced corrosion (MIC). During the current refueling outage, the licensee replaced all of the river water branch lines that supply the emergency diesel generators with new piping made of 6 percent molybdenum stainless steel (AL-6XN). This alloy is highly resistant to MIC, unlike the original carbon steel lines. The licensee is still evaluating long term actions for other locations which may be susceptible to MIC. The inspectors had no further questions or comments.

The above LER was reviewed with respect to the requirements of 10 CFR 50.73 and the guidance provided in NUREG 1022. Generally, the LER was found to be of high quality with good documentation of event analyses, root cause determinations, and corrective actions. This event report is closed based on in-office review of the event report and onsite inspections.

4.2 Unit 2 Component Cooling Water Expansion Joint Deficiencies (Unresolved Item 50-412/93-30-04) (Closed)

In December of 1993, the licensee identified several problems with bolting on the primary component cooling water (CCP) pump suction expansion joints. The problems consisted of loose and/or missing flange bolts and tie rod nuts for the 'A' CCP pump expansion joint; missing and/or loose tie rod nuts on the 'B' and 'C' pump expansion joints; and incorrectly set tie rod nut gaps for all three pump expansion joints. Unresolved Item 50-412/93-30-04 was opened pending review of the licensee's root-cause analysis of these problems, and analysis of the implications of the as-found conditions on operability of the system.

In February of 1994, the licensee concluded that the root causes for the CCP expansion joint problems were as follows: (1) The suction flange bolt torque was not specified in maintenance procedures. Maintenance technicians used standard bolting techniques for the compression of spiral wound gaskets, which did not provide adequate pre-load on the joint for this application. Under certain flow conditions, the 'A' CCP pump experienced slightly higher than normal vibrations which was probably why this pump, and not the other pumps, experienced problems with the suction flange bolts. (2) The tie rod nuts were not adequately staked. In mid-1992, the bolting material for the tie rods was changed, but the staking technique remained the same. The old staking technique was not adequate for the new, harder material. Additionally, although not specified by the procedure, the maintenance technicians use a lubricant to reassemble the tie rods. The lubrication probably contributed to the loosing of the nuts. (3) The improper setting of the tie rod nut gaps was due to misreading of the vendor assembly drawing.

Corrective actions initiated by the licensee included: specifying a specific torque value for the flange bolts; setting the proper gaps on the tie rod nuts; updating the technical drawing to better specify the tie rod nut gaps; and securing the tie rod nuts using set screws. In October of 1994, the licensee completed an analysis of the as-found condition of the CCP system which showed that none of the conditions would have caused a loss of system structural integrity during design basis conditions. The inspectors reviewed the licensee's root-cause analysis. The analysis was thorough and the corrective actions were generally reasonable. The corrective action for the flange bolt torques could have been more comprehensive, however. The torque value was specified in an Engineering Memorandum, but was not captured in a manner to ensure that the value is used during future work on these flanges. This issue was discussed with the supervisor of mechanical maintenance engineering who stated that he will eventually capture the information in an expansion joint maintenance document. The inspectors noted that the licensee still has some susceptibility to the same problem until they permanently capture the information. No violations of regulatory requirements were identified. This unresolved item is closed.

4.3 Engineering Follow-up of Two Previous Deficiencies

The following examples illustrate good follow-up by engineering on previously identified deficiencies. These actions ensured that past corrective actions continue to be effective and past evaluations continue to be valid. This resulted in the unexpected identification of additional deficiency in one instance.

Unit 1 has experienced two small reactor coolant system leaks (January 1991 and October 1993) on the weld connecting the disc pressurization lines to loop isolation valves 1RC-593 and 1RC-591. During the ninth refueling outage, a minor design change was implemented on all disc pressurization lines which shortened the piping length of the tap and replaced the heavy blank flange with a Swagelok coupling. This reduced the cyclic loading on the welded connection in order to preclude future degradation. These events are discussed in NRC inspection reports 50-334/91-02 and 93-22. During the current refueling outage, liquid penetrant examinations were conducted for the welds on each disc pressurization line. The design change continues to be effective, as no indications were identified during the inspections.

During the Unit 2 refueling outage in October 1993, the licensee identified significant degradation of the reactor coolant loop hot leg resistance temperature detectors (RTDs). Specifically, the wiring insulation internal to the RTD termination head had completely melted away. Inadequate thermal insulation on the reactor coolant piping where the RTDs penetrate the loop allowed the RTD housing temperature to rise above design limits due to convective heating. These issues are discussed in NRC inspection reports 50-412/93-23 and 93-28. Following a Unit 1 reactor trip on October 12, 1993, the same RTDs were visually inspected and the thermal insulation was assessed as being correctly installed. Additionally, contact pyrometer readings on each hot leg RTD head were taken, and the qualified life of the RTDs was determined to be 23 years. During the current refueling outage, follow-up inspection of these RTDs unexpectedly revealed thermal degradation of the internal wiring for the three hot leg RTDS located at the 12 o'clock position. No problems had been experienced during the previous operational cycle. Further investigation revealed that the flashing around the RTD shaft only provided the appearance that the thermal insulation around the reactor coolant loop was correctly installed. As in the case at Unit 2, the lack of thermal insulation at the RTD penetration allowed convective heating of the RTD instrument head to temperatures above intended design limits. As corrective action, new RTDs have been installed with a heat deflector shield and the penetrations were re-insulated correctly. Proper follow-up in this case ensured no degradation would occur during power operations.

4.4 Unit 1 Fuel Failures

The inspectors observed and reviewed the licensee's activities involving the inspection, repair and assessment of the fuel failures identified at Unit 1. Inspection of the cycle 10 fuel assemblies identified a single failed rod in assembly L-08 and two failed rods in assemblies L-01, L-29, and M-48. The failures in assemblies L-08 and M-48, and one of the failures in assembly L-01 were due to grid to rod fretting. These assemblies are the "Vantage 5H" design which are susceptible to vibration induced grid to rod fretting, especially when located in the core baffle region. This failure mechanism was first identified at Beaver Valley Unit 1 during the last refueling outage in May 1993 (see NRC inspection report 50-334/93-09). As corrective action, Westinghouse has subsequently redesigned the Vantage 5H assemblies with rotated grid straps. For those assemblies which already experienced a fuel cycle and could not be redesigned, Westinghouse previously recommended the use of "wet annular burnable absorbers" (WABAs). During the past operating cycle, these fuel assembly inserts acted as a vibration dampening device for those assemblies located on the core baffle region. As shown by the recently identified L-01 and L-08 fuel failures (baffle region), these inserts were not fully effective. M-48 was an interior fuel assembly and did not contain a WABA. The inspectors were thus concerned how the potential for fuel failures during the upcoming eleventh cycle could be minimized. During a conference call between representatives of Beaver Valley and Westinghouse, the use of new dampening devices were discussed for fuel assemblies located on the baffle. The risk of failure due to assembly vibration is greatly reduced by avoiding placement of the Vantage 5H assemblies in baffle locations or by using a vibration suppression insert when placement on the baffle is required. Baffle locations have more clearance between the assembly and baffle than between adjacent assemblies at the interior core locations; thus providing more room to experience assembly vibration. Therefore, Westinghouse believes that it is not necessary to incorporate vibration suppression inserts for Vantage 5H fuel that does not have rotated grids and is located at interior core locations. The licensee has procured new dampening devices which were specifically designed for the purpose of minimizing the probability of future fretting failures. The new inserts are designed to dampen the vibration to a greater extent than the WABAs. This is due to their greater mass and the use of 24 zircalloy rodlets (vice 16 for the WABAs). Westinghouse testing has confirmed the effectiveness of these new inserts. Additionally, the licensee opted to reconstitute the L-01, L-08, and M-48 fuel assemblies vice replacement with K fuel assemblies from the fuel pool. The K assemblies experienced the majority of grid to rod fretting during cycle 9 and were not reused during cycle 10. Fuel assembly L-29 was a "discharge" assembly and not reused for the next fuel cycle. The inspectors were satisfied with the licensee's actions, as senior management and Quality Assurance demonstrated strong involvement and oversight to ensure all possible actions were taken to minimize the potential for fuel failure during the eleventh operating cycle. The inspectors also noted that the licensee's pre-outage prediction on the number of leaking fuel rods was reasonably accurate considering the uncertainties inherent in fuel defect analysis.

4.5 Evaluation of Replacement Quench Spray Pump

When the replacement impeller for Unit 1 Quench Spray pump QS-P-1A was received from the licensee's warehouse, it was discovered that it was larger than the original. The original impeller was 9.85 inches in diameter, the replacement was 10.25 inches. Both impellers were purchased from the same vendor in 1980. The root cause for this difference has not been determined. Despite the size difference, it was possible to install the replacement impeller in the original pump casing, although the effects of the different operating characteristics had to be evaluated.

The inspectors reviewed the licensee's technical evaluation report and 10 CFR 50.59 safety evaluation of this change in impellers. The licensee's evaluation considered the full range of changes, including, new materials, change in pressures and flows, NPSH requirements, suitability of the motor, power requirements, pump room heat loading, changes in water hammer loads, pipe stresses and supports, the suitability of installed instrumentation and valves for the higher pressures and flows, the effect on spray pH, effects on the containment accident analysis, and technical specifications. The inspectors concluded that the licensee's evaluation of this change was thorough and provided good justification for the conclusion that this change did not involve an unreviewed safety question.

4.6 Unit 1 Component Cooling Water Valve Leak Repair

Component cooling water valve CCR-250, an 18-inch butterfly valve on the outlet of residual heat removal heat exchanger B, developed a leak on the upstream flange. The licensee elected to repair the leak using capnuts and injected sealant in order to not delay core reload. The inspectors reviewed the Temporary Modification 1-95-04 and the 10 CFR 50.59 safety evaluation. This temporary modification was evaluated to remain installed until the next refueling outage. This portion of the component cooling water system is isolated by locked shut valves during power operation and is also isolable by containment isolation valves. The inspectors found that the evaluations of the leak repair installation and possible consequences of failure of valve CCR-250 were sufficient to support the conclusion that no unreviewed safety question was involved.

5.0 PLANT SUPPORT (71750,71707)

5.1 Radiological Controls

Posting and control of radiation and high radiation areas were inspected. Radiation work permit compliance and use of personnel monitoring devices were checked. Conditions of step-off pads, disposal of protective clothing, radiation control job coverage, area monitor operability and calibration (portable and permanent), and personnel frisking were observed on a sampling basis. Licensee personnel were observed to be properly implementing the radiological protection program.

5.1.1 Control of High Radiation Area Boundaries at Unit 1

During the Unit 1 tenth refueling outage, the licensee maintained good control of high radiation area (HRA) boundaries. Through discussions with individuals and observations of HRA access controls, the inspectors found that workers and health physics technicians were aware of past problems with the control of HRA boundaries, and were sensitive to the requirements for the control of these boundaries. During the outage, the licensee did experience two problems with HRA boundary controls. The identification of these two events was an example of good surveillance of HRA access controls by the licensee. In the first case, a containment coordinator was observed in a HRA with his dose rate meter turned off. The individual had been in the posted area for less than a minute, and had not gone near the areas where dose rates were potentially greater than 100 mrem per hour. Investigation determined that the individual inadvertently turned the meter off, thinking he had turned it on, when he entered the area. The failure to have a continuously indicating dose rate meter in a posted high radiation area is a violation of Technical Specification 6.12. This **violation** will **not** be **cited** since the following criteria of Section VII of the 10 CFR 2, Appendix C were met: (1) It was licensee identified. (2) It was an individual error which could not have reasonably been prevented by corrective actions from previous events. (3) The actual violation was corrected immediately when the individual was directed to turn on his meter. Timely corrective actions were taken to re-qualify the individual on the requirements for HRA controls, and to notify other groups who routinely enter HRAs of the event. (4) It was not willful.

The second event involved a HRA boundary door which was left open. Investigation determined that the door was left open for less than 5 minutes, and while the door was open a health physics technician was in a position to provide positive control over the area. The licensee was not able to determine the exact cause of the error, but believes that multiple work activities in the area resulted in a loss of control over the barrier. The licensee held meetings with health physics personnel to reemphasize positive job and area control. The inspectors determined that Technical Specification HRA requirements were not violated in this case, and the licensee took appropriate corrective actions following the event.

5.1.2 Internal Dose Assessment Verification

Due to the reactor vessel head lift evolution, three individuals had an acute uptake of cobalt-58. The whole body count results indicated a committed effective dose equivalent (CEDE) of less than 1 mrem for each individual. Radiological engineering personnel perform a verification of these results with a computer spreadsheet program. The inspectors reviewed this methodology and performed independent checks of these calculations. The inspectors found the licensee's methodology to be consistent with that discussed in Regulatory Guide 8.34, "Monitoring Criteria and Methods to Calculate Occupational Radiation Doses." Bioassay results were converted to intake using the intake retention factors of NUREG 4884. Dose conversion factors for determining CEDE and committed dose equivalent were properly based on values derived from Federal Guidance Report No. 11. The results for the CEDE were found to be consistent with the whole body count results. The highest committed dose equivalent was determined to be 5 mrem to the lungs of one of the workers. The inspectors considered the spreadsheet methodology to be a good initiative to verify the internal dose assessments from the whole body scanners.

5.1.3 Field Observations of Health Physics Activities

The inspectors concluded that radiologically safe conditions were established during the following health physics (HP) activities observed by the inspectors:

- During the radiography activities in the "A" penetrations area, the inspectors observed that boundaries were properly posted and health physics personnel were actively monitoring the area.

- Proper HP controls were observed during the machining of the seating surface for the PORV plug. These included a contaminated boundary set-up, a bag to catch the filings, the use of a HEPA filter unit, and air sampling.

- Hot particle controls were properly established and implemented during fuel reconstitution activities in the spent fuel pool.

- The pre-job briefing by health physics technicians thoroughly covered all radiological safety aspects concerning the disassembly of MOV-SI-865A.

- Air samplers were found to be operating at the proper flow rate which is representative of respirable airborne activity levels (2 cfm).

- The extensive use of mini-HEPA units (125 cfm) to reduce airborne activity concentrations was noted during numerous maintenance activities. Specifically, during the grinding of a sleeve within a head vent valve body, the HEPA units reduced the airborne concentration to 0.06 DAC. HP technicians indicated that these units are being more widely used due to their convenience over the larger 1000 cfm HEPA units.

- The expected radiation fields were known and communicated prior to the reactor vessel upper internals lift. HP technicians were aware of their responsibilities if any off-normal radiation readings were obtained during the evolution.

- The field evaluation factors for converting air sample counting results to a DAC multiple was verified as having a proper technical basis. The derivation used the proper inputs (Co-60 & I-131 DAC limits, probe correction, and sample media collection efficiency) in determining the field conversion factors.

- Proper radiological precautions were established during the reactor vessel head funnel pin inspection. These included thorough pre-job surveys, briefings, minimizing the number of personnel involved, and use of HEPA filters.

- Radiological Controls during all observed refueling operations were consistently very good. The health physics technicians were involved with monitoring all routine activities and were present during all activities which involved higher than normal radiation levels, or presented the opportunity for airborne activity levels.

- HP technicians and supervisors responded properly when a potentially contaminated injured worker was transported offsite for medical treatment. The licensee's contamination surveys identified minor fixed contamination on the workers protective clothing which was subsequently returned to the site for disposal. The same surveys confirmed that the worker and the facilities involved were free of contamination. This event was also reported in accordance with 10 CFR 50.72.

5.2 Security

Implementation of the physical security plan was observed in various plant areas with regard to the following: protected area and vital area barriers were well maintained and not compromised; isolation zones were clear; personnel and their packages were properly searched and access control was in accordance with approved licensee procedures; security access controls to vital areas were maintained and persons in vital areas were authorized; security posts were properly staffed and equipped; security personnel were alert and knowledgeable regarding position requirements; written procedures were available; and lighting was sufficient.

5.2.1 Safeguards Event

On February 10, 1995, a licensee security officer discovered a firearm on a contractor via the routine use of personnel search equipment at the primary access facility. The inspectors reviewed the response by the security force and noted that all appropriate actions were taken in a timely manner. Follow-up investigation revealed that this individual had forgotten that the firearm was on his person. No malevolent intent was established and site security was not compromised. The licensee has suspended this individual's site access and turned the matter over to the local law enforcement authorities.

5.3 Chemistry

5.3.1 Diesel Generator Fuel Oil Sampling (Unresolved Item 50-412/93-14-02) (Closed)

This unresolved item concerned two issues involving the particulate concentration in the emergency diesel generator (EDG) fuel oil storage tanks. These issues specifically involved the consistency of the fuel oil sampling results and the root cause of the particulate concentrations. Technical specifications require that the fuel oil be sampled monthly to verify that particulate concentrations are less than 10 mg/l.

System engineering has identified that the source of particulate contamination is the gravity drain line from the engine to the main storage tank. The gravity drain line returns to the storage tank the fuel oil that is used to cool and lubricate the fuel pump and injector pistons. However, the effect of the contamination is amplified due to the size of the piping at the sample point. The undersized line causes the sample bomb to contact and rub the walls of the piping and thus indicate higher than actual particulate concentration results. In addition, the oil sampled from these points was only representative of all levels of the pipe and the bottom of the tank where the contaminants settle, rather than all levels of the tank and the overall contaminant level of the bulk fuel. The licensee has finalized Design Change 1979, which will modify the sample access points for both fuel tanks. The design change will implement a new sample point via a 4-inch diameter pipe (vice 2 inch). A stainless steel insert will also be used to line the inner diameter of the sample line. On January 18, 1995, a fuel oil sample was taken via this proposed location. The sample results (8.5 mg/l) were found to be consistent with the actual particulate concentration over the past year taken via the temporary sample point. The inspectors reviewed the results and the design change and were satisfied that the new sample point will provide accurate and consistent results of the actual contamination levels. The design change is due to be implemented either during the upcoming refueling outage or directly thereafter. The inspectors had no further concerns and considered this unresolved item closed.

5.4 Housekeeping

Plant housekeeping controls were monitored, including control and storage of flammable material and other potential safety hazards. The inspectors conducted detailed walkdowns of accessible areas of both Unit 1 and Unit 2. Housekeeping at both units was acceptable.

6.0 SAFETY ASSESSMENT AND QUALITY VERIFICATION (71707, 62703, 61726, 37551, 71750)

6.1 Shutdown Safety and Outage Management

Outage safety and management involvement/oversight during the Unit 1 tenth refueling outage were very good. The Independent Safety Evaluation Group (ISEG) performed a pre-outage safety review using as its basis NUMARC 91-06 "Guidelines for Industry Actions to Assess Shutdown Management." Each of the 77 guidelines was individually reviewed and all but 6 were evaluated as being in full compliance. The guidelines evaluated as being in partial compliance did not present any concerns with respect to plant safety. The inspectors concluded that the ISEG report contained a high quality evaluation and was very focused on plant safety.

The licensee continued with their past outage practice of publishing shutdown safety function/equipment status reports once per shift. The reports depicted the status of: (1) all five critical safety functions (including the level of defense-in-depth above that required by Technical Specifications); (2) train priority; (3) core alterations; (4) reactor coolant system water inventory; (5) containment; and (6) the main filter banks. The reports were used as a tool to ensure site personnel were aware of plant conditions, and management requirements concerning plant conditions and equipment operability were followed. Each shift the inspectors observed that outage mangers and the control room shift supervisors briefed safety functions/equipment status at their respective turnover meetings. This level of awareness and control over plant conditions was a strong indication of the licensee's focus on plant safety.

Plant management involvement and oversight throughout the outage was clearly evident. Managers were frequently observed touring the plant and observing maintenance activities. Outage shift managers maintained a strong presence during the outage, and ensured that all personnel were focused on: plant/personnel safety, minimizing radiation exposure and radioactive waste, critical path maintenance, and planning ahead. The handling of several problems during the outage showed that management was committed to safety and quality ahead of meeting outage schedules. Such problems included: questions by the Union concerning the methods of clearing equipment for maintenance; a missed quality control hold point during the reactor vessel head lift; and frozen pipe lines which prevented placing the reactor vessel internals in the reactor vessel. The inspectors concluded that management involvement and oversight of the outage was a strength.

6.2 Licensee Follow-up of Issues

Good follow-up and resolution of problems was evident during this inspection period as shown by the following:

- Excellent supervision and performance of refueling activities was observed which indicated that effective actions were taken for a violation identified during the previous inspection period.

- A system engineer's knowledge of industry experience and involvement in addressing governor valve issues was excellent.

- Significant improvement in river water flows were observed following replacement and modification of portions of the river water piping.

- Additional follow-up of previous deficiencies involving welds in the disc pressurization lines and insulation of reactor coolant system RTDs were performed to verify that past actions remain effective. This resulted in identification of an additional RTD deficiency.

- Senior management demonstrated strong involvement and oversight to ensure all possible actions were taken to minimize the potential for fuel failures during the eleventh operating cycle.

- Surveillance of high radiation area access controls were performed to check on the effectiveness of corrective actions for previous significant problems in this area. This resulted in identification of two minor deficiencies.

7.0 ADMINISTRATIVE

7.1 Preliminary Inspection Findings Exit

At periodic intervals during this inspection, meetings were held with senior plant management to discuss licensee activities and inspector areas of concern. Following conclusion of the report period, the resident inspector staff conducted an exit meeting on March 7, 1995, with Beaver Valley management summarizing inspection activity and findings for this period.

7.2 Attendance at Exit Meetings Conducted by Region-Based Inspectors

During this inspection period, the inspectors attended the following exit meetings:

Dates	Subject	Inspection Report No.	Reporting Inspector
Feb.3	Effluent RMS	95-04	J. Jang
Feb.9	EP Program & New EALs	95-01	J. Laughlin

7.3 NRC Staff Activities

Inspections were conducted on both normal and backshift hours: 37.7 hours of direct inspection were conducted on backshift; 21.7 hours were conducted on deep backshift. The times of backshift hours were adjusted weekly to assure randomness.

R. Maiers, Pennsylvania Department of Environmental Resources, visited the inspectors on February 17 and discussed inspection activities and the licensee's performance.

T. Reeves, Ohio Emergency Management Agency, discussed inspection activities and the licensee's performance with the inspectors while accompanying NRC inspection 95-01.

J. Linville, Chief, Projects Branch No. 3, NRC, visited the site on February 16 and 17 for discussions with the inspectors and utility management, and to tour the site.