U. S. NUCLEAR REGULATORY COMMISSION
REGION 1

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License Nos.	DPR-66 NPF-73
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:	February 9 - March 14, 1992
Inspectors:	L. W. Rossbach, Senior Resident Inspector P. P. Sena, Resident Inspector J. E. Beall, Team Leader, Region I, DRS

Approved by: William J. Ruland 4/10/92
William Ruland, Chief Date
Reactor Projects Section No. 4B

Inspection Summary

This inspection report documents core and regional initiative inspections during day and backshift hours of station activities in the areas of: plant operations; radiological protection; surveillance and maintenance; emergency preparedness; security; engineering and technical support; and safety assessment/quality verification.

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* The NRC manual inspection procedure (IP) or temporary instruction (TI) is listed for each applicable report section.

EXECUTIVE SUMMARY

Beaver Valley Power Station
Report Nos. 50-334/92-05 & 50-412/92-04

Plant Operations

Overall, the units were operated safely. Unit 2 shut down for a refueling outage at the end of this inspection period. An ESF actuation of the main feedwater isolation valves occurred on high steam generator level during a busy period in the control room while the steam generators were in required high level soak after shutdown. The lack of an anticipatory high level alarm or observation by the operators and the absence of procedural cautions contributed to the event. Several other engineered safety feature actuations occurred but they were only of minor safety significance. Event reporting practices were found to be conservative. Fuel receipt inspections were detailed and provided assurance that the fuel would be acceptable for use. Six inches of water was inadvertently drained from the Unit 1 spent fuel pool through an opening in the spent fuel pool purification system. All water was contained within the auxiliary building. Follow up to determine why a valve in the flow path was open is continuing. A self-identified non-cited violation involving failure to log axial flux difference in Unit 2 was inspected.

Radiological Protection

Briefings for a containment entry were professionally done and thorough.

Maintenance and Surveillance

Work on an inverter was done without a clearance. Following this occurrence, a totally revised clearance procedure was issued and the staff was instructed in the use of this clearance procedure. This was identified as a non-cited violation.

Emergency Preparedness

Routine review of this area identified no noteworthy observations.

Security

A security guard showed good sensitivity to changes in plant equipment status and its effect on safety-related equipment.

The head of the bargaining unit for the site security force was reported as saying that the security force was considering a strike due to the state of their contract negotiations. Site security strike contingency plans were inspected and found to be acceptable.

Engineering and Technical Support

A review by a site test engineer identified that flows during quarterly inservice testing were not sufficient to full-stroke service water pump discharge check valves as required by the IST program. These valves are being full-stroke exercised during outage testing. The licensee is revising their program for this test. This was considered a self-identified, non-cited violation.

Safety Assessment/Quality Verification

Engineering did a prompt and thorough review of Information Notice 91-81. The review demonstrated a good safety perspective.

DETAILS

1.0 SUMMARY OF FACILITY ACTIVITIES

1.1 Licensee Activities

Unit 1 operated at full power throughout the period. Several containment isolation valve ESF actuations occurred at Unit 1 in February as discussed in Section 2.5. A partial draindown on the Unit 1 spent fuel pool occurred on March 5 and is discussed in Section 2.4.

Unit 2 operated at full power until February 28 when power was reduced to 78% to begin a controlled end of core life power reduction prior to the Unit 2 refueling outage. Power was reduced again on March 6 to 47% as part of the power reduction. The Unit 2 shut down for the cycle III-IV refueling outage began at 8 p.m. on March 13. The Unit 2 generator output breakers were opened at 10:39 p.m. on March 13. The unit was in Mode 5 (cold shutdown) at the end of this inspection period. The Unit 2 shutdown and a feedwater isolation engineered safety feature (ESF) actuation that occurred during the shutdown are discussed in Section 2.3. An ESF actuation consisting of an overcurrent trip of the breaker for control rod drive fan B2 occurred on March 5 and is discussed in Section 2.7. Site staff identified that an axial flux difference surveillance had been missed on Unit 2 and that service water pump discharge check valves had not been fully stroked on Unit 2. These issues are discussed in Sections 2.6 and 7.1.

A February 28 newspaper article reported the potential for a strike by the site security guards. The followup strike preparation inspection is discussed in Section 6.2.

1.2 NRC Staff Activities

This inspection assessed the adequacy of licensee activities for reactor safety, safeguards, and radiation protection. The inspectors made this assessment by reviewing information on a sampling basis. Information was obtained through actual observation of licensee activities, interviews with licensee personnel, and documentation reviews.

Inspections were conducted on both normal and backshift hours: 17 hours of direct inspection were conducted on backshift; 6 hours were conducted on deep backshift. The times of backshift hours were adjusted weekly to assure randomness.

Lawrence Rossbach, Senior Resident Inspector, and Peter Sena, Resident Inspector were assigned to the Beaver Valley site starting February 9, 1992.

Albert DeAgazio, NRR Project Manager, and James Anderson, NRR backup Project Manager, visited the site on February 18 and 19 for discussions with the inspectors and utility management and to tour the site.

William Ruland, Region I Section Chief, visited the site on February 18 for discussions with the inspectors and utility management and to tour the site.

Richard Janati, Nuclear Engineer, Pennsylvania Department of Environmental Resources, visited the inspectors on February 18 and March 13. The inspectors and Mr. Janati discussed their respective responsibilities and interactions between the resident inspectors and Mr. Janati. On March 13, Mr. Janati accompanied the inspector in his walkdown of Unit 1 spent fuel pool piping and valves.

James Beall, Senior Resident Inspector, was promoted to Region I Team Leader and left the site on February 21, 1992.

2.0 PLANT OPERATIONS (IP 71707, 93702, 94600, 60705)

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 generators; safety injection; auxiliary feedwater; and recirculation spray. These systems were properly aligned. 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 on the following plant areas:

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

During the course of the inspection, discussions were conducted with operators concerning knowledge of recent changes to procedures, facility configuration, and plant conditions. The inspector 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. Inspector 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 inspector also examined the condition of various fire protection, meteorological, and seismic monitoring systems.

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

2.2 Fuel Receipt Observation

The inspectors observed on-site activities involving the receipt of unirradiated nuclear fuel necessary for the pending Unit 2 refueling outage. The applicable licensee procedure is 1/2 CMP-75-Refueling-1M, "Site Receipt and Handling of New Fuel Assemblies and Shipping Containers." Adequate supervision, as well as proper quality control (QC) and radcon support, was available throughout the receipt process. The unpacking, inspection, and storage activities were noted to be well controlled. The inspection process was observed to be thorough and of sufficient detail to provide reasonable assurance that the fuel would be acceptable for use.

2.3 Unit 2 Shutdown for Cycle III-IV Refueling Outage

Control room operators began the Unit 2 shutdown for the cycle III-IV refueling outage on March 13. The main electrical generator output breakers were opened at 10:39 p.m. Mode 2 (<5% power) was entered at 10:47 p.m. and the unit was brought to Mode 3 (hot standby) at 11:05 p.m. on March 13. Mode 4 (hot shutdown) was entered at 7:09 a.m. on March 14 and Mode 5 (cold shutdown) was entered at 8:30 p.m. on March 14. In addition to refueling and miscellaneous maintenance, major outage work is scheduled to include steam generator eddy current inspection, replacing tube plugs of suspect heats, motor operated valve (MOV) testing, auxiliary feedpump rotating assemblies changeout, modifications to support system flushing and the measuring of heat exchanger performance, installing diesel generator cross-tie for blackout considerations, and reconstitution of one fuel assembly. The outage is scheduled to last seven weeks. During shutdown on March 13, when power was decreased below the P-6 permissive level and high voltage was reapplied to the source range detectors, the operators observed that source range detector N31 was operating but source range detector N32 was not. Detector N32 was then declared inoperable and removed from service. Maintenance work request (MWR) 7804 was written to repair this detector prior to Mode 6 (refueling), currently scheduled to begin on March 22.

While in Mode 4 on March 14, an engineered safety feature (ESF) actuation occurred. The ESF actuation was the automatic closing of the three feedwater containment isolation valves due to high level (75% narrow range) in the "A" steam generator. These components

functioned properly in response to this signal. Other components that receive a feedwater isolation signal (main feed pumps, main feed regulating valves, and the main turbine) were already secured per the shutdown procedure. This event was properly reported per 10 CFR 50.72.

This ESF actuation occurred while the plant was in an 8-hour steam generator soak. Per plant operating procedure number 20M-51.4D, "Station Shutdown-Cooldown from Hot Standby (Mode 4) to Cold Shutdown (Mode 5)," Revision 11, level in the generators is maintained between 60% and 70% during this soak to maximize the removal of impurities from the steam generators. This level is above the 5% level deviation alarm setpoint. There are no additional high level annunciators between this level and the high level (75%) setpoint. At the time of this actuation, the operators were preparing to place the residual heat removal system in service at another panel. Feedwater flow to the steam generators had been isolated; however, a leaking bypass feed regulating valve allowed the "A" steam generator to fill to the high level setpoint. The lack of an alarm, observations by the operators contributed to this event. The inspector responded to the control room after this actuation and observed that operations management stationed an additional licensed operator in the control room to monitor the steam generator level panel. Steam generator level was then lowered and maintained in the required range. The inspector considered these immediate corrective actions to be effective. The inspector also observed that operating procedure 20M-51.4D did not contain any precautions to avoid the 75% level ESF actuation while doing a steam generator soak. The operations assessment manager stated that they will consider this observation as they complete their review of this event and prepare the licensee event report (LER)

2.4 Partial Draindown of Unit 1 Spent Fuel Pool

On March 5, 1992, six inches of water was inadvertently drained from the Unit 1 spent fuel pool through an opening in the spent fuel pool purification system. The opening was created by the removal of valve PC-27 for maintenance. This valve is just downstream of spent fuel pool filter 1B. The flow path to this opening was created by the failure to close valve PC-36 as required by clearance 501127. Operations was alerted to this condition when the auxiliary building south sump high level alarm and the spent fuel pool low level alarm were received. An operator found that valve PC-36 was open and closed it. Another operator added water to the spent fuel pool. The drained water was retained within the auxiliary building sumps and pipe trenches and was processed through the liquid waste system. The safety significance of this event was limited by the design of the spent fuel pool purification system which prevents siphoning more than 15 feet of water from the pool. This would leave over 9 feet 7 inches of water above the spent fuel racks. During this event, about 6 inches of water was drained from the fuel pool.

Valve PC-36 is a quarter-turn ball valve manually operated using a reach rod. Valve PC-36 had been disassembled and replaced on March 4 along with valve PC-47. When work on those valves was completed, work clearance 501127 was revised to restore some of the

affected piping to service. Under the revised clearance, valve PC-36 was to be closed to provide isolation for the work on valve PC-27. An operator attempted to close valve PC-36 and, believing it was shut, hung the shut tag on the reach rod handle. When the operator returned to the valve in response to the spent fuel low level and auxiliary building sump high level alarms, he closed the valve at the valve stem on the other side of the shield wall from the reach rod handle. The inspector looked at the valve and reach rod and did not observe any problems. Valve position indication consists of the letters "O" and "C" and a line stamped into the valve handle and a base plate in the wall. Although the markings in the base plate are difficult to see because they have been painted over, the indications were correctly indicating closed when observed by the inspector. The cause of this event is not yet known. Investigations by the licensee into the cause of this event are continuing. An inspection of valve PC-36 will involve disassembling that component. This disassembly is on hold until valve PC-27 is returned to service. A review of the operators' performance is also planned. The inspector will continue to follow the investigations by the licensee.

2.5 Steam Generator Blowdown Isolations

On February 13 and 14, 1992, four spurious steam generator blowdown isolations occurred. None of the signals that automatically shut the blowdown isolation valves (TV-BD-100 A, B, C) were present. These signals include containment isolation, safeguard high energy line break, and auxiliary feedwater pump start. The cause of the isolation was determined to be a failure of auxiliary feedwater pressure switch PS-FW-157-3. On auxiliary feedwater pump start (FW-P-2), this switch senses pump discharge pressure and initiates a blowdown isolation to conserve steam generator water inventory. The blowdown isolation signal is not an ESF signal. However, TV-BD-100 A, B, C are containment isolations valves and are considered to be ESF components. The valve actuations were properly reported via a 10 CFR 50.72 notification. The failed pressure switch was examined by the licensee and inspector and found to be corroded due to a moisture intrusion in the switch housing. This switch is not required to be environmentally qualified. The pressure switches for the motor driven auxiliary feedwater pumps (FW-P-3A, 3B) were also examined and found to be satisfactory. The failed pressure switch has been replaced and an engineering evaluation has been initiated to determine if the switch requires further moisture intrusion protection.

On February 28, steam generator blowdown sample isolation valves (TV-SS-117 A, B, C) inadvertently shut while posting clearances on blowdown isolation valves TV-BD-100 A, B, C. The control power for the sample isolation valves is from 125 volt DC panel PNL-DC-2. Breaker 8-15 on PNL-DC-3 was opened per the clearance to deenergize control power to TV-BD-100 A, B, C. Upon opening breaker 8-15, power was removed to relay 63-SA in the blowdown isolation control circuit. A set of contacts on this relay opened to interrupt power from PNL-DC-2 to solenoid SOV-SS-117 in the blowdown sample isolation control circuit. Upon loss of power to solenoid SOV-SS-117, the blowdown sample isolation valves closed. TV-SS-117 A, B, C are containment isolation valves and are considered to be ESF components. The actuation of these valves was properly reported via a 10 CFR 50.72 notification. During the preparation of the clearance, operators failed to identify the power

supply interrelationship between relay 63-SA and solenoid SOV-SS-117 in the two control circuits. The licensee has revised the DC load list to include the effect of opening breaker 8-15 on the sample isolation valves.

The inspector concluded these events were of minor safety significance. The blowdown isolations occurred as designed in both events. The blowdown system does not serve any safety function and is only used for steam generator chemistry control. The isolation did not lead to any undesirable chemistry conditions. The inspector had no further questions regarding these events.

2.6 Missed Axial Flux Difference Surveillance

Operations surveillance test (OST) 2.5A.1, "Delta Flux Alarm Program Operability Check," was performed on February 15, 1992, between noon and 1:20 p.m. Per procedure, the axial flux difference (AFD) monitor alarm was inoperable during the OST. Technical specification 4.2.1.1.A.2 requires that AFD be logged once per hour for 24 hours after the AFD monitor is restored to operable status. In violation of the Technical Specification, the readings were not begun until three hours and forty minutes after the alarm was restored to operable status. This OST did not direct the reactor operator to log AFD after completion of this test. At 5 p.m. on February 15, the assistant nuclear shift supervisor determined that logging AFD was required. For corrective actions, a 24 hour log of AFD was begun immediately, and the OST was revised to direct the reactor operator to begin logging AFD after completion of the OST. The inspector considered this to be of minimal safety significance because no AFD penalty minutes had been accumulated prior to the OST, none were accumulated after, and the OST demonstrated that the AFD alarm was operable. The plant operated at steady power during this time in question with no rod motion. The inspector reviewed previous OSTs and found that AFD had been properly logged. An LER is being prepared for this item. This violation is not being cited because the criteria specified in Section VII.B of the revised Enforcement Policy dated February 18, 1992, were satisfied.

2.7 Actuation of Control Rod Drive Fan B2 Breaker

At 3:22 p.m. on March 5, 1992, the Unit 2 480 volt Bus 9P ground alarm came in. This was immediately followed by a trip of the breaker for control rod drive fan B2 and then the alarm cleared. The operators placed the fan B2 control switch in pull-to-lock and then placed fan B1 in service. Subsequent investigations by electricians determined that failed motor windings on fan B2 caused the breaker trip. On March 6, 1992, after further review, the licensee considered this event to be an ESF actuation because this breaker is stripped from the bus on a safety injection signal. This event was reported as an ESF actuation on March 6, 1992. The inspector noted that the breaker functioned properly in response to the overcurrent condition and did not otherwise affect the plant which continued to run at 78% power. The inspector also noted that this breaker tripped on overcurrent protection signal, not a safety injection signal. The inspector questioned if this was actually an ESF actuation Plant staff have developed conservative reporting practices in line with the reporting

guidelines in draft NUREG-1022, Revision 1. The argument for reporting is that accident analyses assume that this load will be stripped from the 480 volt bus; therefore, its breaker is an ESF and its actuation is reportable. The inspector concluded that the staff had been correct and conservative in calling the event reportable. The licensee is preparing an LER on this event.

3.0 RADIOLOGICAL CONTROLS (IP 71707)

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.

The inspector observed the radiological controls for a power entry into the Unit 1 containment structure for the solenoid replacement for sample system valve TV-SS-105A1 per MWR 6764. The inspector observed the prejob briefing by the work party leader and the briefing outside the airlock prior to entry. No deficiencies were identified; however, particularly noteworthy was the professionalism displayed by the radcon technician who administered thorough safety briefing on "BioPak" equipment checkout and usage.

4.0 MAINTENANCE AND SURVEILLANCE (IP 61726, 62703, 71707)

4.1 Maintenance Observation

The inspector 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;
- where necessary, radiological and fire preventive controls were adequate and implemented;
- QC hold points were established where required and observed; and
- equipment was properly tested and returned to service.

Maintenance activities reviewed included:

MWR 7018 Unit 1 Auxiliary Feedwater Pressure Switch (PS-FW-157-3) Replacement

MWR 911019 Unit 1 No. 1 Inverter Cooling Fan Replacement

MWR 6764 Unit 1 Sample System Trip Valve (TV-SS-105A1) Repair

There were no notable observations.

4.2 Surveillance Observations

The inspectors witnessed/reviewed selected surveillance tests or portions of 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 following surveillance testing activities were reviewed:

OST 1.24.3 Motor Driven Auxiliary Feed Pump Test (1FW-P-3B)

OST 1.24.10 Auxiliary Feedwater System Monthly Verification

OST 1.36.20 Diesel Generator No. 2 Start-up

OST 1.1.1 Control Rod Assembly Partial Movement Test

OST 2.24.2 Auxiliary Feed Pump Test

MSP 11.09-1 P-SI921 Safety Injection Accumulator Tank 1A Pressure Loop Test

MSP 11.11-1 P-SI925 Safety Injection Accumulator Tank 1B Pressure Loop Test

There were no notable observations.

4.3 Unit 1 Inverter Clearance

While monitoring maintenance activities associated with the Unit 1 number 1 inverter, the inspector identified a weakness in the tagout clearance for the job (MWR 911019). Previous weaknesses regarding tagout clearances were documented in NRC Inspection Report 50-334/91-06. The maintenance involved the removal and replacement of the two inverter fans located in the upper section of the inverter cabinet. The inverter is used as the primary power supply for 120 volt Vital Bus 1. In preparation for the maintenance, the inverter was deenergized and an alternate power source (480/120 volt static line voltage regulator) was used to maintain the vital bus energized. The inverter was deenergized to ensure equipment

safety by removing the possibility of fan components accidently contacting the energized inverter.

The inverter was electrically isolated by opening circuit breakers (CB) CB-1 (inverter output), CB-2 (battery input), and CB-3 (rectifier input). During the performance of the maintenance, the inspector identified that no tagout clearance was posted on the aforementioned breakers and expressed his concern to the maintenance personnel. All breakers were in visual sight of the maintenance activity and were verified open.

The applicable licensee procedure is the "Clearance Proceuure" in Chapter 41 of the Site Administrative Procedures (SAP 41). The purpose of SAP 41 is to provide "the method to ensure equipment safety and the safety of personnel" during work on electrical or mechanical components. One provision of SAP 41 (VI.A.1.n) allows "certain short term minor maintenance jobs such as tightening sight glass packing or piping unions, battery replacement, insulation, painting, etc., or other adjustments or tests where it is not desirable to isolate the equipment being worked on and when the nuclear shift supervisor and maintenance man agree that the job can be performed safely without a clearance." Under this provision, "the equipment may be worked on without a clearance provided the operator or attendant remains at the point of isolation" to prevent inadvertent equipment operation. Although the maintenance and operations personnel agreed that the job could be performed safely without a clearance, no operator or attendant was posted at the points of isolation during the observed maintenance activity. Although in this instance the equipment was safe for maintenance, the potential for equipment damage or personnel injury may exist in cases where no operator is posted at the points of isolation, and the isolation is not in visual sight of the maintenance.

In summary, the work done on inverter no. 1 on February 24, 1992, exhibited weakness in that it was performed without a clearance. The job was performed over two shifts and involved repair and replacement of inverter cooling fans and, as such, was potentially outside the scope of SAP 41 (VI.A.1.n). Sufficient licensee attention was focused on the inverter maintenance due to the 24 hour technical specification action statement; however, the loss of system status or accountability may occur if clearances are not posted on equipment during periods of high maintenance activities. Effective March 1, 1992, the licensee replaced SAP 41 with Nuclear Group Administrative Manual (NGAM) 3.4, "Clearance Procedure." The inspectors will assess the implementation of the new procedure in future inspections.

The failure to post an operator at a clearance point in accordance with SAP 41 is a violation; however, the violation is not being cited because the criteria specified in Section VII.B of the revised Enforcement Policy dated February 18, 1992, were satisfied.

5.0 EMERGENCY PREPAREDNESS (IP 71707)

The resident inspectors had no noteworthy findings in this area during this inspection period.

6.0 SECURITY (IP 71707, 92709)

6.1 Routine Observations

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 vehicles entering and packages being delivered to the Protected Area were properly searched and access control was in accordance with approved licensee procedures;
- persons granted access to the site were badged to indicate whether they have unescorted access or escorted authorization;
- security access controls to Vital Areas were maintained and persons in Vital Areas were authorized;
- security posts were adequately staffed and equipped, security personnel were alert and knowledgeable regarding position requirements, and that written procedures were available; and
- adequate illumination was maintained.

Prior to performing corrective maintenance on inverter no. 1 per MWR 911019 (See Section 4.2), temporary measures were initiated to prevent the inverter from overheating. This included opening the inverter cabinet doors and utilizing a temporary fan to cool the equipment. During the maintenance activity, the temporary fan was secured when the inverter was deenergized. Following the inspector's maintenance observations, the inspector observed a security guard on his routine rounds through the vital switchgear room. The guard noted the temporary fan for the inverter was off and called the control room to express his concern. Although there was no need to run the fan, the security guard's attention to detail and sensitivity to changes in the plant equipment status and its effects on safety-related equipment was noted by the inspector as a strength.

6.2 Strike Contingency Plans

On February 28, 1992, a newspaper article reported that the director of Region 6 of the International Union, United Plant Guard Workers of America (UPGWA), which represents the site security force, stated that a strike was a very real possibility. The security force is employed by Security Bureau, Inc. (SBI). SBI has been contracted by Duquesne Light Company to provide the security force for the site. The UPGWA has been negotiating their initial contract with SBI since approximately May 1991. A strike was not called; however, informational picket lines were set up on March 9. Plant operations and security were not affected. An additional negotiation session has been scheduled between SBI and UPGWA.

The inspector reviewed the site security strike contingency plans and found that the licensee was prepared to continue to provide acceptable security for the site in accordance with the site security plan.

7.0 ENGINEERING AND TECHNICAL SUPPORT (IP 71707)

7.1 Unit 2 Service Water Pump Discharge Check Valves Inservice Testing

The Unit 2 inservice test (IST) program and OST 2.30.2, 2.30.3, and 2.30.6 require that service water pump discharge check valves 2 SWS-57,58, and 59 be opened fully each quarter and during outages. During review of the IST program and comment number six from the December 27, 1991, IST program safety evaluation report, site engineering determined that flow rates during quarterly testing are insufficient to fully open these valves. The check valve vendor was contacted to determine the flow rate needed. A flow rate of approximately 10,900 gpm is required. Flow rates exceeding 12,625 gpm are sometimes obtained in the quarterly tests during the summer months when additional service water flow is required to cool additional plant loads but flow rates as low as 6,012 gpm have been experienced. Because of additional flow paths available during outages, outage testing of these valves have always exceeded the required flow rates.

Inspector review of the Unit 1 IST program regarding stroke testing of river water (RW) pump discharge check valves (1RW-57, 58, 59) indicated correct testing under full flow conditions. The check valves were full-stroke exercised on a quarterly basis per OST 1.30.2, 1.30.3, and 1.30.6. Unlike Unit 2 recirculation spray heat exchangers (RSHX), the Unit 1 heat exchangers are not maintained in a dry layup condition. Accordingly, the Unit 1 surveillance test allows for RW flow through the RSHXs, thus providing the minimum flow necessary to full stroke the check valves. The inspector concluded the full-stroke exercising of 1RW-57, 58, and 59 is in accordance with the ASME XI Code, Section IWV-3520.

As a corrective action, the Unit 2 IST program will be revised to require a partial-stroke exercise of these valves quarterly and a full-stroke exercise during shutdown. Such testing is allowed by ASME XI, Section IWV-3522, if only limited check valve operation is practical during plant operation. The full-stroke test procedure was also revised to include the flow

requirement. Previously, achievement of full-stroke was inferred by the pump operating on its pump curve. Test engineers also verified that other full-stroke tests were adequate. The inspector concluded that engineering had shown good judgement in electing to do this review and had taken adequate corrective actions. The inspector considered the failure of the quarterly testing of these valves to achieve full-stroke to be of minor safety significance because such testing is allowed by the code and because the valves were successfully full-stroke tested during outages. This violation is not being cited because the criteria specified in Section VII.B of the revised Enforcement Policy dated February 18, 1992, were satisfied.

8.0 SAFETY ASSESSMENT AND QUALITY VERIFICATION (IP 40500, 71707)

8.1 Switchyard Industry Events Review

NRC Information Notice 91-81, "Switchyard Problems that Contribute to Loss of Offsite Power," dated December 16, 1991, and Nuclear Management and Resource Council Inc. (NUMARC), "Guidelines for Industry Actions to Assess Shutdown Management," dated December 1991, informed utilities of problems associated with plant switchyards and encouraged review of their facilities to avoid similar problems. The inspector reviewed Duquesne Light Company's (DLC) follow up of this information to determine how this issue was handled and as an indication of how DLC handles industry event information.

The preventive maintenance concerns discussed in the notice did not apply to the site because DLC has an active switchyard preventive maintenance program. The logic card concern did not apply because the stuck breaker failure units (SBFUs) used are of a different design. The SBFU common DC power supply issue applies to the site; however, it would not cause a loss of offsite power or reduce the bus and transmission line protection below the two independent schemes (primary and backup protective relays) described in the FSAR. The utility is planning to divide the SBFU relays between two independent DC power supplies. The communication concerns described in the Information Notice were also considered in the DLC review. The Nuclear Safety Department is preparing a closeout report for this Information Notice.

The inspector noted that the Information Notice was screened, assigned a high priority, and assigned to reviewers promptly because it was recognized that the issues in the notice were safety significant and could apply to the site switchyard. The technical review by the corporate Control Engineering Department was also done promptly. The evaluation of this review involved the Nuclear Safety Department, the Nuclear Engineering Department, and the Independent Safety Evaluation Group (ISEG). This evaluation was thorough and showed good interdepartmental coordination. DLC's handling of this information was focussed on safety and showed good attention to industry event information.

9.0 STATUS OF PREVIOUS INSPECTION FINDINGS (IP 71707, 90702, 92701)

The NRC Outstanding Items List was reviewed with cognizant licensee personnel. Items selected by the inspector were subsequently reviewed through discussions with licensee personnel, documentation reviews, and field inspection to determine whether licensee actions specified in the OIs had been satisfactorily completed. The overall status of previously identified inspection findings was reviewed, and planned/completed licensee actions were discussed for the items reported below.

9.1 (Closed) Violation (50-334/91-09-01): This violation involved the inadvertent deenergization of two in-service Unit 1 Control Room (CR) outside air exhaust dampers in the open position. At the time, the dampers were required by the Unit 1 Technical Specifications to be deenergized in the closed position, and their as-found position represented a potential loss of safety function. This event was the subject of an Enforcement Conference held with the licensee on August 5, 1991, at the Region I office. This violation was issued as a Severity III Violation, but no civil penalty was imposed based on the mitigation factors described in the Notice of Violation, dated October 8, 1991.

During the current period, the inspector reviewed the licensee's corrective actions. The inspector found that operator aids, in the form of yellow placards, had been mounted on the face of the breakers for the dampers. These aids clearly stated that the dampers would open upon breaker closure and that both CR nuclear shift supervisors' permission were required before breaker movement. Operators were found to be knowledgeable of the event and the performance characteristics of the CR dampers. The inspector verified that surveillance test, OST 1/2 44A.12, "CIB Actuation of Control Room Isolation/CREBAPS System Functional Test," Revision 3, had been revised to include damper position verification. The inspector also reviewed the results of the licensee's CR ventilation system design review and the licensee's review of other components required to be maintained in other than normal configuration; no concerns were identified.

The inspector had no further questions; this item is closed.

9.2 (Closed) Violation (50-334/91-14-01): This violation involved the omission of numerous longitudinal welds from the Inservice Inspection (ISI) program for the Unit 1 Low Head Safety Injection (LHSI) system. As a result of the omission, the welds had not been inspected as required by the ASME Code, Section XI. Compliance with the Code is required by the Technical Specifications for the LHSI system to be operable. The licensee failed to recognize the omission as a LHSI operability issue and continued to ascend in Mode as part of startup activities. This event was the subject of an Enforcement Conference held with the licensee on August 5, 1991, at the Region I offices. This violation was issued as a Severity III Violation and a Civil Penalty was imposed as described in the Notice of Violation, dated October 8, 1991.

The inspector reviewed the licensee's corrective actions which included a review of all Unit 1 ISI drawings, piping drawings, and certified mill test reports to locate any other welds omitted from the ISI program. Numerous similar weld omissions were found in the High Head Safety Injection and Residual Heat Removal systems. These welds were inspected as required prior to the enforcement conference and added to the ISI program.

A review of comparable Unit 2 documents also identified several omitted welds. The lower number of omissions at Unit 2 resulted in no significant impact on the preservice and inservice inspection programs due to extra margin in the number of welds inspected and that Unit 2 ASME XI first ten-year interval (license issued in 1987) has not ended. The inspector identified no deficiencies in the licensee's weld review activities.

The inspector also reviewed the licensee's root-cause analysis and found it to be comprehensive with good recommendations which addressed the identified root causes. The licensee developed an engineering procedure, ISIE1-5, "Deficiency Reporting," which addressed characterizing and reporting deficiencies identified during ISI activities and affected personnel received additional training on the subject. The inspector reviewed procedure ISIE1-5 and had no questions. The licensee also conducted a review of all Safety System Functional Evaluations (SSFEs) for items which might have similarities to the weld documentation deficiency which a previous SSFE had identified but not characterized properly. The inspector will examine the results of this review during future routine inspections.

The inspector had no additional concerns; this item is closed.

10.0 EXIT MEETING (71707)

10.1 Preliminary Inspection Findings Exit

Meetings were held with senior facility management throughout the inspection to discuss the inspection scope and findings. A summary of the findings was further discussed with the licensee at the conclusion of the report period on March 20, 1992.

The following non-cited violations (NCVs) were identified and reviewed during this inspection period: an axial flux difference log was missed (see Section 2.7); a maintenance activity on an inverter was done without a clearance (see Section 4.3); and an IST test was not full-stroke exercising service water pump discharge test valves (see Section 7.1).