Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690 - 0767

DCD

January 10, 1990

Mr. A. Bert Davis
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Quad Cities Station Units 1 and 2
Response to Notice of Violation
Contained in Inspection Report Nos.
50-254/89022 and 50-265/89022
NRC Docket Nos. 50-254 and 50-265

Reference: Letter from E.G. Greenman to Cordell Reed
dated December 4, 1989 transmitting IR Nos.
50-254/89022 and 50-265/89022.

Mr. Davis:

Enclosed is the Commonwealth Edison Company's (CECo) response to the subject Notice of Violations (NOV) which were transmitted with the referenced letter and Inspection Report. The NOV cited examples in which personnel did not follow procedure and examples of inadequate procedures.

CECo understands the significance of the issues involved and the need for effective corrective actions to prevent recurrence. As requested in the referenced letter, the response to the violation on procedure adherence includes actions taken for each event as well as programmatic corrective actions to address the concerns. A request for extension was requested and subsequently granted by R.M. Lerch of your office.

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If there are any questions or comments regarding this matter, please contact this office.

Very truly yours,

T.J. Kovach
Nuclear Licensing Manager

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Attachment

cc: T.M. Ross - Project Manager, NRR
R.M. Lerch - Region III
R.L. Higgins - Senior Resident Inspector, Quad Cities

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ATTACHMENT A

CECo RESPONSE TO NOTICE OF VIOLATION

50-254(265)/89022

1. 10 CFR Part 50 Appendix B, Criterion V, states that activities affecting quality shall be accomplished in accordance with prescribed instructions, procedures, or drawings.

   a. Contrary to the above on September 21, 1989, a fuel element was lifted while the grapple was disengaged, in violation of Refueling Platform Operation Procedure QFP 150-2. The grapple subsequently opened, allowing a fuel element to tip over onto the tops of irradiated fuel bundles in the fuel pool.

   b. Contrary to the above, on September 14, 1989, the main generator field breaker was racked in, while an out-of-service card attached to the breaker, required it to be racked out. This is a violation of Equipment Out-of-Service Procedure QAP 300-14.

   c. Contrary to the above, on October 7, 1989, the Unit 2 diesel generator output breaker was opened prior to unloading the generator, causing the diesel generator to trip on overspeed. This is a violation of Diesel Generator Monthly Load Test Surveillance Procedure QOS 6600-1.

   d. Contrary to the above, on October 28, 1989, the Unit 1 Residual Heat Removal System was restarted in the shutdown cooling mode with Valve 1-1001-33A shut. This is a violation of the Shutdown Cooling Startup and Operation Procedure QOP 1001-1 "Filling and Venting the Residual Heat Removal System After System Outage."

   e. Contrary to the above, on October 30, 1989, the west entrance to the Unit 1 low pressure heater bay, a radiation and contamination area, was not marked with the appropriate radiation control warning signs. This is a violation of the Radiation Protection Standards Procedure QRP 1000-1.

   f. Contrary to the above, on November 1, 1989, it was determined through the radiographic film review of a repaired weld that the permanent markings had been rendered obscure and location markers were not maintained. This is a violation of the Radiographic Examination Procedure NDT-A.

GENERAL DISCUSSION OF ITEM 1 (PROCEDURAL ADHERENCE)

Commonwealth Edison acknowledges that the examples provided, with the exception of example (f), demonstrate events in which procedure adherence was not achieved. Corporate and Station Policy has stressed the importance of strict adherence to procedures and only allows deviation from procedures in the event of an emergency in which the health and safety of the public may be affected. The root cause of the failure to adhere to procedures, however, is often varied. Quad Cities Station, therefore, evaluates each event on the individual merits and strives to implement appropriate corrective actions based on investigation results. The corrective actions include the actions focusing on the individual, based on consideration for past performance, as well as removing human factor barriers which may discourage the strict adherence to procedures. The goal of Commonwealth Edison and Quad Cities Station is to eliminate such events and continue to strive for performance excellence.

Specific responses to the individual Item 1 examples are provided after the following section.

PROGRAMMATIC CORRECTIVE ACTIONS TO PREVENT FURTHER NONCOMPLIANCE

Quad Cities Station will continue to investigate each event in which procedures were not followed and implement appropriate corrective actions based on the investigation results. Quad Cities Station does recognize that the administration of the policy on procedure compliance can be further emphasized at the Station.

Currently, the Station policy on procedure adherence is communicated through company policy NOD-OA.1, Nuclear Operations Policy of Directives, Controlled Memoranda and Procedure. The Station Manager will issue a site specific policy letter using the philosophy of the corporate managers policy. Each person will be requested to pledge their support for the Station Manager's policy letter by his/her signature. In addition, upper Station Management will conduct meetings to discuss the Station policy on procedure adherence and the importance of following procedure with Station and contractor personnel. These meetings will be conducted by March 1, 1990.

Finally, as a result of a Dresden violation, the Vice President, BWR Operations will be issuing a memo requesting that each Station Manager and ENC Project Manager re-emphasize the seriousness of violations of procedure or policies for the individual and the Company. This memo will be issued within the first quarter of 1990.

EXAMPLE (a)

Contrary to the above, on September 21, 1989, a fuel element was lifted while the grapple was disengaged, in violation of Refueling Platform Operation procedure QFP 150-2. The grapple subsequently opened, allowing the fuel element to tip over onto the tops of irradiated fuel bundles in the fuel pool.

DISCUSSION

When the fuel bundle tipped over (1410 hours), the Fuel Handling Foreman (FHF) notified the Shift Engineer (SE), the Lead Nuclear Engineer (LNE) and the Radiation Protection Department.

The Radiation Protection Department dispatched a Radiation Technician (RT) and a Radiation Protection Foreman (RPF) to the Refuel Floor. A Health Physicist (HP) was also notified . The HP contacted the FHF to investigate the status of the Area Radiation Monitors, personal dosimetry indications and the location of the FHF. There was no indication of abnormal dose. The HP instructed the FHF to await the arrival of the RT.

The SE notified the Shift Control Room Engineer to start both trains of the Standby Gas Treatment System as a precautionary measure. Procedures QAP-1290, Reporting Requirements, QOA 800-1, Irradiated Fuel Damage While Refueling and the GSEP manual were reviewed and it was determined that the event did not constitute a GSEP event or required immediate off-site notifications. All ARMs, including the radiation monitors located on the refuel floor and Reactor Building Ventilation, were checked and no abnormal activity was noted. The fuel bundle was placed in the nearest open fuel rack.

At 1605 hours, a 24-hour Emergency Notification System (ENS) phone call was initiated based on 10 CFR 20.403(b)(4). The notification was initiated based on the assumption that the new bundle would have to be replaced regardless of the actual damage. At approximately 1600 hours, the event was declared a Potentially Significant Event and Nuclear Operations was notified at 1635 hours. The refuel floor ARMs and refuel floor radiation monitor reading were recorded every two hours beginning at 1900 hours.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

1. The fuel bundle was placed in the nearest open fuel rack.

2. Fuel movements were stopped until an investigation could be conducted

3. Radiation Protection performed a refuel floor air sample for noble gases, particulates and halogens. The refuel pool was sampled for nuclide concentrations, noble gases, and gross activity. Dose surveys of other areas of the Reactor Building was performed. An ARM was placed near the Unit 1 Fuel Pool Heat Exchangers. The results of the samples and surveys were normal and the ARM did not alarm.

4. The bridge interlocks were tested on September 21, 1989.

5. A visual inspection of the affected area of the fuel pool was performed on September 22, 1989 utilizing a television camera. No immediate detectable failure of the remaining fuel bundles was observed. The assembly adjacent to the target position for the dropped assembly was positioned approximately six (6) inches above its normal position for no apparent reason.

6. The original High Density Fuel Rack Analysis was reviewed. The event was verified to be bounded by the analysis to provide sufficient margin to criticality.

CORRECTIVE ACTIONS TAKEN TO PREVENT FURTHER NONCOMPLIANCE

1. Modification M-4-1-89-152 was completed on September 27, 1989 to the Unit 1 refuel bridge. The modification installs an interlock which prevents raising the main grapple hoist with the grapple control switch in the release position unless the hoist is unloaded. A similar modification will be completed prior to the Unit 2 Refueling Outage.

2. The fuel handling procedures have been updated with additional notes and steps to verify that the grapple control switch is in the engaged position at all times while fuel (or a blade guide) is loaded unless releasing the fuel assembly (or blade guide) at its fully seated position in the core or in the fuel storage pool. The updated procedures also now require using the main grapple hoist position indication to verify proper seating of a fuel assembly prior to attempting to release it. If proper indication is not observed the Fuel Handler is required to notify the FHF. The procedures have been implemented on September 27, 1989.

3. Fuel Handling Procedures QFP 100-1, 150-2, 200-3, 200-5, 300-1, and 500-1 will be revised to provide tolerances on the digital height indicator for a fully seated bundle. The procedure revisions will be completed by February 1, 1990.

4. A new procedure, QFP 110-1, Refuel Bridge Grapple Fails to Release, was implemented on September 26, 1989.

5. The event was discussed with all Fuel Handlers. The discussion of the event included the station policy on adherence to procedures. The discussion was conducted on September 26-27, 1989.

6. The Fuel Handlers were trained on using the digital indication of mast height to verify that the bundle is properly seated. The training also included operation of the grapple control switch and the indication of the engaged light for grapple position. The training was completed during the review of the event with all Fuel Handlers on September 26-27, 1989.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved following review of the event with all Fuel Handlers. This was achieved, as well as some of the procedure improvements, by September 27, 1989.

EXAMPLE (b)

Contrary to the above, on September 14, 1989, the main generator field breaker was racked in, while an out-of-service card attached to the breaker, required it to be racked out. This is a violation of equipment out-of-service procedure QAP 300-14.

DISCUSSION

During the removal of the exciter housing from the Unit 1 Main Generator, it was discovered that the main generator field breaker was racked in contrary to the position indicated on the Out of Service for this breaker. The safety significance of the breaker being racked in was minimum since the breaker was disconnected from the circuit. After discovery of the field breaker being racked in, the breaker was immediately racked out to the position required by the out-of-service. The investigation of the event did not reveal the person responsible for the event.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

The main generator field breaker was racked out in the position consistent with the out-of-service.

CORRECTIVE ACTIONS TAKEN TO AVOID FURTHER NONCOMPLIANCE

The contractor foreman was counselled on the station policy on procedure adherence and the equipment protected by out-of service and hold cards. The millwrights involved were also interviewed to ensure that the out-of-service and hold card procedure were understood. Due to work reduction in the turbine job, the foreman involved with the event was released from his duties.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on September 14, 1989 when the field breaker was returned to the position required by the out-of-service.

EXAMPLE (c)

Contrary to the above, on October 7, 1989, the Unit 2 diesel generator output breaker was opened prior to unloading the generator causing the diesel generator to trip on overspeed. This is a violation of Diesel Generator Monthly Load Test surveillance procedure QOS 6600-1

DISCUSSION

On October 7, 1989, at 1600 hours, the Unit 2 Emergency Diesel Generator was started for a routine surveillance after maintenance using QOS 6600-1. At 1315 hours, while taking the Unit 2 diesel generator off, the Unit 2 Operator moved the diesel generator control switch from run to stop without unloading the diesel generator from the bus. This action caused the diesel generator output breaker and the diesel generator to auto trip.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

The diesel generator was restarted and loaded to the bus. QOS 6600-1 was satisfactorily completed and the diesel generator was declared operable at 1909 hours.

CORRECTIVE ACTIONS TAKEN TO AVOID FURTHER NONCOMPLIANCE

The individual involved was counselled on the need for attention to detail while performing surveillances.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved at 1909 hours on October 7, 1989 following successful completion of the surveillance.

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EXAMPLE (d)

Contrary to the above, on October 28, 1989, the Unit 1 Residual Heat Removal System was restarted in the shutdown cooling mode with valve 1-1001-33A shut. This is a violation of Shutdown Cooling Startup and Operation procedure QOP 1001-1, Filling and Venting the Residual Heat Removal System After System Outage.

DISCUSSION

On October 28, 1989, at 0234, the Unit 1 Operator was in the process of starting the 1B Residual Heat Removal (RHR) System in accordance with temporary procedure No. 5929, to establish shutdown cooling on the A loop of RHR. The Shift was aware that the position indication for the 1-1001-33A was out-of-service but a review of this out-of-service indicated the out-of-service was limited to the position indicating circuit only. When the operator started the pump, he observed that the discharge pressure did not respond as expected. The pump was immediately secured. Subsequent investigation discovered that valve 1001-33A was closed. The valve was repositioned, locked open and shutdown cooling was initiated at 0440.

A review of the out-of-services for the A loop of RHR revealed that the valve had been removed from service closed on several occasions. The last out-of-service was cleared on October 14, 1989. The master out-of-service checklist required that the return to service position be closed. The system was filled and vented during the period of October 14-28, 1989. The RHR pumps were also run in the test mode during this period.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

The 1-1001-33A valve was repositioned, locked open and shutdown cooling was successfully started on October 28, 1989.

CORRECTIVE ACTIONS TAKEN TO PREVENT FURTHER NONCOMPLIANCE

The individuals involved have been counselled on the need to follow procedures and the potential consequences of such actions.

The Operating Department Management has discussed this event with personnel and stressed the need to verify all steps of the procedure prior to starting any system.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on October 28, 1989, when the valve was opened and the system was successfully initiated.

EXAMPLE (e)

Contrary to the above, on October 30, 1989, the west entrance to the Unit 1 low pressure heater bay, a radiation and contamination area, was not marked with the appropriate radiation control warning signs. This is a violation of Radiation Protections Standards Procedure QRP 1000-1

DISCUSSION

After completion of the asbestos removal work in the Unit 1 low pressure heater bay, the plastic floor coverings which provided for asbestos and radioactive contamination control, were removed. The Contractor Superintendent was previously instructed to contact Radiation Protection so that a radiologically controlled area could be established following the removal of the plastic floor covering. The Contractor Superintendent contacted Radiation Protection to establish the radiologically controlled area; however, he did not wait for personnel to accomplish this task prior to removing the plastic floor covering. The removal of the covering resulted in an improperly posted entrance to a radiologically controlled area.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

Radiation Protection, upon arrival at the job site, established the proper radiological controls for the area

CORRECTIVE ACTIONS TAKEN TO AVOID FURTHER NONCOMPLIANCE

The Contractor Superintendent was disciplined by termination of his employment for the remainder of the Unit 1 Refueling Outage.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on October 30, 1989 when proper radiological controls were established for the Heater Bay west entrance.

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EXAMPLE (f)

Contrary to the above, on November 1, 1989, it was determined through the radiographic film review of a repaired weld that the permanent markings had been rendered obscure and location markers were not maintained. This is a violation of the Radiographic Examination procedure NDT-A.

DISCUSSION

After evaluating the details of the radiographic sequence and reviewing the radiographic procedure, Quad Cities does not believe that there was any procedure or code violation. As stated in the finding, the repair sequence obscured the previously established permanent markings such that new markings had to be established. The new permanent markings were established on the part prior to subsequent radiography which is in conformance with paragraph 4.9.3.3 of procedure NDT-A. (Paragraph 4.9.3.3 states "...the position of these markers shall be maintained on the part during radiography....") The permanent markings remain on the pipe at the weld location for any future reference. The weld quality and final radiography were found acceptable.

CORRECTIVE ACTIONS

The Station recognizes that the sequence of work, radiography and subsequent repair of the weld could have been completed in a more efficient and effective manner. To establish a more effective process, additional directions will be developed for the individual Level II radiographers which will be implemented during the upcoming Unit 2 Refueling Outage.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Not applicable for this example since CECo believes compliance with existing procedures was maintained.

2. 10 CFR Part 50 Appendix B, Criterion V, states that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances.

a. Contrary to the above, on October 12, 1989, the work instructions which were used to perform maintenance on the #2 main turbine stop valve, Nuclear Work Request Q78934, did not include the JF5 and JF6 connections on the limit switch. When the limit switch was removed, the #1, #3, and #4 main turbine stop valves began slow closing. When these tree stop valves reached the 90% open position, a turbine trip and reactor scram occurred.

b. Contrary to the above, the Operator's Surveillance/Turnover Sheets, Unit 1 Equipment Attendants, described the alarm conditions (absence of a white target) for a seismograph (Teledyne-Geotech Model RFT-250) which had been replaced in September, 1989 with a different model (A-700). On October 17, 1989, the licensee discovered the seismograph alarming (a red light flashing every 10 seconds). Investigation revealed that the seismograph had been alarming since October 4, 1989, however, had gone unrecognized.

c. Contrary to the above, the work instructions being used to reassemble the discharge piping for safety valves 4B, 4E, and 4F, QMMP 203-a-51, Revision 1 (the Main Steam Safety Valve Removal and Installation Checklist) did not include adequate instructions for the reassembly of the discharge piping. Consequently, on October 24, 1989, NRC inspectors observed personnel improperly reassembling the discharge piping.

d. Contrary to the above, on September 16, 1989, the procedure being used to transfer the power supply for the Reactor Protection System bus from the normal power supply to the alternate power supply, QOP 700-1 (the 120V AC Reactor Protection System Bus Failure) did not alert the operator that the off gas timer would start, and if not reset, time out, and initiate the system isolation. This resulted in the isolation of the Off Gas System.

The following sections discuss each of the above examples of procedural deficiencies.

EXAMPLE (a)

Contrary to the above, on October 12, 1989, the work instructions which were used to perform maintenance on the No. 2 main turbine stop valve, Nuclear Work Request Q78934, did not include the JF5 and JF6 connections on the limit switch. When the limit switch was removed, the No. 1, No. 3, and No. 4 main turbine stop valves began slow closing. When these three stop valves reached the 90% open position, a turbine trip and reactor scram occurred. The following sections discuss each of the above examples of procedural defiencies.

DISCUSSION

On October 12, 1987, Unit 2 was in the RUN mode at 55% rated core thermal power. At 0140 hours, a reactor scram occurred when the Turbine Stop Valves began to close. The Turbine Stop Valves closed due to the improper removal of the limit switch from the No. 2 main stop valve.

The cause of the event is attributed to personnel error. The Electrical Maintenance Department (EMD) Work Analyst inadvertently overlooked the JF5 and JF6 connections on the limit switch in the preparation of work instructions.

Contributing to this event was the inadequate field verification of the wire diagram by the EMD personnel. The four wires that were identified to be removed on the drawing were verified on the limit switch; however, personnel failed to identify the additional two wires until after the limit switch was removed.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

Following the reactor scram, the operators took appropriate actions for plant recovery. The limit switch was replaced and successfully tested. The job was completed without further incident.

CORRECTIVE ACTIONS TAKEN TO PREVENT FURTHER NONCOMPLIANCE

1. The EMD Work Analyst was counselled by the Master Electrician following the event on the importance of reviewing electrical prints accurately and completely. The Master Electrician also stressed the significance of work detail included when developing work packages.

2. QAP 1500-2 will be revised by March 1, 1990 to clarify the requirements for verifying that the field conditions reflect the drawings when performing electrical work. This procedure change will enhance the development of NWR work instructions by providing clearer guidance for field verifications. Moreover, because of the Instrument Maintenance Department's (IMD) greater involvement with the EHC System, QAP 1500-2 will require that when the NWR involves EHC components, the IMD will be contacted for concurrence with the work steps to be performed.

3. All EMD and IMD Work Analysts will be trained on the QAP 1500-2 revision by March 15, 1990.

4. This event will be discussed with the members of the EM and IM Maintenance Departments with specific emphasis on ensuring that the drawings reflect the actual field conditions prior to performing any work. A training sessions will also be held with the Technical Staff personnel to discuss the lessons learned from this event by March 1, 1990.

5. The Training lesson plans for the Main Steam System and EHC System will be revised to enhance the description of the No. 2 MSV by March 1, 1990.

6. The Electrical Maintenance Department will perform a wiring field verification on main turbine related equipment. Appropriate drawing changes will be initiated to reflect plant configuration. This work is tentatively scheduled for the next refuel outage.

7. An Operating Memo has been written to require a reduction in power below the turbine scram setpoint when maintenance work is being performed on components that affect the EHC circuitry. Therefore, a turbine trip signal will result in only tripping the turbine and not a reactor scram and, thus, will lessen the impact of the transient on plant components.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved following completion of the maintenance work on October 12, 1989.

EXAMPLE (b)

Contrary to the above, the Operator's Surveillance/Turnover Sheets, Unit 1 Equipment Attendants, described the alarm conditions (absence of a white target) for a seismograph (Teledyne-Gentech Model RFT-250) which had been replaced in September, 1989 with a different model (A-700). On October 17, 1989, the licensee discovered the seismograph alarming (a red light flashing every 10 seconds). Investigation revealed that the seismograph had been alarming since October 4, 1989, however, had gone unrecognized.

DISCUSSION

On October 17, 1989 at 2150, an Unusual Event was declared due to the apparent tripping of the seismograph which was believed to have occurred due to the San Francisco earthquake. The Unusual Event was terminated at 0019 on October 18, 1989, when the investigation revealed that the seismograph had spuriously actuated on October 4, 1989.

The Station seismograph was replaced under Engineered Work Request Q76963. The installation was completed on September 9, 1989. The Technical Staff failed to identify all procedures affected by the change of equipment. Procedures Q05-005-S13, Operator Surveillance/Turnover Sheet and QOA 010-9, Earthquake were not revised.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

1. The seismograph was reset on October 18, 1989.

2. Station Procedures QOS 005-S13 and QOA 010-9 have been revised to reflect the installation of the new seismograph.

3. Operations will train personnel on what to verify while taking rounds and on how to retrieve and interpret the data. This training will be completed by March 1, 1990.

CORRECTIVE ACTION TAKEN TO PREVENT FURTHER NONCOMPLIANCE

1. The Engineered Work Request has been replaced by a Minor Design Change program which requires a more thorough review of installations and requires a formal review to identify procedures that may be affected by the design change. Quad Cities believes that if the installation of the seismograph had been accomplished under the new Minor Design Change program, the procedures would have been revised prior to Seismograph being turned over for operation.

2. Station Procedures QOS 005-S13 (Operator Surveillance/Turnover Sheet) and QOA 010-9 (Earthquake) have been revised to reflect the installation of the new seismograph. A new station procedure, QOP 010-7 (Seismograph Event Retrieval) has been written to instruct personnel on how to retrieve and interpret data from the seismograph.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance will be achieved by March 1, 1990, when the operators are trained on use of the new seismograph.

EXAMPLE (c)

Contrary to the above, the work instructions being used to reassemble the discharge piping for safety valves 4B, 4E, and 4F, QMMP 203-a-51, Revision 1 (The Main Steam Safety Valve Removal and Installation Checklist) did not include adequate instructions for the reassembly of the discharge piping. Consequently, on October 24, 1989, NRC inspectors observed personnel improperly reassembling the discharge piping.

DISCUSSION

On the afternoon of October 24, 1989, the NRC observed contractor (Stone & Webster) personnel improperly reassembling the discharge piping of the Main Steam Safety Valve.

The NRC Inspectors observed one disc assembly and Ramshead being installed loosely on one valve, and one disc assembly and Ramshead being lifted onto the other valve. The NRC Inspector observed that the disc assemblies were installed differently on the two valves. Upon inspection of by the General Foreman, he acknowledged that the second assembly was backwards. The spacer on the assembly was on the wrong side of the disc. The Foreman also admitted that he had failed to bring his as-built sketch of the Ramshead orientation into the Drywell. Upon closer inspection of the match marks placed on the Ramsheads, the Foreman also identified that one Ramshead was being rigged to the wrong valve. It should be noted that neither Construction nor QC had reached the stage of verifying the correct orientation of the Rupture Disc as required by the Hold Point. The General Foreman counselled the craftsmen on the correct method of installing the Rupture Discs. The work was then corrected.

The Stone & Webster Planner recognized the lack of specific information in the Station Maintenance Procedure and developed a specific instruction to verify the correct orientation of the Rupture Disc. An experienced General Foreman was assigned specifically to oversee the valve work. In spite of these precautions, the craftsmen incorrectly performed the initial installation steps. Commonwealth Edison believes that if the work was allowed to continue, the errors would have been identified during a hold point inspection.

The NRC discussed their observations with the Plant Manager.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

A Stop Work Order was issued on Stone & Webster until these problems could be investigated.

Quad Cities concurs with the NRC's observations that the job did not progress in an efficient and effective manner. Corrective actions were defined in a letter to A. Bert Davis on October 26, 1989.

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CORRECTIVE ACTIONS TAKEN TO PREVENT FURTHER NONCOMPLIANCE

As indicated in the October 26, 1989 letter to A. Bert Davis:

1. Prejob briefings will be required for Stone & Webster (SWEC) maintenance work and will include CECo personnel involvement, as appropriate. The briefings should enhance knowledge by craft personnel for the maintenance work to be performed.

2. SWEC will develop an administrative procedure for the prejob briefings to ensure uniform application by October 31, 1989.

3. Critical work instructions will be required to be on hand at the job site.

4. CECo will augment current overview functions to include individuals from ENC and the Station. ENC will provide a senior, experienced individual to conduct independent observations of work performance on selected jobs in progress to ensure quality work practices. In addition, a senior experienced CECo individual will conduct independent observations of selected maintenance activities to ensure corrective actions are effective. This overview program will continue until Quad Cities feels confident that it is no longer needed.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on October 27, 1989, when the contractor was allowed to return to work.

EXAMPLE (d)

Contrary to the above, on September 16, 1989, the procedure being used to transfer the power supply for the Reactor Protection System bus from the normal power supply to the alternate power supply, QOP 7000-1 (the 120V AC Reactor Protection System Bus Failure) did not alert the operator that the off-gas timer would start, and if not reset, time out, and initiate the system isolation. This resulted in the isolation of the Off-Gas System.

DISCUSSION

At 1605 hours, on September 16, 1989, Unit 1 was in the REFUEL mode at 0% of rated core thermal power. The Off-Gas Radiation Monitors were both in the downscale position, which is the normal condition when the reactor is shut down. The Operating Department had just completed a power supply changeover of the Reactor Protection System bus from the Motor Generator Sets to Bus 15-2 in order to perform preventive maintenance on Bus 13. The MG Sets power Bus A, power the "A" off-gas radiation monitor. The "B" off-gas radiation monitor is powered from the 120-volt Essential Service System bus. The operators used QOP 7000-1, Reactor Protection System MG Sets, and QOA 7000-1, 120V AC Reactor Protection System Bus Failure, to accomplish the power transfer. This changeover is a dead bus transfer in which the RPS bus is deenergized before it is reenergized. When power was removed from the RPS bus, the "A" monitor contacts opened, causing the Off-Gas Timer to start. At 1620 hours, the timer timed out and the Off-Gas System isolated as designed. The Center Desk Nuclear Station Operator observed the Off-Gas isolation and subsequently checked the radiation monitors which indicated normal for the plant conditions. The system was reset.

The cause of this event is attributed to inadequate procedures. Neither the operating procedure nor the abnormal operating procedure alerted the operator that the Off-Gas System timer would start during the dead bus transfer.

ACTIONS TAKEN TO CORRECT THE DEFICIENCY

The Off-Gas system was returned to its normal configuration after verification of normal radiation monitor verification.

CORRECTIVE ACTIONS TAKEN TO PREVENT FURTHER NONCOMPLIANCE

A procedure change has been submitted to QOP 7000-1 to alert the operators that the Off-Gas radiation monitor may spike high during a power supply changeover and start the timer. The timer should be checked and reset, if necessary, when the power supply changeover is complete. This procedure change will be implemented January 15, 1990. QOA 7000-1 has been updated to reflect the timer actuation in October 1989.

This event has been discussed during the operator's October and November safety and tailgate meetings.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on September 16, 1989, when the Off-Gas System was returned to normal configuration.