

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-373/86017(DRS)

Docket No. 50-373

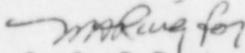
License No. NPF-11

Licensee: Commonwealth Edison Company  
Post Office Box 767  
Chicago, IL 60690

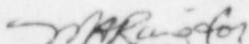
Facility Name: LaSalle County Station, Unit 1

Inspection At: LaSalle Site, Marseilles, IL

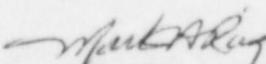
Inspection Conducted: May 7-16, 1986

  
Inspectors: S. G. DuPont

6/24/86  
Date

  
G. F. O'Dwyer

6/24/86  
Date

  
Approved By: M. A. Ring, Chief  
Test Programs Section

6/24/86  
Date

Inspection Summary

Inspection on May 7-16, 1986 (Report No. 50-373/86017(DRS))

Areas Inspected: Modification testing (72701), actions on previously identified inspection items (92701) and license conditions.

Results: No violations or deviations were identified.

## DETAILS

### 1. Persons Contacted

- \*G. J. Diederich, Station Manager
- \*R. D. Bishop, Services Department
- \*P. F. Manning, Technical Staff Supervisor
- \*R. W. Stobert, Station Quality Assurance Supervisor
- \*L. W. Runey, Superintendent-ONSG
- \*W. C. Kirchhoff, Technical Staff
- \*T. K. Vancina, Operational Analysis Department-Engineer

The inspector also interviewed other licensee employees of the technical staff.

\*Denotes those personnel in attendance at the May 16, 1986, exit meeting.

### 2. Actions on Previous Inspection Findings

- a. (Closed) Open Item (373/82050-03): The Level 2 acceptance criteria for steam condensing mode of the Residual Heat Removal system was not met during startup test phase. During performance of startup test, STP-71, the system was not placed in the operational mode within the required 30 minutes as noted in Table 14.2-134 of the FSAR. The licensee requested and received approval to revise the FSAR, Chapter 14. The inspector reviewed the updated FSAR, Revision 1 (April 1985) and verified that the requirement has been deleted.
- b. (Closed) Unresolved Item (373/85012-05): Two wires were found to be miswired in switches for the Automatic Depressurization System due to errors in the received modification drawings. The licensee reviewed all of the modifications performed on Unit 1 prior to April 17, 1985, for similar potential problems. In addition, the licensee revised the following procedures to ensure that testing will identify and detect potential errors in modified instruments:

- LIS-NB-104 "Unit 1 Reactor Vessel Low-Low Water Level RCIC Initiation, Low-Low-Low Water Level LPCS/RHR Initiation, and ADS Permissive Calibration."
- LIS-NB-204 "Unit 2 Reactor Vessel Low-Low Water Level RCIC Initiation, Low-Low-Low Water Level LPCS/RHR Initiation, and ADS Permissive Calibration."
- LIS-NB-304 "Unit 1 Reactor Vessel Low-Low Water Level RCIC Initiation, Low-Low-Low Water Level LPCS/RHR Initiation, and ADS Permissive Functional Test."
- LIS-NB-404 "Unit 2 Reactor Vessel Low-Low Water Level RCIC Initiation, Low-Low-Low Water Level LPCS/RHR Initiation, and ADS Permissive Functional Test."

The inspector reviewed the licensee's corrective actions including the revision of the above procedures and found them adequate. The inspector has no further concerns.

- c. (Closed) Unresolved Item (373/86011-02): On April 3, 1986, while performing a routine calibration and functional test of the Unit 1, Division 1 bus overcurrent relays, an Operational Analysis Department (OAD) person inadvertently closed the contacts on an overcurrent relay which tripped the bus breaker, deenergized the bus, and automatically started the "0" Emergency Diesel Generator. Subsequent investigation determined that the maintenance activity was being accomplished in accordance with a general procedure (Work Request L53841) that invoked the manufacturer's technical manual for work instructions. The adequacy of the work instructions being utilized is an item of concern and requires additional evaluation. The inspector reviewed the event and determined that the inadequacy of using an unapproved general procedure that does not include specific requirements or acceptance criteria has been previously identified to the licensee during the inspection of OAD activities (373/85040). Since the licensee has not completed their response or implemented corrective actions, this item is expected to be resolved by CECO's generic actions and as such the inspector has no further concerns with this specific item. The review of the licensee's corrective actions on OAD activities will be conducted during a scheduled closeout inspection.
- d. (Closed) Open Item (373/83049-02): Modify the Shutdown Cooling Temperature Instruments. The inspector reviewed the safety-related Modification 1-1-84-066 and the Action Item Record (AIR) 01-83-34902 which tracked the closure of the inspection item and verified that the modified instruments were in agreement with the updated FSAR, Revision 1 (April 1985).

### 3. Modification Testing

#### a. Scope of Inspection

The inspection scope was to verify by document and test result review that the NRC identified deficiencies that resulted in a Confirmatory Action Letter (CAL) dated June 17, 1985, had been corrected. This review included verifying that testing methodology adequately demonstrated operability of the system in light of the work actually performed.

#### b. Modification Test Result Review

The inspectors reviewed the test results for the following modifications to verify that testing acceptance criteria were defined and met, testing methodology verified operability, and that documentation of all test results, initial conditions and prerequisites were contained within the modification package and reviewed by the onsite review and approval group:

1-0-83-026	"Diesel Generator '0' Pre-Lube Modification"
1-1-82-319	"Diesel Generator '1A' Pre-Lube Modification"
1-1-83-129	"Diesel Generator '1B' Pre-Lube Modification"
1-1-82-284	"Installation of Degraded Voltage Protection for Buses 141Y, 142Y, and 143"
1-1-82-132	"Relocate Nonqualified Instruments from Diesel Generator '0' Skid"
1-1-82-309	"Relocate Nonqualified Instruments from Diesel Generator '1A' Skid"
1-1-82-310	"Relocate Nonqualified Instruments from Diesel Generator '1B' Skid"
1-1-82-305	"Installation of Automatic Scram from Loss of Control Rod Drive Pump"
1-1-83-135	"Replace 'A' Residual Heat Removal Pump with Short Shaft Model"
1-1-84-036	"Modify ADS Logic"
1-1-82-263	"Installation of Redundant Vent and Drain Valves on the Scram Discharge Volume System"
1-1-84-067	"Provide Separations of Standby Liquid Control System Cables"
1-1-84-066	"Installation of New Thermocouple for Shutdown Mode of RHR"

- (1) Modifications 1-83-026, 1-1-82-319, and 1-1-83-129: The purpose of the modification was to provide a consistent supply of oil to the diesel generator turbocharger and crankshaft in anticipation of an emergency start. The modification installed an additional 3 gpm AC powered lube oil pump supplying lube oil to the turbocharger, increasing the flow from 2 gpm to 3 gpm. The modification also modified the original oil circulating pump to supply the crankshaft, thus increasing the flow from 4 gpm to 6 gpm.

The inspector verified that the modification testing demonstrated operability of the system by reviewing test data of the following tests:

- ° Functional test of new pressure switches and alarms.
- ° Verification of lube oil pressure and level during operation and shutdown modes.
- ° Verifications of motor current, pump rotation, and pump vibration.
- ° Verification of pump start/stop interlocks.
- ° Verification of fuel priming pump interlocks.
- ° Verification of electrical loading of installed pump including breaker operational verification.

The inspector determined that the licensee's testing adequately verified operability in light of the work that was actually performed.

- (2) Modification 1-1-82-284: The purpose of the modification was to install a second level of degraded grid voltage protection. The inspector verified that the test verified system operability by reviewing the following tests:

- ° Technical specification surveillance testing.
- ° Calibration and functional testing of the installed relays 1427-AP270A and 1427-AP270B.
- ° Circuit logic verification.

In addition to the test result review, the inspector verified that the administrative control program was effective in that the Procedure LES-GM-119, "Calibration of 4KV Emergency Bus Loss of Voltage Relays," was revised to include the newly installed relays 1427-AP270A and 1427-AP270B.

The inspector found, in Step F.1.C of this test, the requirements to verify testing by other departments were vague. The inspector did not find this problem in other modification tests. In this case Step F.1.C stated, "verify that testing of the circuit for Division 1 degraded is completed by OAD." This step did not define what test was to be completed or what acceptance must be met. The inspector discussed this concern with the licensee. The licensee stated that many of the more recent modifications had included defined requirements in the test procedures and that these improvements will be implemented in the Unit 2 modifications. The inspector reviewed several of the recent modifications and concluded that the concern was being addressed. Since the testing for 1-1-82-284 had been completed prior to the licensee initiating these improvements and the test package did include all test data from all departments for verification of completeness and adequacy, the inspector has no further concerns. The verification of Unit 2 modification testing is expected to be performed during a scheduled inspection and the adequacy of these improvements will also be verified.

- (3) Modifications 1-1-82-132, 1-1-82-309, and 1-1-82-310: The purpose of the modification was to evaluate the diesel generator skid mounted instruments and to relocate nonqualified instruments to a vibration free panel. All of the safety-related components in the diesel generator systems were either tested by Stewart & Stevenson (vendor) and Southwest Research Institute and/or analyzed by Sargent & Lundy (AE) to demonstrate their qualification. The evaluation identified two switches on the engine gauge panel that were not qualified, the governor control switch S5A and the emergency stop button S19A. Since both functions have switches on a vibration free local panel, the licensee deleted S5A and S19A

from the diesel generator "0" and "1A" circuits. For diesel generator "1B" the evaluation determined that the pushbutton start switch for the fuel prime pump S18 and the pushbutton start switch for the DC soak back oil pump S22 were not qualified. These switches were relocated to the vibration free engine control panel.

The inspector reviewed the evaluation and determined that the evaluation's conclusion was satisfactory. In addition the inspector reviewed the test result data and determined that the testing verified the operability of the systems by functional testing of the components, interlocks, and logic.

- (4) Modification 1-1-82-305: The purpose of the modification was to install an automatic scram on low pressure in the control rod drive pump discharge during the startup and refuel modes of operation.

The inspector reviewed the test methodology and test results and determined that the operability of the system was adequately verified by the following tests:

- ° Calibration and functional testing of the pressure transmitters.
- ° Logic testing of the transmitters, scram circuits, and interlocks of the operational mode selection switch.
- ° Verification of scram functions in the startup and refuel modes of operation.

- (5) Modification 1-1-83-135: The purpose of the modification was to replace the RHR "A" pumps' deep draft shaft with a short shaft model.

The inspector verified that testing adequately demonstrated operability by reviewing the following tests:

- ° Verification of pump rotation and motor circuits.
- ° Verification of pump operational curve.
- ° Verification of pump flows, discharge pressure, and establishment of net positive suction (NSPH).

- (6) Modification 1-1-84-036: The purpose of the modification was to change the following ADS logic: addition of a high drywell pressure timer, installation of a manual inhibit switch, modified manual initiation switch, and an addition of a seal-in function after the ADS actuation relays are energized.

The inspector verified that testing adequately demonstrated operability by reviewing test results of the following tests:

- Circuit testing which included continuity.
  - Logic testing of switches, relays, seal-ins, and interlocks.
  - Operational verification of timers.
- (7) Modification 1-1-82-263: The purpose of the modification was to install redundant vent and drain valves on the scram discharge volume and redundant scram instrumentation. In addition, the modification provided diverse instrumentation (differential pressure and level float sensors).

The inspector verified that operability was proven by reviewing the following test results:

- Functional testing of level switches and differential pressure detectors.
  - Functional testing vent and drain valves.
  - Calibration and functional testing of vent and drain valves opening and closing timing sequence.
  - Logic testing of sensors.
  - Circuitry testing of vent and drain valve solenoids and sensors.
- (8) Modification 1-1-84-067: The purpose of the modification was to provide separation of cables within Panel 1H13-P603 associated with the Standby Liquid Control system. The separation was needed to meet the requirement of six inches of clearance between redundant control and logic divisions.

The inspector verified that operability was demonstrated by reviewing the following test results:

- Pump flow verification test.
- Inservice testing of pump and valves.
- Continuity verification of explosive valves.
- Vibration testing of pump, motor, gear reducer.
- Logic testing of pump and valves, including squib valves.
- Boron sample.

c. Procedure Review

The inspectors reviewed the licensee's administrative program to verify that modification testing activities are controlled and defined

by approved procedures. The following procedures were reviewed and found adequate:

- (1) LTP-800-9, Revision 1, "Guidelines for Development of Tests for Modifications."

The procedure contained instructions for test development for modifications involving both mechanical and electrical portions of plant systems. The instructions included verifying instrumentation lines' slope, valve and piping reverification for proper make up, verification that air-operated valves fail in the proper position on a loss of air pressure, and that logic tests assure all inputs are capable of providing the required functions.

- (2) LAP-1300-2, Revision 19, "Plant Modifications."

The procedure contained instructions for development and implementation of modifications and a description of responsibilities.

- (3) Quality Procedure Q.P.3-51, "Design Control for Operations - Plant Modifications."

The inspectors reviewed Q.P.3-51 because it contained instructions and responsibilities associated with conducting safety evaluations of modifications as required by 10 CFR 50.59. During the inspection, the inspectors noted that the form "10 CFR 50.59 Checklist for Facility Changes" did not appear to meet the requirements of 10 CFR 50.59. It is possible by following the logic flow chart contained in the form to not evaluate for technical specification changes involved with the modification which could also involve a request from the NRC for authorization of the modification. The inspectors discussed this concern with the licensee and a revision to the form was issued prior to the completion of the inspection. Since the modifications reviewed during the inspection were authorized by the NRC as Licensee Conditions and the licensee made timely corrections, the inspector has no further concerns.

In addition to the above concern, it was not apparent to the inspectors that a safety evaluation had been performed for the modification tests. It was apparent that 10 CFR 50.59 evaluations were performed for the modifications, but it is not clear that the test was included in the evaluation. In one case, testing of Modification 1-1-82-284, the test identified that to perform certain sections of the test for Unit 1, the operating unit (Unit 2) would be placed into a Limiting Condition of Operation (LCO) while the "0" Diesel Generator was inoperable. The inspector found that this was an excellent test procedure in that it noted the effects of the test upon the other unit. Even though this is not an unreviewed safety question, it was not documented with the safety evaluation as being addressed. Discussion with the licensee

revealed that their interpretation of 10 CFR 50.59 "Changes, Tests, and Experiments," did not include modification testing. Their interpretation of "tests" was prototype and special tests and that modification testing is similar to surveillance and post maintenance testing. However, the inspectors pointed out that modification testing should be evaluated against the requirements of 10 CFR 50.59 and should be included with the safety evaluation of the modification.

This is considered a unresolved item (373/86017-01) until the licensee reviews their program and addresses safety evaluations of modification testing as either a separate evaluation or included within the evaluation of the modification.

No violations or deviations were identified, however, one area requires further review and is documented as an unresolved item.

#### 4. License Conditions and SER Closure

During the review of completed modification testing the inspector verified that the following License Condition and SER issues were resolved:

##### a. Licensee Condition

- (1) License Condition 2.C.14.b required installation of redundant vent and drain valves on the Scram Discharge Volume system, Modification 1-1-82-263 met the requirements.
- (2) License Condition 2.C.20 required installation of a second level of degraded voltage protection relays. The inspector verified that Modification 1-1-82-284 met the requirements.
- (3) License Condition 21.b and c required nonqualified instruments to be moved from the diesel generator skids and relocated on vibration free panels, and that a pre-lube pump be installed in the diesel system to operate in parallel with the engine-driven lube oil pump. The inspector verified that Modifications 1-0-83-026, 1-1-82-319, 1-1-83-129, 1-0-82-132, 1-1-82-309, and 1-1-82-310 met the requirements.
- (4) License Condition 2.C.12 required installation of an automatic scram on low control rod drive pump discharge pressure. The inspector verified that Modification 1-1-82-305 met the requirements.

The inspector reviewed the following Action Item Records (AIRs) associated with the above license conditions and found them to be satisfactorily closed:

1-81-572, License Condition 2.C.21.c (373/81-00-39)  
1-84-30222, License Condition 373/81-00-136  
1-81-616, License Condition 373/81-00-97C  
1-81-813, License Condition 2.C.12 (373/81-00-115)  
1-81-570, License Condition 2.C.20 (373/81-00-36)  
1-82-264, License Condition 2.C.14.b (373/81-00-10)

b. SER Items Closure

The following SER items were closed by the inspectors based upon the review of modification test results:

373/81000-39, SER Section 8.3.1.1.  
373/81000-115, SER Section 4.6.2.  
373/81000-36, SER Section 8.2.2.2.  
373/81000-136, SER No. 7 "Separate SLC cables."  
373/81000-22, SER Sections 8.3.1.1 and 9.6.3.4.  
373/81000-10, SER Section 4.6.2.

No violations or deviations were identified.

5. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of violation, or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 3.c.(3).

6. Exit Interview

The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on May 16, 1986. The licensee acknowledged the inspector's statements. The inspector discussed the likely informational content of the inspection report with regard to documents reviewed by the inspector. The licensee did not identify any such documents as proprietary.