

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos.: 50-373, 50-374  
License Nos.: NPF-11, NPF-18

Report Nos.: 50-373/96009, 50-374/96009

Licensee: Commonwealth Edison Company

Facility: LaSalle County Station, Units 1 and 2

Location: 2601 North 21st Road  
Marseilles, IL 61341

Dates: July 17 - August 20, 1996

Inspectors: K. Ihnen, Resident Inspector  
H. Walker, Reactor Engineer

Approved by: B. L. Jorgensen, Acting Chief  
Reactor Projects, Branch 5

## Report Details

### Inspection Purpose

This inspection was a followup to the July 1 through July 17, 1996, NRC Augmented Inspection Team (AIT) inspection of the LaSalle service water sealant injection problem. The AIT reviewed the circumstances involved in the inadvertent injection of polyurathane sealant material into the service water tunnel during the sealing of cracks in the Lake Screen House. The AIT inspection also included a review of the causes and the actions taken or planned to correct the problem and its causes.

This inspection evaluated the event, including AIT findings, for regulatory compliance and to clarify issues as required. The inspection was not intended to duplicate the inspection efforts of the AIT. Where the term "inspectors" is used in this report, it may refer to the AIT inspectors, the inspectors in the followup inspection or both.

### Summary of AIT Findings

On June 19, 1996, with both units operating at full power, non-essential service water discharge pressures began to decrease due to high differential pressures across the in-line strainers. Although some difficulties were encountered, the operators managed to backwash the strainers and restore normal discharge pressures. On June 24, 1996, the same problem recurred and a diesel fire pump concurrently experienced high coolant temperatures during routine surveillance testing.

The licensee's root cause determination following the initial event on June 19 was inadequate and focussed on sandblasting material that the licensee believed had become entrained in the non-essential service water system fouling the strainers. Subsequent to the June 24 event, the licensee determined that the cause of both events was injectable sealant being used to repair cracks in the structure of the safety-related service water intake tunnel. The intake tunnel provides a common water source for both Unit 1 and Unit 2 non-essential and emergency service water systems. The crack repair activities resulted in the injection of a large amount of the sealant into the tunnel, a portion of which was drawn into the non-essential service water strainers.

Following the June 19 and 24 events, the licensee incorrectly concluded that the material that fouled the non-essential service water system could not affect the emergency service water systems. On June 28, during service water intake tunnel cleaning operations, divers found sealant in the tunnel that could have compromised the operability of the emergency service water systems. After some delay, the licensee then declared the emergency service water systems inoperable and shut down both units.

Subsequent to the events the licensee developed and effectively implemented a plan to clean the sealant from the intake tunnel and developed a plan to inspect selected system components. After NRC expressed concerns on the limited scope and direction of the licensee's proposed actions, additional

plans were developed by the licensee. These included the inspection and cleaning of all emergency service water strainers, performance of additional testing to ensure that all emergency systems functioned, and demonstration of emergency system strainer backwash capability. These additional inspections and tests were satisfactorily performed and resulted in the discovery of several significant issues.

The AIT concluded that the root cause of the strainer fouling was poor control of work on a safety-related structure. The staff responsible for assigning and controlling this work lacked sufficient facility knowledge to appreciate the potential consequences of this work. As a result, a contractor was permitted to seal cracks in the safety-related service water intake tunnel structure with no knowledge of the potential impact of the work, no approved procedures, and inadequate oversight. Control room operator performance and command and control in the control room during the event responses were good. However, operators responding to the Lake Screen House lacked appropriate knowledge regarding non-essential service water strainer operation.

The AIT also concluded that an inadequate assessment of the root cause of the June 19 and 24 events, as well as the failure to develop a comprehensive and thorough inspection and recovery plan, permitted repeated challenges to key safety systems and threatened the availability of the ultimate heat sink. Loss of the function of those safety systems, and the resultant loss of the ultimate heat sink, would have significantly impacted the licensee's ability to respond to analyzed accidents. Had the root cause evaluation for the initial event been thorough, the event of June 24 could have been avoided, reducing the time that the emergency service water systems for both units were threatened.

## I. Operations

### 01. Conduct of Operations

#### 01.1 General Comments

Actions taken by operators responding to the two service water clogging events were generally good. In some cases operators were hampered by inadequate procedures and operator work arounds on the service water strainer backwash. Actions taken to address operability issues were sometimes slow and inadequate with plant management and engineering adversely influencing the conservatism of the decision-making process within operations.

#### 01.2 Operations Response to Service Water Events

##### a. Inspection Scope

The inspectors observed or reviewed operator actions in the control room and in the plant relating to the service water clogging events. The events and the actions taken were also discussed with cognizant operators, systems engineers and plant management.

Review of operator actions continued during the plant shutdown and recovery phases.

b. Observations and Findings

Control room operator response to the service water clogging events was good. However, operators responding to the Lake Screen House (LSH) lacked appropriate knowledge regarding non-essential service water strainer operation. In addition, the available operating procedure was inadequate (see 03.1.b below) and several equipment problems with the strainers existed at the time of the first event.

After the events, the safety basis for continued operation of the plant under the adverse conditions imposed by significant service water contamination was questionable. This was especially true when, on June 28, 1996, divers found pieces of foam sealant material on the bottom of the service water tunnel, which rendered the operability evaluation of June 24, 1996 no longer valid. This operability evaluation was based on the buoyancy of the sealant material. The lack of buoyancy indicated that the core shutdown cooling systems (CSCS), which provide essential service water (ESW), were in jeopardy and significant risk was involved in continued operation. These CSCS systems were not declared inoperable until several hours later, after NRC questioned operability status.

This constitutes untimely corrective action and is an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action", (EEI 373;374/96009-01A).

c. Conclusions

The inspectors concluded that the control room staff performed appropriate procedures, isolated non-essential SW loads, reduced power, stabilized SW pressure, and placed the plant in a stable condition during and after the events. The lack of instructions in procedure LOP-WS-05 hindered the operators in taking prompt action to decrease the high differential pressure across the non-essential SW strainers.

During recovery from the events, there appeared to be a reluctance to declare the CSCS inoperable and proceed with plant shutdown and service water tunnel cleaning. Actions taken to keep the reactors operating after the second clogging event were not conservative and, as a result, the period of risk was substantially increased.

### 03 Operations Procedures and Documentation

#### 03.1 Inadequate Service Water Procedures

##### a. Inspection Scope

The inspectors reviewed plant operating procedures and documented records of operator responses to the event. The event and actions taken were also discussed with cognizant operators and systems engineers.

##### b. Observations and Findings

During the event of June 19, 1996, the differential pressure across the non-essential service water strainers reached 12 psid. The operating procedure for strainer operations, LOP-WS-05, Revision 3, "Service Water Strainer Operations," instructed the operator to place an additional strainer in service if the differential pressure across any strainer exceeded 10 psid. All three strainers were in service when this event occurred. The procedure was inadequate and did not provide instructions or guidance to the operator for appropriate actions during the conditions which existed during this event.

During subsequent reviews, the inspectors noted that operating procedures LOP-RH-14, Revision 4, "Backwash of the Residual Heat Removal Service Water Strainers," and LOP-DG-04, Revision 18, "Diesel Generator Special Operations," were also inadequate. Instructions for manual backwash of these essential service water strainers were not included in the procedures.

The inadequacy of operating procedures LOP-WS-05, LOP-RH-14, and LOP-DG-04, is an apparent violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," (EEI 373;374/96009-02A).

##### c. Conclusions

Operators successfully addressed the immediate event symptoms despite a lack of experience, and even though some service water operating procedures were inadequate. Operations had not recognized and acted to correct the inadequacy of some of the existing operating procedures.



## II. Maintenance

### M1 Conduct of Maintenance

#### M1.1 General Comments

Poor control of maintenance activities was the cause of the event. A lack of knowledge of the safety classification of the involved structures, a lack of knowledge of the work and the methods to be used for repair, and a casual approach to procedure compliance also appeared to be contributing causal factors. Maintenance efforts during the recovery from the event appeared to be good.

#### M1.2 Inadequate Control of Service Water Tunnel Work

##### a. Inspection Scope

The inspectors reviewed the processing of two action requests (ARs), which were written in late 1995, to request repair of cracks in the floor and walls of the Lake Screen House (LSH). The work control process and LaSalle requirements for the control of safety related work and minor maintenance were also reviewed. The Updated Safety Analysis Report (UFSAR) and other related documents were reviewed to verify the quality designation and seismic classification of the LSH and the service water tunnel. The LSH is classified as a safety related structure. The results of these reviews were discussed with licensee personnel.

##### b. Observations and Findings

The two ARs were reviewed by the Lead Unit Planner and the Lead Maintenance Planner as required by administrative procedure LAP 300-37, Revision 4, "Minor Maintenance Action Request Procedure." The review did not identify that the work was to be performed on a safety related structure. As a result of the AR review, the work was classified as minor maintenance and the ARs were provided to the Consolidated Facilities Maintenance (CFM) Group for work assignment and completion. Consistent with other minor maintenance activities, no work request was prepared and no procedures or other work control measures were used.

The task was assigned to a contractor and, between May 21 and June 20, 1996, contractor personnel drilled holes in the floor adjacent to the non-essential service water pumps and injected a polyurathane sealant material into the floor to seal the LSH floor cracks. Since the floor is also the ceiling of the safety related service water tunnel, significant quantities of the injectable foam sealant material were injected directly into the tunnel. This sealant had the potential to cause significant reductions in service water flow to vital components and the possible loss of the ultimate heat sink required for Unit 1 and Unit 2 reactor cooling.

The inspectors reviewed Section 5 of the Commonwealth Edison Quality Assurance Manual, "Instructions, Procedures, and Drawings," Revision 65a, dated April 17, 1995, which required that activities governed by the quality assurance program be performed using documented instructions, procedures, and drawings appropriate for the activity.

LaSalle Administrative Procedure 300-37, "Minor Maintenance Action Request Procedure," Revision 4, dated May 13, 1996, required that the Lead Unit Planner, with the assistance of the Lead Maintenance Planner, screen ARs to determine if the required work was minor. One of the described purposes of the screening was to ensure that safety related work was not performed as minor maintenance.

LaSalle Administrative Procedure 1300-1, "Action/Work Request Processing", Revision 55, dated April 12, 1996, required that the Lead Unit Planner with the assistance of the Lead Maintenance Planner review and approve ARs. For ARs related to housekeeping and material condition type issues, the planners were to classify the work as "minor maintenance", and forward the AR to the assigned department for completion. For all other work, the planners were to initiate work requests (WRs) from the ARs and the work would be performed utilizing the WR maintenance work controls.

The classification of the crack repair as minor maintenance and the failure to prepare a work request and controls for safety related work does not comply with the quality assurance program and the two above-referenced procedures. This is an apparent violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," which requires that safety related activities be performed per documented procedures appropriate to the circumstances (EEI 373;374/96009-03).

#### c. Conclusions

Inadequate control of work was the basic cause of the service water sealant injection problem. This lack of implemented controls did not comply with plant procedures.

#### M1.3 Inadequate Control of Cooling Lake Dike Excavation Work

Following the events with the service water tunnel, the licensee determined that all contractor work onsite (whether safety related or nonsafety related) would be subject to specific review and approval by the station, and no work would proceed without prior authorization. This process did not prove entirely effective. On July 31, 1996, a union representative discovered a contractor working with excavating equipment on the LaSalle Lake dike. Licensee plant personnel did not become aware of this work until the union representative discussed the matter as a union jurisdictional issue.

a. Inspection Scope

The inspector noted the documentation of this incident on a problem identification form which had been written on the issue. The inspector's follow-up included a review of the documents and a discussion of the incident with several licensee personnel.

b. Observations and Findings

Licensee investigation revealed that the contractor was excavating to repair a fiber optics communication cable. The work was initiated by Commonwealth Edison in Downers Grove and was in process without the knowledge of plant personnel. No action request (AR) or other work control documents had been issued for the work.

The work was stopped until proper work documents could be issued and work authorizations and controls were in place. AR, # 960052685, and work request, # 96007238301, were issued for the work and the work was allowed to proceed.

c. Conclusions

Although the lake dike is non-safety related, a significant loss of lake water would force the shutdown of both reactors. This work would normally have minor significance; however, the work was being performed without the knowledge of plant personnel and appeared to conflict with recent controls established as the result of the service water sealant problem. This incident indicated that the emphasis recently placed on the control of plant work had not been fully effective.

M1.4 Conduct of Maintenance - Conclusions

The inadequate control of maintenance activities appeared to be the cause of the service water sealant problem. Lack of knowledge of equipment or structures that were safety related or important to safety by licensee personnel appeared to be a significant contributor. Changes put into place to provide more positive control of maintenance activities appeared to have limited effectiveness as illustrated in Sections M1.3 and E3.1 of this report.

M3 Maintenance Procedures and Documentation

M3.2 Inadequate Service Water Strainer Procedure

a. Inspection Scope

During the inspections associated with the service water problem, the inspectors performed selective reviews of the procedures and the work packages to assure adequate control of the work performed.



b. Observations and Findings

Some procedural deficiencies were noted in LaSalle Maintenance Procedure LMP-GM-25, "ECCS SERVICE WATER STRAINER MAINTENANCE," Revision 2, used in the inspection and cleaning of both the 10 and the 40 basket ECCS service water strainers. The procedure did not differentiate between the two strainers and therefore did not provide the necessary details for acceptable maintenance.

During reassembly of Unit 2 residual heat removal (RHR) service water strainer D300B on July 14, 1996, licensee personnel discovered that the drive shaft installed in the strainer was short. Subsequent investigation disclosed that the drive shafts for the 10-basket diesel strainers were different from the 40-basket RHR strainers and that the shaft for a diesel service water strainer was installed in the RHR strainer. The procedure did not address differences between the two strainers including the differences in the length of the drive shafts.

Licensee personnel reviewed the procedure, found numerous deficiencies and initiated a procedure revision. The inadequacy of maintenance procedure LMP-GM-25, is an apparent violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," which requires that safety related activities be performed per documented procedures appropriate to the circumstances (EEI 373;374/96009-02B).

c. Conclusion

The noted procedural deficiencies did not appear to have a significant impact on the maintenance work performed on the service water system; however, the deficiencies did result in maintenance rework and delays.

M3.3 Inadequate Test and Maintenance Records

a. Inspection Scope

During the follow-up of some of the service water issues, the inspector requested and reviewed a work package used for the inspection and cleaning of one of the RHR service water strainers. Three days later, two additional work packages were requested and reviewed.

b. Observations and Findings

On August 13, 1996, the inspector reviewed work package # 950064167 01 for the inspection and cleaning of the Unit 2, RHR D300A service water strainer. The package was incomplete and did not contain several required records. The records did not identify the inspector, the inspection results (as found and as left data) and the action taken on the deficiencies noted. The inspector

obtained the as found inspection results from the cognizant systems engineer, who had a personal unofficial copy.

The two additional work packages, which were requested and reviewed, were missing the same information. The packages reviewed were:

- Work Request # 960064167 01 for work performed on Unit 2, RHR service water strainer D300A on July 6, 1996.
- Work Request # 960064400 01 for work performed on Unit 2, RHR service water strainer D300A on July 12, 1996.
- Work Request # 960066168 01 for work performed on Unit 2, RHR service water strainer D300B on July 12, 1996.

Regulatory requirements mandate that sufficient records be maintained to furnish evidence of activities affecting quality. Inspection and test records, as a minimum, are required to identify the inspector, the type of observation, the results, the acceptability, and the action taken in connection with deficiencies noted. The failure to include the required information in the maintenance records for the inspection and cleaning of the essential service water strainers is an apparent violation of 10 CFR 50, Appendix B, Criterion XVII, "Quality Assurance Records," (EEI 373;374/96009-04).

c. Conclusion

Based on the inspection results, it appeared to be normal practice not to include complete information in maintenance record packages. Discussions with licensee personnel did not change this perception.

M3.4 Conclusions -- Maintenance Procedures and Documentation

There appeared to be both procedure and record problems at LaSalle. Inadequate procedures and failure to properly implement procedures caused a series of adverse plant events, and contributed to their significance and their duration.

### III. Engineering

E1 Conduct of Engineering

E1.1 General Comments

Engineering performance in the investigation, analysis and cause determination related to the service water problem was slow and non-conservative. Operability evaluations were faulty, which caused a

significant delay in problem solution. Significant plant safety risk was prolonged by nearly a week because of Plant Management and Engineering actions.

## E1.2 Inadequate Corrective Action

Engineering cause investigation and corrective actions were cursory, untimely and sometimes inaccurate. Inadequate corrective actions related to both events led to untimely problem correction and extended non-conservative plant operations.

### E1.2.1 First Service Water Strainer Clogging Incident

#### a. Inspection Scope

On June 19, 1996, all three non-essential service water strainers clogged, requiring prompt action to reduce plant power and restore full cooling flow. The inspectors reviewed the action taken by engineering to determine the cause of this event and the action required to correct the problem. This review was accomplished by discussions with engineering personnel and by reviewing procedures and records.

#### b. Observations and Findings

The June 19, 1996, event indicated that a significant service water problem existed because of foreign material intrusion into the service water tunnel. The cause of the problem was incorrectly identified as corn cob material which had been used to sandblast the exterior of the lake screen house; this material was not used in sufficient quantities to cause the observed symptoms. Further, when the clogged screens were backwashed, the material was not collected to determine its exact nature.

The common service water tunnel supplies water to the safety-related CSCS service water pumps as well as the non-essential service water pumps. The corn cob material was determined not to present an existing problem since the gritblasting had been stopped, and no further action was taken. The plant was returned to full power. Preparation of the operability evaluation began on June 19 and was completed on June 20, 1996. Reactor power had increased to full power prior to completion of the operability evaluation.

Due to the incorrect cause identification and the lack of corrective action, the possibility of clogging the safety related service water systems, fed by the service water tunnel, continued to exist. The failure to properly identify and correct the service water foreign material intrusion problem is an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," (EEI 373;374/96009-01B).

c. Conclusions

The engineering corrective action determination in response to the first service water event was considered weak. It appeared that only the sand blasting material was considered as a cause and that Plant Management and Engineering reached this conclusion without a thorough cause investigation. The operability evaluation was based on incorrect information and did not justify continued plant operation.

E1.2.2 Service Water tunnel Inspection

a. Inspection Scope

On June 22, 1996, a diver was sent into the service water tunnel area for inspection of the service water and the tunnel area. The NRC inspector discussed the diver's inspection with licensee personnel.

b. Observations and Findings

After the first service water strainer clogging event, a diver entered the south end of the service water tunnel area to look for the sand blasting material which was thought to have caused the strainer clogging. Because of the tunnel water turbulence, the diver did not enter the tunnel but observed the water from the entrance way. None of the sand blasting material or any other significant amount of foreign material was noted. Licensee personnel told the inspectors that visibility through the water in the service water tunnel area was approximately 18 inches. Even though none of the material was found, no action was taken to go into the tunnel and look in the tunnel for other foreign material (such as the crack sealant material). For the diver to go into the tunnel and do a good inspection would have required that some of the non-essential service water pumps be shut down. This action was not taken and plant operations continued.

c. Conclusions

Based on the above brief inspection, licensee personnel concluded that the service water tunnel was essentially clean and additional action was not necessary. This was not true. A thorough inspection of the service water tunnel by the diver would have identified the injected sealant material and led to much earlier action on the sealant problem.

E1.2.3 Second Service Water Strainer Clogging Incident

a. Inspection Scope

On June 24, 1996, all three non-essential service water strainers clogged a second time. The inspectors reviewed the actions taken



by engineering to determine the cause of this event and the actions taken to correct the problem. This review was accomplished by discussions with licensee personnel and by reviewing procedures and records.

b. Observations and Findings

After the June 24, 1996, event, the cause was correctly identified as crack sealant material which had been injected into the tunnel while sealing floor cracks above the service water tunnel. The amount of the material in the tunnel was not determined. Engineering incorrectly determined that the material remained buoyant and the possible effect on the CSCS service water was considered to be minimal. Based on this determination, normal plant operations continued without removing the foreign material from the tunnel. The possible effects on the safety-related service water systems were not identified. The plant continued to run based on an erroneous operability evaluation prepared by engineering. Due to this operability evaluation, prompt action was not taken to remove the sealant material from the service water tunnel. The failure to identify and correct the service water sealant intrusion problem is an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," (EEI 373;374/96009-01C).

This second engineering operability evaluation was invalidated when sealant material was found on the floor of the tunnel on June 28, 1996. Since the operability evaluation of June 24, 1996, was based on the buoyancy of the sealant material, the operability evaluation was no longer valid. The lack of buoyancy indicated that the CSCS service water systems were in jeopardy. Immediate action was not taken to shut down the reactors even though a valid operability evaluation no longer existed. The CSCS service water systems were not declared inoperable until more than two hours later. Shutdown of the reactors started at this time, as described in Section 01.2 of this report.

c. Conclusions

The engineering investigation into the extent of the problem was weak. This weakness and the erroneous operability evaluation delayed corrective action and subjected the plant to an extended period of significant operability risk.

E1.3 Operability Evaluations

Two operability evaluations were performed during the service water tunnel foreign material issue. Both appeared to be non-conservative and were inaccurate due to inaccurate information and wrong conclusions. These were discussed in Sections E1.2.1 and E1.2.3.



### E3 Engineering Procedures and Documentation

#### E3.1 Inadequate Control of Strainer Back Wash Flow Testing

##### a. Inspection Scope

On July 9, 1996, the inspector observed two systems engineers conducting backwash discharge flow testing on the "0" diesel service water strainer backwash flow lines. The tests were performed to determine if the required backwash flow rates were met. An ultrasonic flow meter and associated equipment were used for the test.

##### b. Observations and Findings

The inspector noted that there appeared to be problems with the test and asked to see the work package and test procedure. The engineers stated that they didn't have a work package or a test procedure. The test was being conducted without a work package, a test procedure or a test data sheet on which to record the measured flows. A maintenance work package had not been prepared for the work, which involved removal of the insulation and paint from portions of the back wash flow piping in order to mount the flow sensors for the test equipment.

During discussions, licensee personnel stated that three flow tests had been completed the previous day without a work package or a test procedure. The discharge flow testing occurred on July 9, 1996, approximately two weeks after immediate corrective measures had been taken to improve the control of work because of the service water sealant injection event. The actions taken to prevent uncontrolled work were not effective. The failure to correct the cause of inadequate work control is an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," (EEI 373;374/96009-01D).

##### c. Conclusions

This problem occurred even though immediate actions had been taken to provide positive work controls in response to the inadvertent service water tunnel sealant injections. The existence of this problem indicated that the actions taken to correct work control problems were not fully effective.

### E4 Engineering Staff Knowledge and Performance

#### E4.1 General Comments

Knowledge by engineering staff appeared to be lacking in some areas. Some engineers were not aware that the service water tunnel was safety related and seismic category 1. Others were not aware of the need for control documents to do work on safety related equipment.

In addition, Engineering was not aware that two UFSAR requirements were not being met.

#### E4.2 UFSAR Requirements for Diesel Strainer Back Wash Flow

##### a. Inspection Scope

The inspector observed the backwash flow testing of the service water strainer for the "O" diesel generator. The test, the lack of controlling documents and the flow requirements were discussed with licensee personnel.

##### b. Observations and Findings

In July 1996, while investigating the service water sealant intrusion problem, licensee personnel identified that the backwash flow in the 0, 1A and 2A diesel generator cooling water strainers had been reduced to less than the 250 gpm required by Section 9.2.1.2 of the UFSAR. The backwash valves had been throttled and would only open approximately ten per cent. Measured flow for the "O" diesel strainer was approximately 22 gpm, which is less than one tenth of the stipulated flow. The throttling of the valves appeared to have occurred during plant construction and apparently existed from initial operation to July 13, 1996, when the strainer backwash flow problem was corrected.

There was no evidence that a 10 CFR 50.59 safety evaluation or screening was performed during the period of time that the plant was operated with this change from the description in the FSAR. When the problem was discovered, licensee personnel fixed the problem but did not perform the evaluation or screening required by 10 CFR 50.59 to determine if the change from the FSAR involved an unreviewed safety question. The very low backwash flows, measured during the tests, could have rendered the backwash function of the strainers ineffective. The result would be a loss of essential service water to the diesels due to clogged strainers. This appeared to be an unreviewed safety question.

The failure to perform a safety evaluation to ensure that changes from safety analysis requirements did not involve an unreviewed safety question is an apparent violation of 10 CFR 50.59 (EEI 373;374/96009-05A).

##### c. Conclusions

This problem seemed to involve a lack of knowledge of the service water system by assigned engineers. This could have resulted in the failure of important safety related equipment to perform its design function.

#### E4.3 Size of the Non-Essential Service Water Strainers

##### a. Inspection Scope

The inspectors noted that the UFSAR specified the size of the non-essential service water strainers as 1/16". Discussions with licensee personnel indicated that the strainer size was 1/8". The inspector discussed the strainer size with licensee personnel and reviewed several documents on the issue.

##### b. Observations and Findings

During the inspection, the inspectors noted that Section 9.2.2.2 of the UFSAR specified the screen size of the non-essential service water strainers as 1/16". Engineering documents indicated that the strainer screen size was 1/8". Licensee personnel inspected the strainers and verified that the strainer size was 1/8".

Apparently, the non-essential service water strainers were installed with 1/8" mesh during construction. Following discovery of this discrepancy in June 1996, engineering performed an analysis of non-essential service water equipment and determined that only one piece of equipment, a control valve, would be affected by particles less than 1/8". Engineering determined that the valve would be changed to a valve that would handle the larger particles and that Section 9.2.2.2 of the UFSAR would be changed to specify 1/8".

This difference was discovered on June 27, 1996 and was not previously known. No safety evaluation or screening had been performed on this change. The plant had operated out of compliance with the UFSAR in this area since the start of plant operations. Although this specific item did not appear to pose a significant safety problem, other possible unknown differences from the UFSAR could affect plant safety and possibly involve unreviewed safety questions. The failure to perform a safety evaluation to ensure that the change from the safety analysis requirements did not involve an unreviewed safety question is an apparent violation of 10 CFR 50.59 (373;374/96009-05B).

##### c. Conclusions

This is another example where the licensee was not in compliance with the UFSAR. Licensee personnel did not appear to be knowledgeable of some UFSAR requirements.

X1

#### Exit Meeting Summary

The inspectors presented the results of the inspection to members of licensee management at the conclusion of the inspection on August 20, 1996. The licensee acknowledged the findings presented.

The inspectors asked the licensee if any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## PARTIAL LIST OF PERSONS CONTACTED

### ComEd

- \*W. Subalusky, Site Vice President
- \*J. Brons, (Acting) Site Vice President
- \*D. Ray, Station Manager
- \*L. Guthrie, Operations Manager
- \*P. Smith, Maintenance Superintendent
- \*R. Fairbank, System Engineering Supervisor
- \*P. Antonopoulos, Site Engineering and Construction Manager
- \*D. Boone, Health Physics Supervisor
- \*R. Crawford, Work Control Superintendent
- \*J. Burns, Regulatory Assurance Supervisor
- \*J.W. Giesecker, Support Services Director

\* At exit meeting on August 20, 1996.

## INSPECTION PROCEDURES USED

IP 37550	Engineering
IP 37551	Onsite Engineering
IP 62703	Maintenance Observation
IP 71707	Plant Operations
IP 71750	Plant Support Activities

## LIST OF ACRONYMS USED

AIT	Augmented Inspection Team
AR	Action Request
CFM	Consolidated Facilities Maintenance
CSCS	Core Standby Cooling System (same as ESW)
DG	Diesel Generator
ESW	Essential Service Water (same as CSCS)
LOP	LaSalle Operating Procedure
LSH	Lake Screen House
NSW	Non-essential Service Water
NRC	Nuclear Regulatory Commission
OWA	Operator Work-Around
PIF	Problem Identification Form
RHR	Residual Heat Removal
SW	Service Water
UFSAR	Updated Final Safety Analysis Report
WR	Work Request