

INITIAL SALP REPORT

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

Inspection Report No. 50-373/92001; 50-374/92001

Commonwealth Edison Company

LaSalle County Station

October 1, 1990, through December 31, 1991

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## II. SUMMARY OF RESULTS

Overall performance has improved. Plant Operations remains a strength with three consecutive assessment periods rated as a Category 1. Security's tracking and trending of critical security parameters and progressive training contributed to its improved rating. The Emergency Preparedness improved rating was attributed to implementation of the Emergency Response Data System, a major upgrade to the Generic Station Emergency Plan, and the challenging aspects of the exercise scenario.

In the area of Engineering and Technical Support, insufficient contractor oversight, lack of uniform job-specific training for newly graduated engineers assigned system responsibilities, and requalification examination weaknesses were of concern. Despite considerable management effort, events involving unexpected intakes or exposures continued to occur. Additionally, some areas containing safety related equipment remain contaminated, posing potential operational and maintenance obstacles. Maintenance and Surveillance management was proactive, yet trending similar failures on different equipment was lacking. Safety Assessment/Quality Verification, while strong in several areas, was not effective in addressing chronic problems with procedural adherence and adequacy; and was not consistent in the quality of root cause and corrective action determinations.

The performance ratings during the previous assessment period and this assessment period according to functional areas are given below:

<u>Functional Area</u>	<u>Rating Last Period</u>	<u>Rating This Period</u>	<u>Trend</u>
Plant Operations	1	1	
Radiological Controls	2	2	
Maintenance/Surveillance	2 (Improving)	2	
Emergency Preparedness	2	1	
Security	2 (Improving)	1	
Engineering/Technical Support	2	2	
Safety Assessment/Quality Verification	2 (Improving)	2	

### III. PERFORMANCE ANALYSIS

#### A. Plant Operations

##### 1. Analysis

Evaluation of this functional area was based on the results of 10 routine inspections, an operational safety team inspection and 2 licensing examinations.

Enforcement history indicated a slight decline in performance. Five Severity Level IV violations and one Severity Level V violation were issued involving failures to follow procedures and to make required reports to the NRC. In addition, a violation reported in the Maintenance/Surveillance functional area involving multiple examples of procedural problems included two examples that fell within the Operations functional area.

Operational events reflected mixed performance. Reactor scram frequency was reduced from the previous assessment period. No scrams were attributed to personnel error. Response to off normal events was a strength as demonstrated by operator reactions to reactor core isolation cooling system and feedwater transients. Conversely, personnel errors resulting in reportable events increased from the previous assessment period. Following licensee corrective actions, improvements were noted toward the end of this assessment period.

Management effectiveness in ensuring quality, with one exception, was excellent. Senior plant management attention to control room activities, the control of infrequent evolutions by onshift management, and management assurance of interdepartment communications were strengths. Management decisions regarding plant operations were consistently conservative and a strength as evidenced by an extended maintenance outage after an electro-hydraulic control failure and a plant shutdown to repair a recirculation flow control valve hydraulic leak. Outage support and shutdown risk assessment actions were aggressive and proactive. For example, outage scheduling was made in accordance with shutdown risk guidelines and concrete barriers were placed around transmission towers and external transformers to prevent damage to them. In contrast, weaknesses exist in procedural adequacy and adherence. Although aggressive management actions resulted in progress in procedural adherence, similar management effectiveness was not evident with procedural adequacy.

Inconsistent housekeeping, which was noted as a weakness in the previous assessment period, improved but was still inconsistent throughout the plant, and required occasional management attention. Operations personnel also placed insufficient emphasis on the timely cleanup of turbine driven reactor feedpump oil leaks. During a recent Unit 1 refueling outage drywell closeout inspection the NRC noted that the amount of loose materials stored in the drywell had improved from the last assessment period. Housekeeping of items external to the plant and inside the protected area significantly improved. Overall housekeeping was considered good.

Training quality and effectiveness were good. Good control room decorum, quality pre-shift briefings, clear and effective crew communications, and awareness of plant status were consistently demonstrated during plant operation. Licensing exam passing rates improved from the previous assessment period. All candidates, including one reactor operator (RO) and eight senior reactor operators (SROs) passed an initial licensing examination. Of 12 ROs and 18 SROs (including 6 crews) taking a requalification examination, 1 RO, 1 SRO, and 1 crew failed. Problems noted during the examinations included procedural adherence and usage, system understanding, crew communications, and control board manipulation. Except for procedural adherence, the problems were not present during observations of daily plant operations.

Staffing levels were very good as evidenced by a fully staffed six-shift rotation. Day shift crews were augmented during unit outages by an extra shift control room engineer. Staff vacancies were quickly filled with experienced personnel. Overtime was well controlled and not excessive.

## 2. Performance Rating

Performance is rated Category 1 in this area. Performance was rated Category 1 in the previous assessment period.

## 3. Recommendations

None.

## B. Radiological Controls

### 1. Analysis

Evaluation of this functional area was based on the results of five inspections.

Enforcement history indicated a decline with four Severity Level IV violations issued.

Management effectiveness in ensuring quality and support for the radiological control program was mixed. Appropriate efforts continued to decontaminate several radwaste tank rooms and to effect corrective actions for radioactive liquid spills. Deficiencies in the ALARA (as-low-as-reasonably-achievable) program identified during the previous assessment period were corrected. The ALARA program, outage planning and scheduling, and interdepartmental communications improved. Dose saving initiatives included using temporary shielding and robotics, and hydrolazing of the reactor water cleanup system piping. A new computerized radiation work permit (RWP) system and use of digital alarming dosimeters (DADs) were also introduced to improve dose tracking and management. Chemistry continued to receive good management support as indicated by the station's water quality and by its performance in interlaboratory comparison programs. Aggressive management was seen in the significant reduction of the amount of solid radwaste stored onsite.

Despite considerable management effort, events involving unexpected intakes or exposures continued to occur. These events, which were similar to ones that occurred during the previous period, continued to reflect weaknesses in radiation protection (RP) staff and radworker performance and were the subject of a management meeting during the assessment period and an enforcement conference subsequent to the assessment period. Worker unfamiliarity with the newly implemented RWP and DAD systems also contributed to these problems.

The approach to the identification and resolution of technical issues was good. Station dose was reduced from the previous assessment period and was adequate at about 900 person-rem. Personnel contamination events remained low. Contamination controls were generally satisfactory and contamination is being reduced. However some areas containing safety related equipment remain contaminated, posing potential barriers for operations and maintenance personnel in the performance of their duties. Liquid and gaseous radiological effluents remained well within regulatory requirements. Two transportation events were identified that involved administrative errors in cask labeling and manifest activity listing.

Staffing, training, and overall qualifications were mixed. Personnel experience level continued to increase as a result of low turnover, and the experience of RP supervisors was broadened via special assignments. However several radiological control weaknesses identified this assessment period indicated possible radiation worker training and qualifications problems. The licensee has a good systems training course for RP technicians; but formal training on traversing incore probes was not included. The chemistry staff was competent and well qualified, with all 26 comparative analyses in agreement with NRC measurements. The Radiological Environmental Monitoring Program was well managed during this assessment period.

## 2. Performance Rating

Performance is rated Category 2 in this area. Performance was rated Category 2 in the previous assessment period.

## 3. Recommendations

None.

## C. Maintenance/Surveillance

### 1. Analysis

Evaluation of this functional area was based on 10 routine inspections, 1 operational safety team inspection, and 1 electrical distribution system functional inspection.

Enforcement history indicated a decline in performance with four Severity Level IV violations issued.

Management effectiveness in ensuring quality was good. Management's proactive approach and commitment to quality resulted in predictive and preventive maintenance program improvements, partial development of a reliability centered maintenance program, and post maintenance test process improvements. The significant reduction in the outstanding number of control room non-outage corrective work requests reflected a management initiative to maintain control room equipment. Corrective maintenance planning and prioritization were excellent. Teamwork was strongly encouraged and evident in most situations.

The approach to resolving technical issues from a safety stand point was mixed. There was a strong effort to communicate the importance of procedural adherence, resulting in some improvements. Additional actions were taken to address inadequate procedure quality. Resolution of chronic failures on the same piece of equipment such as reactor water cleanup isolation valve leakage was good; however, trending of similar failures on different equipment was lacking. For example, a good trending program would have identified the similar air start check valve failures on different emergency diesel generators. The total corrective, non-outage work request backlog was reduced over the period and was considered low and manageable. However, increased emphasis was needed to correct older equipment deficiencies. For example, a lack of proper maintenance resulted in the need for significant repair to fire doors at the end of the Unit 1 refueling outage. Two fires in turbine driven reactor feed pumps resulted from oil leaks into pipe insulation. In addition, oil leaked from all four turbine driven reactor feed pumps and soaked into fire retardant insulation in the auxiliary building. The licensee originally identified this problem in 1987 but failed to correct it. Some progress was being made in this area toward the end of the assessment period.

The maintenance and surveillance testing programs were generally well conducted. However, specific deficiencies were identified with undervoltage relay testing for loss of offsite power, 480 Vac breaker instantaneous trip testing, and safety-related relay calibration program scope. In addition, communications among workers and between workers and first line supervisors were weak at times, resulting in missed surveillances.

Maintenance department staffing, training, and qualifications were good. No events were attributable to excessive overtime and no safety related problems could be attributed to poor training. Training improvements included increased emphasis on motor-operated valve training for contract electricians and millwrights. The licensee also trained contract craft for the Unit 2 low-pressure turbine replacement. Inservice inspection activities were well controlled with sufficient staffing and expertise.

## 2. Performance Rating

Performance is rated Category 2 in this area. Performance was rated Category 2 improving in the previous assessment period.

## 3. Recommendations

None.

## D. Emergency Preparedness

### 1. Analysis

Evaluation of this functional area was based on the results of two inspections.

Enforcement history was excellent with no violations identified.

Management effectiveness in ensuring quality was excellent. Critiques of drills and exercises continued to be performed and included suggestions to enhance the emergency preparedness (EP) program. The licensee voluntarily implemented the Emergency Response Data System (ERDS), fully incorporated ERDS into its emergency plan, and promptly trained the appropriate personnel on ERDS. The emergency response facilities were maintained in a state of operational readiness, and the Emergency Operations Facility (EOF) was enhanced by the addition of an executive management center.

Identification and resolution of technical issues were very good. The corporate emergency planning staff completed a major revision to upgrade the Generic Station Emergency Plan (GSEP). The LaSalle Annex to the GSEP and the emergency plan implementing procedures were significantly revised to support this effort. The changes were performed in a systematic manner in accordance with approved administrative procedures.

Response to operational events was excellent. All four situations that warranted Unusual Event declarations were classified in a timely manner and appropriate notifications were made within the regulatory time limits. Self-evaluations of each declaration were thorough, timely, and completed in accordance with procedural requirements.

Performance during the annual exercise was good, with no exercise weaknesses identified. Challenging aspects of the exercise scenario included off-hours activation of the Emergency Response Organization (ERO), response to an unmonitored ground level release of radioactive material, and demonstration of assembly and accountability of personnel. Equipment mockups were used to provide realism to the exercise participants. Scenario events were properly classified and offsite notifications were made in a timely manner; however, some of the notifications were unclear and of poor quality because the communicator did not gather the information to be transmitted before beginning the notification. Another area of concern was the slow transfer of command and control from the Technical Support Center to the EOF; however, minimum staffing timeliness of the EOF was acceptable and command could have been transferred earlier had the licensee players so chosen. Both performance weaknesses identified during the previous assessment period were thoroughly addressed and corrected by upgrading training and revising procedures. During this assessment period, the performance in these areas was good.

The staffing level of the onsite EP group remained ample. Near the end of this assessment period, the EP Coordinator was promoted and the EP trainer was appointed as the new EP Coordinator. Staffing levels of the ERO remained good. At least three qualified personnel were available to fill all key positions in the onsite ERO.

The licensee has a good EP training program as demonstrated by the good exercise performance. All personnel assigned to the ERO received the appropriate training, as evidenced by training records. The significant weakness identified in the previous assessment period concerning the training of repair and damage control teams was thoroughly and appropriately addressed. All personnel interviewed were knowledgeable of their duties and responsibilities.

## 2. Performance Rating

Performance is rated Category 1 in this area. Performance was rated Category 2 in the previous assessment period.

## 3. Recommendations

None.

## E. Security

### 1. Analysis

Evaluation of this functional area was based on the results of three security inspections and one fitness-for-duty (FFD) inspection.

Enforcement related performance improved and was excellent with no violations identified.

Management effectiveness in ensuring the quality of the security program was excellent. An extensive audit of the licensee's security program was performed by security personnel from other Commonwealth Edison Company (CECo) nuclear stations. The corporate security office provided excellent support and guidance to site security management. Security management was diligent in coordinating and managing the security organization. Comprehensive monthly tracking and trending reports of critical security parameters assisted management in evaluating security system performance and resulted in timely corrective actions addressing identified weaknesses. The licensee implemented a timely and comprehensive program to heighten security awareness during the Persian Gulf conflict.

Security operational events were properly identified, analyzed and documented during the assessment period. The program for required reporting of security events was excellent. Required logs and reports were accurate and timely. Security related records were complete, well maintained, and readily available.

The approach to the identification and resolution of technical issues was excellent. Security management played an active role in the planning and implementation of security requirements associated with multiple site construction projects to include a new main access facility. In addition, the licensee modified and upgraded their existing perimeter intrusion detection system and closed circuit television cameras.

Security staffing was ample and effectively utilized. The security staff was experienced. A close and effective liaison between the security contractor site management and the licensee's security management positively contributed to the security organization's overall good performance. The security contractor management established a full-time auditor who was responsible for conducting self-assessments of security force performance. Also, excellent communication was maintained between senior station management and the licensee security staff.

Training and qualification for the security force was excellent. The security department effectively implemented a thorough, well thought-out contingency training program that used defensive strategy and armed response contingency drills to test armed response capabilities. Full scale drills resulted in significant improvements in security force contingency response. Additionally, the licensee purchased a computerized Firearm Training System (FATS) that was designed to improve the decision making capabilities of security personnel regarding the use of "Deadly Force." Use of the FATS program resulted in a new nuclear power plant scenario disc for training nuclear station security personnel. Security personnel were competent in the execution of their duties.

The FFD program satisfied the general performance objectives of 10 CFR Part 26.10. Program strengths included strong management support for the program and an ample number of personnel resources devoted to the corporate and site FFD staffs.

## 2. Performance Rating

Performance is rated Category 1 in this area. Performance was rated Category 2 improving during the previous assessment period.

## 3. Recommendations

None.

## F. Engineering/Technical Support

### 1. Analysis

Evaluation of this functional area was based on the results of 11 inspections, 3 operator licensing examinations, an electrical distribution system functional team inspection, and interactions between the licensee and NRR staff.

Enforcement history was excellent with only one violation being issued. Additionally, the number of licensee event reports in this area remained low and no programmatic weaknesses were indicated.

Management effectiveness in ensuring quality continued to be mixed. On the positive side, technical support to operations was good. The interface and coordination of engineering activities between corporate and site improved, which resulted in improved modification program implementation. The design attributes of the electrical distribution system were retrievable and verifiable. Proactive management was evidenced by the commitment of resources to an

accelerated motor-operated valve testing schedule that resulted in a well-executed test program and the generation of a lessons-learned document that was integrated into the planning for the next refueling outage. Also, written material supporting initial operator licensing examinations, such as lesson plans and training guides, was good.

Weaknesses in oversight of contractors resulted in the lack of sufficient design documentation to support the jet pump sensing line restraint design change, the use of nonconservative assumptions in the 250 Vdc short circuit and voltage drop calculations, and the degraded grid undervoltage relay calculation. In addition, weaknesses observed in the operator licensing area included a dynamic simulator scenario bank which did not exercise all emergency operating procedure (EOP) flow paths; and Job Performance Measures that at times were fragmented, limited in scope, and had excessive times for urgent actions.

Identification and resolution of technical issues was mixed. The onsite corporate engineering staff (ENC) support to the plant was good. For example, their use of a three dimensional computer-aided design system to analyze the replacement of the reactor water cleanup system isolation valves resulted in a reduction of installation problems. ENC was also instrumental in the planning of the condensate storage tanks cleaning (source term reduction), root cause analyses of turbine building equipment drain sump overflows, and the repair of the Unit 1A residual heat removal heat exchanger baffle plates. However, weaknesses in identification and resolution of design deficiencies resulted in the use of unacceptable current values during 480 Vac breaker testing, lack of calculations for potentially overloaded cable trays, and uncontrolled design documentation.

The staffing of the onsite design engineers, the system engineers, and the training departments was acceptable; however, a weakness was noted in system engineer assignments in that newly graduated engineers were assigned responsibility for systems without uniform job-specific training. Although the licensee had recognized the problem and developed a Station System Engineer Program, none of the present 39 system engineers fully met the program specifications. Two situations that could be attributed to the low experience level were the undersizing of a rotameter, used for measuring control rod drive flushing water flow and its failure with a subsequent condensate spill, and the slow resolution of occasional excess oxygen indications in the suppression pool gas volume. On the positive side, system engineers were involved in the prompt resolution of the Unit 1 turbine-driven reactor-feed pump control valve problem and the troubleshooting and repair of the Unit 1 Division 1 battery charger.

The training and qualification program effectiveness for licensed personnel was good. Initial operator candidates displayed good knowledge of systems, EOPs, leadership, and crew communications. In contrast, as in the previous SALP period, the requalification examinees displayed weaknesses in these same areas.

## 2. Performance Rating

Performance is rated Category 2 in this area. Performance was rated Category 2 during the previous assessment period.

### 3. Recommendations

None.

### G. Safety Assessment/Quality Verification

#### 1. Analysis

Evaluation of this functional area was based on the results of 11 routine inspections, 1 operational safety team inspection, and 1 electrical distribution system functional inspection (EDSFI). In addition, licensee requests for amendments, exemptions, or relief from regulatory requirements; responses to NRC generic communications; and other interactions with the NRC staff were considered.

Enforcement history was excellent.

Management effectiveness in ensuring quality was good. Management has been very involved in event analysis, corrective action determination, and onsite nuclear safety group (ONS) issue resolution. Offsite nuclear safety group meetings were timely and productive. Senior station management was familiar with corporate expectations and the communication of those goals to working level personnel was good. Overall, the management team is strong and dedicated, which resulted in good teamwork between departments throughout the station. Planning and coordination of work is good. Management effectiveness in ensuring quality in the surveillance area is also considered a strength. For example, management ensured prompt CECo wide distribution of the lessons learned from the EDSFI. Self-improvement programs, such as the "Omega" and "MAP" programs, were particularly good and demonstrated a management commitment to ALARA.

However some areas were identified that lacked management attention and effectiveness, such as EOP development and the implementation of the EOP verification and validation process. This led to the programmatic weaknesses which were identified during the EOP inspection. Many of these weaknesses had been previously identified at other CECo stations. Management was not fully effective concerning the issues of procedural adequacy and adherence, even though such management tools as the Nuclear Quality Programs (NQP) quarterly report and the corporate "Windows" program previously identified problems in this area.

The NQP organization is considered a strength and an excellent mechanism for cross site development. Daily bridge calls linking the corporate office and all the NQP organizations throughout CECo provide an excellent means of passing information among sites. Audit findings, such as the lack of adequate vendor manual control at the station, were constructive. In addition, the "TREND" program and the NQP Field Monitoring Reports (FMR) are considered strengths. The TREND program evaluates audit and FMR data collected and is used to identify organizational programmatic weaknesses throughout the station.

Appropriate levels of corporate and plant management were actively involved in licensing activities. Open, effective communication existed between the NRC and the licensee. The quality of licensing submittals was good, well supported, technically sound, and demonstrated a proactive approach to safety. Examples were the reactor core isolation cooling (RCIC) and high pressure core spray system full flow test line submittal and the anticipated-trip-without-scrum recirculation pump trip submittal.

Regulatory Assurance effectively ensured that Licensee Event Reports were comprehensive, accurate, and gave proper attention to corrective action and root cause analysis. However, weaknesses were noted in communications between Regulatory Assurance and the NQP and ONS groups as to NQP and ONS data and perceptions. Modification safety evaluations were well-documented and considered a strength, while safety evaluations for procedures often lacked the detailed descriptions necessary to support the conclusions.

The approach to identification and resolution of technical issues was mixed. For example, the assessment of Shutdown Risk for refueling outage L2R04 was excellent and demonstrated a proactive approach. Effective root cause evaluations were performed on the reactor water cleanup system hold pump issue and in resolution of the heating, ventilation, and air-conditioning problems. However, some root cause analyses and corrective actions were ineffective and led to recurring problems, specifically the diesel generator air dryer discharge check valve, the RCIC pump, and the control room emergency ventilation issues. Also, lessons learned from inspections at other sites were not always used. For example, the LaSalle EOP findings were similar to those found at Quad Cities a year earlier.

Staffing of review committees, quality assurance, and quality control was adequate. Resources were available to meet minimum quorum levels, to implement the audit schedule, and to witness work activity hold points. Training and qualification of the quality oversight groups were generally adequate, with a broad experience base maintained in the quality assurance and control groups.

## 2. Performance Rating

Performance is rated Category 2 in this area. Performance was rated Category 2 improving in the previous assessment period.

## 3. Recommendations

None.

#### IV. SUPPORTING DATA AND SUMMARIES

##### A. Licensee Activities

Significant outages and other major events are listed below.

1. On December 15, 1990, Unit 2 entered a forced outage due to tube leakage in the 23C low pressure feedwater heater.
2. On February 16, 1991, Unit 1 shut down for a refueling outage.
3. On May 9, 1991, Unit 1 synchronized to the grid following the refueling outage.
4. On May 19, 1991, Unit 1 scrambled as the result of low reactor water level caused by control failure of 1A turbine driven reactor feed pump.
5. On September 6, 1991, Unit 2 was manually scrambled following electro-hydraulic control leakage at the number 2 turbine control valve.
6. On September 24, 1991, Unit 2 scrambled as the result of an erroneous turbine electro-hydraulic control overspeed signal, causing the main turbine control valves to close.
7. On October 18, 1991, Unit 1 entered a forced outage due to reactor recirculation flow control valve problems.
8. On October 29, 1991, Unit 2 scrambled as the result of a turbine trip associated with high vibration readings on bearings.

##### B. Inspection Activities

The inspection reports discussed in the SALP are listed below:

Unit 1, Docket No. 50-373 Inspection Report Nos. 90025, 90026, and 91002 through 91024.

Unit 2, Docket No. 50-374 Inspection Report Nos. 90026, 90027, 91002 through 91010, and 91012 through 91024.

1. From January 28, through February 8, 1991, the NRC conducted a special emergency operating procedure inspection team inspection (Inspection Report Nos. 373/91003, 374/91003).
2. From October 7, through November 8, 1991, the NRC conducted a special electrical distribution system functional team inspection (Inspection Report Nos. 373/91019, 374/91019).
3. From November 18 through 22, 1991, the NRC conducted a special operational safety team inspection (Inspection Report Nos. 373/91023, 374/91023).