

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

The Cleveland Electric Illuminating Company

PERRY NUCLEAR GENERATING STATION, UNITS 1 AND 2

Docket Nos. 50-440; 50-441

Reports No. 50-440/83-04; 50-441/83-04

Assessment Period

October 1, 1981 through September 30, 1982

ERRATA SHEET

Facility: Perry Nuclear Generating Station, Units 1 and 2  
SALP Reports No. 50-440/83-04; 50-441/83-04

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Docket No. 50-440  
Docket No. 50-441

The Cleveland Electric Illuminating  
Company

ATTN: Murray R. Edelman  
Vice President  
Nuclear Group  
Post Office Box 5000  
Cleveland, OH 44101

Gentlemen:

This is to confirm the conversation between you and Mr. M. L. Gildner of the Region III staff scheduling January 14, 1983, at 1:00 p.m. as the date and time to discuss the Systematic Assessment of Licensee Performance (SALP) for the Perry Nuclear Generating Station. This meeting is to be held at your Corporate Office and members of the NRC staff will present the observations and findings of the SALP Board. Since this meeting is intended to be a forum for the mutual understanding of the issues and findings, you are encouraged to have appropriate representation at the meeting. In addition to yourself, we would suggest that Messrs. Davidson, Shuster, Riley, Kline, and Waldron attend the meeting.

The enclosed SALP Report which documents the findings of the SALP Board is for your review prior to the meeting. Subsequent to the meeting the SALP Report will be issued by the Regional Administrator.

Enclosure 1 to this letter summarizes the more significant findings identified in the SALP Board's evaluation of the Perry Nuclear Generating Station for the period of October 1, 1981 through September 30, 1982.

If you desire to make comments concerning our evaluation of your facility, they should be submitted to this office within twenty days after the meeting date; otherwise, it will be assumed that you have no comments.

The Cleveland Electric  
Illuminating Company

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In accordance with Section 2.790 of the NRC's "Rules of Practice" Part 2, Title 10, Code of Federal Regulations, a copy of this letter, the SALP Report, and your comments, if any, will be placed in the NRC's Public Document Room when the SALP Report is issued.

If you have any questions concerning the SALP Report we will be happy to discuss them with you.

Sincerely,

J. A. Hind, Chairman  
Region III SALP Board  
Director, Division of Emergency  
Preparedness and Operational  
Support

Enclosures:

1. Significant Findings
2. Perry SALP 3  
Report (5 copies)

cc w/encls:

Resident Inspector, RIII

## ENCLOSURE 1

### Summary of Significant Findings for Perry Nuclear Generating Station.

#### General Observations

The licensee's performance in the individual functional areas continued at a normal level, indicating adequate levels of management involvement and attention. The licensee's rating in the containment and other safety-related structures area has improved based on their ability to identify and promptly correct deficiencies. In the electrical area, the majority of NRC activity was invested in documenting inspection findings which were evaluated as part of the SALP 2 assessment. NRC inspection of licensee performance since the last assessment was limited to the extent that no rating was given. However, licensee and NRC attention in this area should be maintained at a high level. The radiological protection program was reviewed for the first time resulting in program staffing, development, and implementation concerns. The licensee's Quality Assurance Program appears to be adequate.

## I. INTRODUCTION

The NRC has established a program for the Systematic Assessment of Licensee Performance (SALP). The SALP is an integrated NRC Staff effort to collect available observations and data on a periodic basis and evaluate licensee performance based upon those observations. SALP is supplemental to normal regulatory processes used to insure compliance to the rules and regulations. SALP is intended primarily from a historical standpoint to be sufficiently diagnostic to provide a rational basis for allocating future NRC resources and to provide meaningful guidance to the licensee's management to promote quality and safety of plant construction and operation.

An NRC SALP Board, composed of the staff members listed below, met on December 7, 1982, to review the collection of performance observations and data to assess the licensee performance in accordance with the guidance in NRC Manual Chapter 0516, Systematic Assessment of Licensee Performance: a summary of the guidance and evaluation criteria is provided in Section II of this report.

This report is the SALP Board's assessment of the licensee safety performance at Perry Nuclear Generating Station, Units 1 and 2 during the period of October 1, 1981 through September 30, 1982.

The results of the SALP Board assessments in the selected functional areas were presented to the licensee at a meeting held on January 14, 1983.

The SALP Board for Perry consisted of the following attendees:

- J. A. Hind, Chairman SALP Board, Director, Division of Emergency Preparedness and Operational Support
- R. L. Spessard, Director, Division of Project and Resident Programs
- C. E. Norelius, Director, Division of Engineering and Technical Programs
- R. C. Knop, Chief, Projects Branch 1
- C. C. Williams, Chief, Plant Systems Section
- D. H. Danielson, Chief, Materials and Processes Section
- T. N. Tambling, Chief, Program Support Section
- M. L. Gildner, Resident Inspector, Perry
- J. J. Stefano, Licensing Project Manager, Perry
- P. R. Pelke, Project Inspector, Project Section 1A
- K. R. Naidu, Electrical Inspector, Plant Systems Section



## II. CRITERIA

The licensee performance is assessed in selected functional areas depending upon whether the facility is in a construction, pre-operational or operating phase. Each functional area normally represents areas significant to nuclear safety and the environment, and are normal programmatic areas. Some functional areas may not be assessed because of little or no licensee activities or lack of meaningful observations. Special areas may be added to highlight significant observation.

One or more of the following evaluation criteria were used to assess each functional area.

1. Management involvement in assuring quality
2. Approach to resolution of technical issues from safety standpoint
3. Responsiveness to NRC initiatives
4. Enforcement history
5. Reporting and analysis of reportable events
6. Staffing (including management)
7. Training effectiveness and qualification.

However, the SALP Board is not limited to these criteria and others may have been used where appropriate.

Based upon the SALP Board assessment each functional area evaluated is classified into one of three performance categories. The definition of these performance categories is:

Category 1. Reduced NRC attention may be appropriate. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used such that a high level of performance with respect to operational safety or construction is being achieved.

Category 2. NRC attention should be maintained at normal levels. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective such that satisfactory performance with respect to operational safety or construction is being achieved.

Category 3. Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used such that minimally satisfactory performance with respect to operational safety or construction is being achieved.



### III. SUMMARY OF RESULTS

<u>Functional Area Assessment</u>	<u>Category 1</u>	<u>Category 2</u>	<u>Category 3</u>
1. Soils and Foundations		Not rated	
2. Containment and other Safety-Related Structures	X		
3. Piping Systems and Supports		X	
4. Safety-Related Components		X	
5. Support Systems		X	
6. Electrical Power Supply and Distribution		Not rated	
7. Instrumentation and Control Systems		Not rated	
8. Licensing Activities	X		
9. Corrective Action and Reporting		X	
10. Radiological Protection		X	

#### IV. PERFORMANCE ANALYSES

##### 1. Soils and Foundations

Since these construction activities are complete, the licensee is not rated in this area. The licensee was not rated in the previous assessment period.

##### 2. Containment and Other Safety-Related Structures

###### a. Analysis

Portions of five inspections were performed, which included observation of containment dome and penetration welding, containment concrete placements, weld radiographs, and the installation of a personnel air lock and the Unit 2 polar crane.

During an inspection of weld radiographs, several Unit 1 containment vessel radiographs were identified as not being examined in accordance with ASME code requirements (this is one example of a noncompliance which is tabulated under Piping Systems and Supports). The licensee promptly completed a 100 percent re-review of all radiographs for both containment vessels. Potentially rejectable radiographs are being evaluated.

In general, licensee construction and inspection activities were accomplished according to approved procedures. The management controls used and the records and record control systems in place met requirements. The overall effectiveness of licensee personnel in complying with requirements was more than adequate. Licensee personnel were conscientious, cooperative, and responsive to NRC initiatives in this area.

Five 10 CFR 50.55(e) reports (CDRs) which were not vendor related were submitted in this area. Four of the five CDRs were related to the work activities of Newport News Industrial Corporation (NNICO), a site structural contractor. The fifth CDR related to incomplete fill in the biological shield wall concrete. One of the five CDRs resulted in the item of noncompliance discussed previously in this section. The CDRs were licensee identified and adequate corrective actions were taken.

One investigation was conducted in this area. An individual alleged that some wooden form spreaders were left in the concrete during the last pour of the Unit 1 reactor building wall. Two spacer blocks and what appeared to be one spreader were found imbedded in the Unit 2 shield wall. Since the licensee's post-placement inspection of the area had not been completed this item is not a significant NRC concern. A nonconformance report was prepared by the licensee to ensure that repairs would be made.

b. Conclusion

The licensee is rated Category 1 in this area. The licensee's timely corrective actions and responsiveness to NRC concerns warrants this rating. The licensee was rated Category 2 in the previous assessment period.

c. Board Recommendations

Because of the Category 1 rating and since containment and other structural activities are nearing completion, this area is a candidate for reduced NRC inspection effort.

3. Piping Systems and Supports

a. Analysis

Portions of five inspections were performed which included review of the piping suspension system installation and inspection program, QA inspection records and nonconformance reports, site small bore piping design activities, safety-related welds, shop weld radiographs, preservice inspection, and NDE personnel certifications and data.

During a review of the Unit 1 Recirculation System shop weld radiographs an item of noncompliance was identified. On one radiograph, the lead location markers were located in the area of interest which could mask a defect. The markers were placed outside the area of interest and the area was re-radiographed:

- Severity Level V violation - inadequate compliance with ASME Code requirements for radiographic examination (an additional example is discussed under Containment and Other Safety-Related Structures).

In the area of piping suspension systems, three items of noncompliance were identified:

- (1) Severity Level V violation - inadequate design control for seismic restraints installed on Emergency Service Water pumps.
- (2) Severity Level V violation - inadequate QC inspection of emergency service water pump restraints.
- (3) Severity Level V violation - inadequate document control on issuance of small bore piping design procedures.

A Management Meeting was held at the NRC Region III Office on December 5, 1981, to discuss licensee plans for upgrading their suspension systems installation and QC Inspection Program and their planned actions to resolve the identified deficiencies. A

later followup inspection concluded that the licensee's corrective measures were extensive and effective. The overall effectiveness and attitudes of licensee personnel in making improvements to the program are very good.

Three 10 CFR 50.55(e) reports were made in this area which were not vendor related. They involved lack of complete design information from GE for the stress analysis of the CRD hydraulic system; inadequate measures for traceability of valves; and problems in the welding of small socket welds. Corrective actions are underway in all three areas.

b. Conclusion

The licensee is rated Category 2 in this area. This is the same rating as the previous assessment period. Although deficiencies were noted in this area, the licensee's responsiveness and management involvement in instituting extensive and effective corrective actions warrants the Category 2 rating.

c. Board Recommendations

None.

4. Safety-Related Components

a. Analysis

Portions of three inspections were performed in this area. They included installation of the Unit 2 reactor vessel internals, assembly of the emergency diesel generators, and welding activities for attaching a valve to a section of pipe. Management and record controls were adequate. Licensee personnel were trained and qualified and installations were in accordance with approved procedures. Proper preplacement inspections of equipment and mounting locations were made. Inprocess QC coverage and inspection were observed and appeared to be adequate. Documentation of events was made and included in equipment document packages.

b. Conclusion

The licensee is rated Category 2 in this area. This is the same rating as the previous assessment period and is based on a limited level of activity in which no significant strengths or weaknesses were identified.

c. Board Recommendations

None.

5. Support Systems

a. Analysis

Portions of two inspections were performed which addressed fire suppression in the area of the control rooms and Technical Support Center. Local fire officials identified several apparent items of noncompliance with the Ohio Building and Fire Codes. The problems currently appear to be resolved but have not been inspected in detail.

b. Conclusion

The licensee is rated Category 2 in this area. This is the same rating as the previous assessment period and is based on a limited level of activity in which no significant strengths or weaknesses were identified.

c. Board Recommendations

None.

6. Electrical Power Supply and Distribution

a. Analysis

One investigation and portions of two inspections were conducted in this area. Included were observation of cable pulling activities, assembly of the emergency diesel generators, hardware procurement, drawing control, cable tray and hanger installation, and installed switchgear.

One 10 CFR 50.55(e) (CDR) report was made in this area which was not vendor related. Inspection by the licensee's quality group found welding and fitup problems in the cable tray and conduit support system. Welds will be repaired as necessary pending engineering evaluation.

An investigation into allegations pertaining to the electrical contractor (L.K. Comstock Company) and CEI was conducted during the period October 27, 1981, through March 19, 1982. The scope of the investigation was extended beyond the initial allegations when deficiencies were identified.

Nine items of noncompliance were identified:

- (1) Severity Level IV violation - inadequate review of drawings for compliance with AWS D1.1 Code requirements;
- (2) Severity Level IV violation - inadequate procedures and failure to follow procedures;
- (3) Severity Level V violation - inadequate document control;



- (4) Severity Level IV violation - inadequate material control;
- (5) Severity Level IV violation - inadequate inspection;
- (6) Severity Level V violation - inadequate identification and control of nonconforming items;
- (7) Severity Level IV violation - installed conduit not in accordance with specifications;
- (8) Severity Level V violation - failure to promptly identify and correct nonconformances;
- (9) Severity Level IV violation - inadequate storage of the RCIC and RHR instrument panels.

The initial phase of the investigation resulted in the issuance of a Confirmation of Action Letter on November 18, 1981. This letter confirmed the licensee's action to suspend the pulling of safety-related cables by the electrical contractor pending resolution of the identified deficiencies. The licensee was responsive to the Confirmation of Action Letter and initiated corrective action. On January 7, 1982, safety-related cable pulling activities were allowed to resume. However, continuing investigation and inspections identified other problem areas. These concerns were expressed in a Management meeting held on February 10, 1982.

In response to NRC concerns expressed in the management meeting, the licensee initiated an overall corrective action program as discussed in a letter dated February 18, 1982. The corrective action program included a review of all onsite safety related contractors. The licensee's assessment resulted in the determination that a significant QA Program breakdown had not occurred. The corrective actions resulting from the assessment have not yet been completely implemented by the licensee or fully reviewed by the NRC.

The NRC SALP 2 Board met on February 19 and March 22, 1982, and considered the findings of this investigation when rating this area Category 3 in the SALP 2 assessment. An enforcement conference between Region III and CEI was held on June 2, 1982, to discuss the investigation findings.

The NRC concluded in the Investigation Report dated September 27, 1982, that the items of noncompliance did not represent a significant breakdown in the electrical contractor's Quality Assurance Program. The licensee responded to the investigation findings in a letter dated October 27, 1982. During a followup inspection conducted subsequent to this SALP assessment (November 1982), an initial review and verification of the licensee's response was made. This review is incomplete; however, apparent inadequacies regarding the licensee's corrective actions were identified. The licensee committed to examine this area further and to submit supplemental responses.

b. Conclusion

All of the investigation findings were factored into the Category 3 rating of the previous SALP 2 assessment. Review of the licensee's corrective actions with regard to these findings has not yet been completed. Therefore, the licensee is not rated in this area for the SALP 3 assessment period.

c. Board Recommendations

NR inspection effort and licensee attention in this area should be increased. The licensee is encouraged to accelerate resolution of all issues.

7. Instrumentation and Control Systems

No inspections were performed. The licensee is not rated in this area. The licensee was rated Category 2 in the previous assessment period.

8. Licensing Activities

a. Analysis

The principal activities addressed during the appraisal period are related to the licensee's management involvement, approach to resolution of technical issues, and responsiveness during the NRC staff's detailed review of the Perry FSAR and Environmental Report, and the licensee's performance in providing input and additional information for the staff's preparation of the Perry SER (issued in May 1982); Supplement No. 1 to the SER (issued in August 1982); and the Final Environmental Statement (issued in August 1982). Several meetings were held with the licensee in Bethesda and at the Perry site for this purpose. Correspondence, for the most part, was limited to this work. In February 1982, the licensee informed the staff of a 6-month slippage in the Unit 1 fuel load date to November 1983. In late July 1982, the licensee provided a revised construction schedule (CPPR change) consistent with meeting the revised fuel load date, which is currently under evaluation.

The licensee's responses to staff technical questions and data requests, with few exceptions, have been timely, accurate and complete. The licensee's staff members consistently demonstrated an excellent working knowledge of applicable regulations, guides, standards and generic issues pertaining to their plant. This was evidenced by the licensee's positive attitude and responsiveness to the NRC staff in addressing unresolved issues cited in the SER, and by their active participation as a member of Licensing Review Group II, established to address generic issues pertaining to BWR/6 plants. The licensee's staff is always prepared to meet with the NRC staff in a reasonably short time frame to obtain a clearer understanding in responding to NRC data needs, and has



been successful by their preparedness, diligence and aggressiveness in helping to expedite SER issue resolution in a timely manner. During meetings, the licensee has continually demonstrated a thorough understanding of the technical details, and has effectively utilized the services of its architect engineer, GE and other contractors to make such meetings productive. The licensee's performance at the ACRS subcommittee and full committee meetings was most commendable, and they were quick to respond satisfactorily to questions raised by committee members. The licensee is fully committed to obtain an operating license for Unit 1 in November 1983 and has, with few exceptions, met its commitments in providing information to the NRC staff for resolving SER issues toward that objective.

b. Conclusion

The licensee is characterized as knowledgeable, cooperative, and technically competent and is rated Category 1 in this area. This is the same rating as the previous assessment period.

c. Board Recommendations

None.

9. Quality Assurance Activities

a. Analysis

A special team construction assessment was conducted to assess the adequacy of certain aspects of Construction Quality Assurance activities. The scope of this assessment included audits of the Quality Assurance Program interfaces and overview, corrective action systems, design change control, material traceability of installed structures and components, inprocess inspections, and effectiveness of quality control inspectors. One item of non-compliance was identified:

- Severity Level IV - violation with ten examples in which the licensee and site contractors were observed not properly following procedures.

This item of noncompliance did not appear to be the result of a programmatic failure of the Quality Assurance Program.

In addition, the assessment found that procedural modifications and clarifications are desirable to strengthen the licensee's program for design control.

Portions of twelve inspections were performed which included followup on unresolved items, 10 CFR 50.55(e) reports, IE Bulletins, items of noncompliance, and implementation of the corrective action program. In general, the licensee takes appropriate corrective action on NRC identified items and submits required reports and responses in a timely manner. As discussed

in Paragraph V.B.1, the licensee has continued an aggressive construction deficiency reporting program. Portions of the corrective action system were specifically reviewed during the Special Team Inspection and determined to be in compliance with NRC requirements.

b. Conclusion

The licensee is rated Category 2 in this area. Quality Assurance activities at Perry appear to be satisfactory. The licensee was not rated in the previous assessment period.

c. Board Recommendations

NRC attention should be maintained at the present level.

10. Radiological Protection

a. Analysis

One inspection consisting of an initial management meeting and initial preoperational inspection of the radiation protection program was conducted during the assessment period. No items of noncompliance were noted. Although development and implementation of the radiological protection program is progressing, additional efforts appear to be needed in this area to ensure satisfactory completion by the scheduled fuel load date. An additional concern is that the proposed staffing levels may not include sufficient professional/technical positions to support a quality operational radiological program.

b. Conclusion

The licensee is rated Category 2 in this area. The licensee was not rated in the previous assessment.

c. Board Recommendations

Management attention should be directed towards strengthening the staffing and preoperational radiological protection program.



B. Licensee Report Data

1. Construction Deficiency Reports (CDRs)

Twenty-six CDRs were submitted by the licensee under the requirements of 10 CFR 50.55(e). Three were retracted and 14 were vendor related. The balance of these items appeared to be under the licensee's control and are discussed under the appropriate functional area in Section IV of this report. The number of 10 CFR 50.55(e) reports per month for SALP Periods I, II, and III is 0.7, 1.8, and 2.2, respectively. This indicates the responsiveness of the licensee in adopting a conservative approach toward reporting per 10 CFR 50.55(e). The actual number of construction deficiencies is not unusual for a plant in this stage of construction. Written reports are submitted by established due dates and extensions are requested as required. The licensee's threshold for reporting is satisfactory.

2. Part 21 Reports

No 10 CFR 21 reports were submitted by the licensee during this evaluation period.

C. Licensee Activities

Unit 1, Unit 2, and common facilities were reported by the licensee as being 82%, 46%, and 93% complete, respectively, as of September 1982. The project test program (system verification and software support) was reported as 36% complete.

Selected Milestones Occurring During this SALP Period

November 20, 1981	Unit 1 Main Turbine Generator placed on turning gear
December 15, 1981	Unit 1 Reactor Building fuel pool walls and floors completed
February 9, 1982	Unit 2 Interbus Transformers installed
May 6, 1982	Started construction of the Emergency Operations Facility and Training Center
May 28, 1982	Unit 1 Diesel Generators set
June 3, 1982	Issuance of the Perry Safety Evaluation Report
June 25, 1982	Unit 1 Plant Computer installation completed
June 28-29, 1982	ACRS Subcommittee meeting

July 8, 1982	ACRS Full Committee meeting which lead to a recommendation for a full power license pending resolution of SER unresolved items
July 23, 1982	Unit 2 Reactor Pressure Vessel internals and head installed
July 31, 1982	Unit 2 Polar Crane installed
August 7, 1982	Unit 2 Containment Dome set in place
August 13, 1982	Unit 2 Diesel Generators set
August 18, 1982	Issuance of Supplement No. 1 to the Perry SER
August 27, 1982	Issuance of the Perry Final Environmental Statement
September 30, 1982	Unit 1 Suppression Pool floor plates repair completed.

D. Inspection Activities

During this assessment period, a total of fifteen inspections were conducted on the Perry project. One special team assessment was performed to assess the adequacy of certain aspects of the Quality Assurance/construction activities. The results of the assessment team's review are discussed in Section IV of this report.

E. Investigations and allegations Review

Numerous allegations were received during this period. All were reviewed and dispositioned by the NRC. Several were substantiated and are documented in the following investigations:

1. Investigation concerning an allegation that some wooden form spreaders were left in the concrete during the last pour of the Unit 1 reactor building (IE Report Nos. 50-440/81-18 and 50-441/81-18).
2. Investigation into allegations pertaining to the L.K. Comstock Company (electrical subcontractor) and the Cleveland Electric Illuminating Company (IE Report Nos. 50-440/81-19 and 50-441/81-19).

These investigations are discussed in Section IV.

F. Escalated Enforcement Action

1. Civil Penalties

None.

2. Orders

None.

G. Administrative Actions

1. Confirmatory Action Letters

A Confirmation of Action Letter was issued on November 18, 1981, confirming the following licensee actions:

- a. Discontinue all safety-related cable pulling activities by L.K. Comstock Company.
- b. Obtain NRC Region III concurrence prior to restarting safety-related cable pulling activities.
- c. Concurrent with restart of cable pulling activities, implement an appropriate QC review of L.K. Comstock activities until confidence in Comstock's performance is achieved.

2. Management Conferences

The following management meetings were conducted during this period:

- |                   |  |
|-------------------|--|
| December 15, 1981 | Management meeting to discuss the upgrading of the licensee's piping suspension systems installation and inspection program, and the licensee's planned actions relative to the resolution of problem areas identified (IE Report Nos. 50-440/81-16 and 50-441/81-16). |
| February 10, 1982 | Management meeting to discuss quality assurance problems identified during the investigation of allegations made to Region III concerning the QA activities of the L.K. Comstock Company (IE Report Nos. 50-440/81-19 and 50-441/81-19).                               |
| April 2, 1982     | Management meeting to present and discuss the results of the SALP II evaluation (IE Report Nos. 50-440/82-08 and 50-441/82-07).  |
| June 2, 1982      | An enforcement conference to discuss the findings of the investigation of work performed by L.K. Comstock (IE Report Nos. 50-440/81-19 and 50-441/81-19).  |