

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

Illinois Power Company

CLINTON NUCLEAR GENERATING STATION

Docket No. 50-461

Report No. 50-461/82-11

Assessment Period

July 1, 1980 through September 30, 1981

April 1982

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ERRATA SHEET

Facility: Clinton Nuclear Generating Station  
SALP Report No. 50-461/82-11

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Docket No. 50-461

Illinois Power Company  
ATTN: Mr. W. C. Gerstner  
Executive Vice President  
500 South 27th Street  
Decatur, IL 62525

Gentlemen:

This is to confirm the conversation of May 14, 1982, between Mr. J. McHood and Mr. R. Walker of the Region III staff scheduling June 8, 1982 at 1:00 p.m. as the date and time to discuss the Systematic Assessment of Licensee Performance (SALP) for the Clinton Nuclear Generating Station. This meeting is to be held at the Region III office in Glen Ellyn, Illinois.

Mr. James G. Keppler, the Regional Administrator, 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. As a minimum we would suggest Mr. J. Kelley, President, Messrs. W. Gerstner, Executive Vice President, L. Koch, Vice President, J. McHood, Vice President, J. Geier, Manager of Engineering, and A. Budnick, Director of QA, and managers for the various functional areas where problems have been identified.

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 Clinton Nuclear Generating Station for the period of July 1, 1980 to September 30, 1981.

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.

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.

The comments requested by this letter are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-5111.

If you have any questions concerning the SALP Report for the Clinton Nuclear Generating Station we will be happy to discuss them with you.

Sincerely,

J. A. Hind, Director  
Division of Emergency Preparedness  
and Operational Support

Enclosures:

1. Significant Findings
2. Clinton SALP Report  
(5 copies)

cc w/encls:  
Resident Inspector, RIII

## Enclosure 1

### General

During the July 1, 1980 through September 30, 1981, evaluation period licensee activity was limited to the continued construction of Unit 1. Unit 2 remained indefinitely postponed, and there was no activity of safety significance.

The content of the SALP 2 Report was largely controlled by issues concerning the adequacy of the construction Quality Assurance Program. Performance weaknesses were observed in several functional areas. Careful evaluation of poor performance trends in various functional areas (Piping and Supports, Electrical, and Quality Assurance in particular) indicated that weaknesses in the QA aspect of the project's management are a common factor in many regulatory issues which surfaced prior to, during, and subsequent to the evaluation period. Because of the different schedules for performance of the bulk of work in various disciplines (civil, piping, mechanical, electrical, etc.), issues resulting from QA/QC Program weaknesses tend to surface at different times in the project history. The most important message conveyed in the SALP 2 Report is that a reassessment of the QA and QC Programs should be accomplished; beginning with the overall commitment of upper level licensee and construction management, and proceeding thru all levels of management, supervision, and employees.

#### 1. Quality Assurance

No formal QA assessment was conducted during the period, however the number and nature of quality related issues which surfaced as a result of the inspection program in the other functional areas, in addition to licensee reluctance to take adequate and lasting corrective actions in response to identified quality issues, resulted in a poor performance in this area. It appears that the poor performance trend in this area was caused, in part, by a lack of Quality Assurance experience in the project organization's management.

#### 2. Piping Systems and Supports

Performance was assessed as marginally adequate (Category 3) in this area as a result of the poor enforcement history early in the evaluation period, and the need to stop work on all large bore safety related piping supports because of inadequacies in design, fabrication installation, documentation, and quality controls.

#### 3. Electrical Power and Distribution

The poor performance in this area was the result of ongoing concerns and findings of inadequacies in the electrical construction area. These concerns and findings culminated in a Stop Work Order (SWO) which was issued after the appraisal period, and which stopped safety related electrical work.

4. Containment and Other Safety Related Structures

Performance in this area was rated as adequate (Category 2). Observations by the NRC staff which inspected the facility; however, caused concerns that licensee reluctance to respond to conditions similar to those which preceded major issues in other areas are adversely affecting construction quality. Accordingly, increased NRC and licensee attention is recommended.

5. Safety Related Components

Overall performance was rated as adequate (Category 2), however, the concerns described in 4. above also apply to this area.

6. Support Systems

Despite the poor enforcement history in the areas of HVAC (which surfaced early in the evaluation period) overall safety performance was assessed as adequate (Category 2). Concerns similar to those described in 4. above apply in this area also.

7. Instrumentation and Controls

A performance Category 2 rating was assigned as a result of observations limited to the PGCC installation effort. Inspection effort in this area should increase as the major project scope of work is mobilized in the future.

8. Licensing Activities

A performance rating of Category 2 (adequate) was assigned based on limited experience with the Operating License Review process. Licensee involvement in generic issues and strong control over licensing activities were noted as licensee strengths.

9. Soils and Foundations

Performance was rated as Category 2 (adequate). The majority of work in this area was completed prior to the evaluation period. The need to disposition the 10 CFR 50.55(e) report which addresses an analytical error in the seismic analysis was raised. The concern is that the implementation of hardware backfits (should they become necessary) will become increasingly difficult as construction is finalized.

I. INTRODUCTION

The NRC has established a program for 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 them. SALP is supplemental to the normal regulatory processes used to insure compliance with the rules and regulations. It is intended to be sufficiently diagnostic to provide a basis for: (1) future allocation of NRC resources, and (2) providing licensee management with meaningful guidance for promoting quality and safety in plant construction and operation.

A NRC SALP Board composed of managers and inspectors who are knowledgeable of Illinois Power Company (IPC) activities at the Clinton Nuclear Station met on April 8, 1982, to review the collection of performance observations and data, and assess the performance of Illinois Power Company (the licensee) in selected functional areas.

This SALP Report is the Board's assessment of Illinois Power's safety performance at the Clinton Station during the period of July 1, 1980 through September 30, 1981. No assessment in regard to Unit 2 was made because of the lack of activity which is important to safety.

The results of the SALP Board assessments in the selected functional areas were presented to the licensee at a meeting held on June 8, 1982, at the Region III Offices.



## 11. CRITERIA

Licensee performance is assessed in selected functional areas depending upon whether the facility is in a construction, preoperational or operating phase. Each functional area normally represents areas important to nuclear safety or 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 observations.

One or more of the following evaluation criteria were used to assess each function 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 categories of criteria and others are applied when 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. Quality Assurance			X
2. Piping Systems and Supports			X
3. Electrical Power and Distribution	This area not rated <sup>1</sup>		
4. Containment and other Safety Related Systems		X	
5. Safety Related Components		X	
6. Support Systems		X	
7. Instrumentation and Control Systems		X	
8. Licensing Activities		X	
9. Soils and Foundations		X	

<sup>1</sup> This area was not rated because the SALP process assumes that licensee performance level is at least minimally satisfactory. The licensee performance did not meet this standard, in that work was stopped in the electrical area to correct significant quality assurance deficiencies.

#### IV. PERFORMANCE ANALYSES

##### 1. Quality Assurance

###### a. Analysis

Licensee Quality Assurance (QA) and related Quality Control (QC) activities were observed during portions of twenty-seven inspections by resident and regional inspectors. No formal appraisal of the QA Program was conducted during the appraisal period. As a result of the inspections of the Quality aspects of the twenty-seven inspections described above five noncompliances with NRC requirements were identified which are germane to this functional area:

- (1) Contrary to licensee commitments and procedures, and 10 CFR 50, B, VI, the interaction analysis program was not implemented (Severity Level IV).
- (2) Contrary to 10 CFR 50, B, XVI and licensee QA Manual prompt and effective action was not taken to prevent repetition of adverse findings (Severity Level IV).
- (3) Contrary to PSAR Section 17.1.17.1 and 10 CFR 50, B, XVII nonconformance reports, adverse audit findings, etc. were not reviewed for reportability per 10 CFR 50.55(e) (Severity Level V).
- (4) Contrary to ASME B&PV Code S-74, Art. NA-4000 and PSAR 17.1.9.3 measures were not established to adequately control welding (Severity Level V).
- (5) Contrary to procedures and 10 CFR 50, B, XIII safety related materials were not stored or segregated properly (Severity Level V).

The above enforcement history does not portray the total picture in regard to performance in this area. Other functional area analyses (Paragraphs IV. 2, "Piping Systems and Supports," IV. 3 "Electrical Power and Distribution," and IV. 6, "Support Systems") describe instances where continuing and recurring QA and QC Program inadequacies resulted in safety issues. The quality aspects of functional areas were inspected programmatically during routine inspections and especially during the team inspection of February 1981. An evaluation of overall licensee quality program performance, which considers all of the above sources of information, in addition to the results of the SALP 1 appraisal and the observations of inspectors involved in the project, raised serious concerns of the capability of the QC and QA Programs to provide their intended objective of assuring that construction progresses with adequate quality to ensure safe operation. The frequency and repetitive nature of QA Program breakdowns in various functional areas is considered

indicative of management inattention to Quality Assurance requirements, and lack of understanding of the role and importance of Quality Assurance.

Concerns were expressed by the regional inspectors that quality program problems similar to those expressed in this functional area evaluation are affecting performance in the areas of "Safety Related Components" (Paragraph IV. 5), and "Containment and Other Safety Related Structures" (Paragraph IV. 4).

Ongoing observations by other Region III personnel in this and other functional areas, however, characterized long term licensee performance trends to be deteriorating. Specific concerns are: (1) the increasing number of problems and safety issues identified, (2) an increasing tendency of licensee management to be argumentative in responding to safety issues, (3) reluctance to implement changes to improve upon observed safety or quality issues, (4) the tendency of the licensee and his contractors to initiate corrective actions to identified concerns which correct specific problems but not their root causes, and (5) that the licensee's attitude toward quality and safety is one of satisfying minimum code requirements or his interpretation of them.

Observations by NRC inspectors indicated that QA concerns noted in the SALP 1 Report were not being addressed by the licensee. These concerns were corroborated during the team inspection conducted in February of 1981. Significant concerns were identified in the areas of piping supports and electrical equipment installation. Numerous allegations of QA Program weaknesses were also received during the team inspection. The thrust of these allegations, and other allegations received during the evaluation period, centered upon (1) licensee and contractor practices which prevent the QA and QC Programs from influencing construction activities, (2) that observed findings were going uncorrected or inadequately corrected, and (3) that the effectiveness of QA and QC inspectors was being reduced by intimidation and harassment. Additional allegations were received that certain QC inspectors were given answers to certification exams. Allegations are also discussed in Paragraph V. E. of this report.

During this period of time the licensee did take prompt and effective corrective action to correct the concerns of improprieties in the certification of QC inspectors.

A Confirmation of Action Letter (CAL or IAL) was issued by the Region on February 13, 1981, and was followed by a second CAL on March 5, 1981. The CAL's recognized a Stop Work Order which the licensee issued because of adverse team inspection findings in the piping support area. CAL details are discussed in Paragraph V. E of this report. Although

licensee corrective actions were sufficiently adequate to allow work to resume in the area of piping supports, they were too limited in scope and depth to correct overall program weaknesses.

During the latter portion of the evaluation period, and after the evaluation period, additional allegations of programmatic QA deficiencies were received. As a result of inspections and investigations into these allegations the licensee was required to stop all safety related electrical work on January 19, 1982; pending resolution of QA deficiencies in the electrical area. This action was documented in a CAL issued by the region on January 27, 1982. A meeting was held with the licensee on January 29, 1982, to discuss the new allegations of improper electrical QA and QA/QC inspector intimidation. In addition to the allegations licensee management and NRC management from Region III and the Office of Nuclear Reactor Regulation discussed:

- (1) The current emphasis being placed upon QA by the Congress and the Commission, and experiences and observations which demonstrate that the licensee does not conform to Quality Assurance requirements.
- (2) Fragmentation of QA responsibilities throughout many licensee departments will continue to dilute QA efforts and result in continuing program breakdowns.
- (3) The QA organization remains insufficiently involved in evaluating and determining the acceptability of test results.
- (4) The QA Program remains separated from areas where involvement is required, including:
  - . Inservice Inspections,
  - . Corrective actions in response to noncompliances and nonconforming conditions,
  - . The identification and control of deviations and nonconforming conditions, and,
  - . The control of special processes (such as welding).
- (5) The QA personnel still lack adequate involvement in regard to the review of licensee and contractor QA and QC procedures, and other project controls.
- (6) The current and planned (operational) QA and QC staff sizes are not sufficient to provide for adequate program implementation.

Subsequent to the meeting the licensee submitted a proposed plan for staffing, reorganizing, and restructuring the QA and QC organizations to resolve the observed deficiencies.

b. Conclusion

Considering the above analysis, and QA concerns expressed in other functional areas, licensee performance is rated Category 3 in this area. It appears the licensee was only minimally dedicated to and lacks experience in quality assurance. Management has been reluctant to change its attitude towards quality assurance and initiate significant improvements beyond a marginally acceptable level. There were recurring instances of program weaknesses going uncorrected until they surfaced as regulatory issues. Staffing levels were minimal. Staff reporting responsibility and authority were fragmented and ineffectual diluting quality assurance efforts.

c. Board Recommendations

The Board notes that the licensee has increased his attention in this area subsequent to the assessment period. The NRC inspection program should focus on the effectiveness of licensee efforts to correct the deficiencies noted. The licensee should also consider a reassessment of their overall philosophy and approach to QA in both the construction and future operation of the station. It should be noted that the existence of an acceptable QA Program on paper is not acceptable in itself. The program must be uniformly implemented in such a way that its day to day and overall activities provide the intended function of assuring and documenting the quality of construction and operations. Licensee management must emphasize program implementation.

2. Piping Systems and Supports

a. Analysis

Portions of sixteen inspections were conducted of licensee activities in this area (including the February 1981 team inspection), which identified seven items of noncompliance with NRC requirements (five Severity Level IV, and two infractions prior to implementation of the new enforcement policy):

- (1) Infraction - Floor drain piping routed over, and in close proximity to seismic Category 1 cable trays.
- (2) Infraction - completed travelers did not document weld material heat and lot numbers or welder identification.

- (3) Severity Level IV - Procedures for installing hangers, snubbers, and seismic guides did not contain applicable acceptance criteria.
- (4) Severity Level IV - Design requirements for installation of pipe hangers and guard pipes were not followed.
- (5) Severity Level IV - Inadequate inspection program for pipe hangers and pipe penetration seismic guides
- (6) Severity Level IV - Effective audits of pipe hanger installation were not performed.
- (7) Severity Level IV - Standards and quality requirements for pipe suspension components were not included in design documents.

The results of inspections identified numerous deficiencies in quality assurance in this area, especially in large bore piping suspension. Problems included inadequate installation and inspection procedures, inadequacies of site QA audits, deficiencies in AE activities, weakness in problem identification and resolution, and lack of timeliness in achieving corrective action. Incorrect installation of seismic shoes inside of containment guard pipes was also observed. The licensee issued a Stop Work Order for affected activities on February 13, 1981. A Confirmation of Action Letter (CAL) was issued on February 18, 1981, which acknowledged the Stop Work Order, and which required the licensee to upgrade their QA/QC program, and revise and implement revisions to deficient portions of work in this area. Prior to returning to normal work activities personnel training was required to enhance the implementation of program changes, and two separate trials of the new program with small samples of work were conducted. The licensee was allowed to lift the Stop Work Order on June 6, 1981, following acceptable inspection results of the second trial program.

The observations of activities in this area support concerns raised by the NRC in regard to the overall effectiveness and attitude of licensee management. Construction activities were accomplished without proper regard or attention to quality and nuclear safety objectives, and that licensee management was reluctant to create and support an independent, strong, and effective QA/QC organization. The effectiveness of the QA and QC organization appeared to be diluted by fragmentation of reporting responsibilities and excessive influence by organizational functions responsible for timeliness and cost of construction progress. These problems are also discussed in the functional areas for Quality Assurance and Electrical Power and Distribution.

b. Conclusion

Licensee performance is rated Category 3 in this area.

c. Board Recommendations

Continued increased NRC and licensee management attention is recommended in this area to ensure that performance continues at an acceptable level. Concerns are noted in regard to the licensee's failure to respond to NRC concerns presented in the previous SALP meeting, the results of recent investigations into deficiencies in the QA organization, and ineffectiveness of QA/QC personnel as a result of possible intimidation (see Paragraph 1, "Quality Assurance").

3. Electrical Power and Distribution

a. Analysis

Licensee activities in this area were observed during all or significant portions of eleven inspections, including the special team inspection conducted in February of 1981. A total of six noncompliances with NRC requirements resulted:

- (1) QA Program requirements not applied to preparation and review of as-built electrical hanger drawings (Severity Level IV).
- (2) Failure to transfer steel identification during support fabrication (Severity Level V).
- (3) Failure to follow inspection and receiving procedures for electrical penetrations (Severity Level V).
- (4) Inadequate procedures for cable installation (Severity Level V).
- (5) Cables damaged because of inadequate physical protection (Severity Level V).
- (6) Failure to use latest hanger drawing revisions (Severity Level VI).

A review of the noncompliance history, the results of formal and informal interviews with site personnel, the results of formal and informal meetings with management resulting from inspector observations and allegations, and inspector observations resulted in increasing concerns that:

- (1) The QA and QC organizations were excessively influenced by portions of the organization responsible for the completion of electrical work, and,



- (2) Site management's treatment of QA and QC inspectors undermined NRC access to the facts and circumstances causing the programmatic problems, and
- (3) Electrical program weaknesses which were identified by the NRC and allegers when the major site electrical construction effort was mobilized early in the evaluation period were going uncorrected, and negatively affecting quality as work progressed, and,
- (4) That long term concerns of the adequacy of portions of the QA and QC programs which were addressed in the SALP 1 Report were continuing or becoming worse in the electrical construction area.

The NRC instituted an additional investigation into QA and QC program effectiveness in January of 1982 as a result of (1) the concerns described above, (2) additional allegations of poor electrical construction practices resulting in work of inadequate quality, and (3) additional allegations of weaknesses and improprieties in the QA and QC programs which resulted in inadequate corrective actions. The adverse findings of this investigation are included in this report because of their significance even though the investigation was after the evaluation period. The investigation findings resulted in:

- (1) The licensee issuing a Stop Work Order on January 19, 1982, which stopped all work in the safety-related electrical area until observed deficiencies in the electrical area and related QA and QC activities could be corrected.
- (2) A management meeting was held on January 29, 1982, between Messrs. D. Eisenhut, J. Keppler, and other members of the NRC Region III and NRR staffs, and Messrs. W. Kelley, W. Gerstner and other Illinois Power Company representatives. NRC concerns of continuing QA programmatic weaknesses, and additional concerns over the adequacy of the licensee's plans and organization for site QA during the operating phase were presented and discussed with top licensee management.
- (3) The identification of significant programmatic weakness in the electrical and electrical QA areas which are currently under consideration for escalated enforcement action.

The findings focused upon electrical construction program management weaknesses, and employee intimidation in the electrical QA area, and electrical construction practices which resulted in questionable or unacceptable quality of installed equipment.

Preliminary observations by NRC inspectors during February and early March of 1982 indicate that the licensee's attitude toward these programmatic weaknesses is improved and that the outlook for comprehensive and effective remedial action has improved.

b. Conclusion

Licensee performance is not rated in this area because the SALP process assumes at least a minimally satisfactory level of performance. The licensee performance level did not meet the minimally satisfactory criteria for a Category 3 rating in that construction program weaknesses, employee intimidation and electrical construction practices were allowed to exist resulting in questionable or unacceptable condition of installed equipment. These deficiencies culminated in a Stop Work Order subsequent to the appraisal period, but were based upon conditions existing during the period.

c. Board Recommendations

The Board notes that there have been indications of improved licensee attitude towards the above programmatic weaknesses and that the outlook for comprehensive and effective remedial action has improved. NRC inspection activities in this area should be increased. Emphasis should be placed on assuring that previous instances of improper work or documentation be corrected and that future licensee activities are adequate. The fact that project management controls fail to identify and correct problems until they surface as regulatory initiatives or allegations is a serious failure to implement quality requirements. The correction of the conditions causing this situation is recommended as a continued primary management initiative.

4. Containment and Other Safety Related Systems

a. Analysis

Licensee activities in this functional area were inspected during portions of eighteen inspections performed by resident and regional inspectors. As a result of these inspections three items of noncompliance with NRC regulations were identified: (1) Failure to follow manufacture's instructions for placement of Cadwelds in Containment Structure (Infraction), (2) Failure to properly control surface preparation during placement of concrete finish slabs (Severity Level V), and (3) lack of control of attachments (weldments) to the containment liner (Severity Level V).

Observation of deteriorating performance trends which are discussed in functional area 1, "Quality Assurance" apply to performance in this area.

b. Conclusion

The licensee is rated Category 2 in this area.

c. Board Recommendations

NRC inspections and licensee actions should be increased. Emphasis should be placed on assuring that previous instances of improper work or documentation be corrected and that future licensee activities are adequate. Increased attention to QA, as discussed in Paragraphs 1, 2, and 3, are required to correct recurring problems and their root causes before they surface as regulatory initiations or investigation findings following allegations.

5. Safety-related Components

a. Analysis

Licensee activities in this functional area were evaluated during portions of thirteen inspections, which identified four items of noncompliance with NRC requirements:

- (1) Contrary to procedures a three inch hole was cut into the reactor building dry well which was not in the design or travelers controlling the work (Infraction).
- (2) Using components or structures important to safety in rigging applications without obtaining AE engineering evaluation or approval (Infraction).
- (3) Contrary to procedures a Residual Heat Removal Pump Column was rigged, handled, and installed without detailed procedures or instructions (Severity Level V).
- (4) Contrary to procedures contractor was performing stainless steel welding using oversize electrode and unmarked wire brushes and other tools (Severity Level V).

Observations by NRC inspectors and allegations by personnel working at the site raised concerns involving the adequacy of program controls and management attention to quality of work performed in this and other functional areas. Although no specific findings were found in regard to safety-related components, observations by inspectors characterized the licensee's safety performance as deteriorating. Specific performance concerns are discussed in Paragraphs 1 "Quality Assurance," 2 "Piping Systems and Supports," and, 3 "Electrical Power and Distribution." On several occasions inspectors discussed concerns that weakness in procedures for installing equipment, vague and incomplete travelers to control equipment installation, and QA/QC program weaknesses would result in serious inadequacies in this area. Licensee management was

reluctant to implement changes in the project administrative procedures controlling these areas, or to strengthen the QA and QC programs.

b. Conclusion

The licensee is rated Category 2 in this area.

c. Board Recommendations

The Board recommends increased inspection program attention in this area in addition to increased emphasis by licensee and construction management toward improving program deficiencies. The Board notes that similar concerns of QA program inadequacies were noted in the SALP 1 Report and in the February 1981, team inspection report and subsequent management meetings.

6. Support Systems

a. Analysis

A total of nine inspections and one investigation were conducted of activities in this area, which resulted in six items of noncompliance with NRC requirements being identified (three Infractions and three Severity Level V). All of the violations occurred in the area of Heating Ventilation and Air Conditioning (HVAC), and represented work performed by one contractor. The problems surfaced early in the evaluation period and the results of subsequent inspections indicate that increased licensee and contractor management attention have resulted in improvements.

b. Conclusion

The licensee is rated Category 2 in this area. Except for the HVAC problems discussed above, performance in this area appears to be adequate.

c. Board Recommendations

None.

7. Instrumentation and Controls

a. Analysis

Portions of four inspections were conducted of licensee activities in this area, which resulted in two Severity Level V items of noncompliance being identified. The inspections were limited to licensee activities in regard to the installation of the factory prefabricated Power

Generation Control Complex (Main Control Room Control Panels). There was little other activity in this area, which is normal considering the stage of station construction.

b. Conclusion

The licensee is rated performance Category 2 in this area. It is recognized that licensee activities in this area represent a small portion of the total construction requirements. Activity is expected to increase in the future.

c. Board Recommendations

The Board recommends that both licensee management and inspection program attention be focused on activities in this area as the progress of work increases.

8. Licensing Activities

a. Analysis

The review of Clinton had only recently begun in earnest during the evaluation period. Accordingly there is not sufficient information to establish a performance trend, and long standing open items have not been identified.

The quality of licensee submittals and responses to staff requests has been satisfactory. The licensee has been generally responsive to NRC needs, and often anticipates NRC needs associated with major generic issues. Although submittals are normally timely, scheduled submittal dates were often not commensurate with the licensing schedule and FSAR amendments seemed to take longer than normal.

The organization and management capabilities associated with licensing activities appeared to be satisfactory although experience with licensee management during the report period was limited. Based upon this limited exposure the licensee appeared to exhibit technical competence, involvement in technical issues, and control over the project. Working knowledge of NRC regulations, guides, standards, and generic issues is satisfactory.

b. Conclusion

The licensee is rated performance Category 2 in this area.

c. Board Recommendations

None.

9. Soils and Foundations

a. Analysis

Licensee activities in this area were evaluated during four inspections, which identified no noncompliances with NRC requirements. Licensee activity in this area was minimal as a result of the majority of the work being completed.

NRC concerns were expressed over lack of timely resolution of the problems arising from the use of an incorrect soil modulus value in the seismic analysis for the station (10 CFR 50.55(e) Report No. 80-02, dated February 29, 1980). The specific concern is that the implementation of any required corrective actions, such as adding piping and equipment supports to improve resistivity to seismic damage, will become increasingly difficult as station construction progresses. The licensee had not submitted a final report at the time of preparation of this report.

Except for the soil modulus problem, management attention and licensee activities in this area appeared to be adequate.

The concrete program appeared to be satisfactory.

b. Conclusion

The licensee is rated performance Category 2 in this area.

c. Board Recommendations

The licensee is expected to respond to this problem with a final report.

V. SUPPORTING DATA AND SUMMARIES

A. Noncompliance Data

Facility Name: Clinton Nuclear Power Station      Docket No. 50-461  
 Inspections No. 80-13 through No. 81-24

<u>Functional Area Assessment</u>	<u>Noncompliance and Deviations Severity Levels</u>						<u>Categories</u>			
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	<u>Viol.</u>	<u>Infr.</u>	<u>Def.</u>	<u>Dev.</u>
1. Quality Assurance				2	3					
2. Piping Systems and Supports				5				2		
3. Electrical Power and Distribution				1	4	1				
4. Containment and Other Safety Related Supports					2			1		
5. Safety Related Components					2			2		
6. Support Systems					3			3		
7. Instrumentation and Control Systems					2					
8. Licensing Activities										
9. Soils and Foundations										
TOTALS	0	0	0	8	16	1	0	8	0	0

B. Licensee Report Data

1. Construction Defficiency Reports (10 CFR 50.55(e))

The licensee submitted five construction defficiency reports pursuant to the requirements of 10 CFR 50.55(e), four of which were attributable to the licensee's organization and one manufacturing defect:

<u>Report No.</u>	<u>Description</u>
*50-461/80-09	Breakdown in electrical QA Program concerning cable tray hangers.
*50-461/80-10	Breakdown in welding QA concerning welded attachments, no documentation to indicate compliance with ASME and AWS codes available.
*50-461/80-11	Overheating of four weld joints in main steam pipe to reactor vessel closures.
*50-461/81-01	Welding inside containment not in accordance with properly qualified welding procedures.
50-461/81-02	Linear indications identified on several heats of 1/2", schedule 80 stainless steel pipe.

\*Indicates report attributable to licensee organization, and which could have been prevented had licensee controls been more effective.

The licensee does not provide sufficient detail in followup reports (interim and final) to allow proper NRC evaluation.

C. Licensee Activities

The licensee continued with the construction effort for Unit 1. At the end of the assessment period construction was 83% completed. Unit 2 remained indefinitely postponed.

Major civil and structural work was completed prior to, or early in the evaluation period. The installation of electrical power equipment was largely mobilized during the evaluation period as is normal practice. Construction had not progressed to the point where the bulk of the instrumentation and controls work commenced, except for the installation of the main control room control boards (Power Generation Control Complex). A major portion of the licensee's activity was equipment installation and piping and piping support erection.

The application for an operating license was docketed on September 8, 1981. This included the submittal of an FSAR and an Environmental



Report. Seven amendments to the FSAR and two supplements to the Environmental Report were issued during the report period.

The licensee responded to requests by the Prairie Alliance (an intervenor group) and the State of Illinois held in January and February of 1982. The operating license application review is continuing.

D. Inspection Activities

In addition to the routine resident and regional based construction inspection program activities Region III inspectors:

1. Performed a trial team inspection at the Clinton site. This inspection consisted of a multi-disciplinary review of licensee activities which simultaneously addressed most major site activities. The inspection was conducted in February of 1981 and is documented in Inspection Report No. 50-461/81-05.
2. Region III inspectors supported NRC legal and Headquarters staff representatives in regard to the ASLB prehearing conference.
3. Region III inspectors provided technical assistance in support of the numerous investigations into allegations of practices contrary to safety objectives at the site.

E. Investigations and Allegations Review

- (1) Investigations continued into allegations of improprieties into deficiencies in the implementation of the licensee's QA and QC programs during June and July of 1981, particularly in the area of electrical construction. Specific allegations surrounded improper QC inspector qualification examination practices, and the method of generating and tracking reports for nonconforming conditions and adequacy of certain QA audits. The investigation determined that some of the allegations were true and the results are being considered for possible escalated enforcement action. The results of allegations which were confirmed and resulting corrective actions are discussed in other sections of this report. The licensee retested all QC inspectors immediately after the allegations were received. Retest results were satisfactory. The investigation report was not issued at the time of this report.
- (2) During the period of May and June 1981 an investigation into allegations of inadequate QC and QA practices at the site and remote fabrication shop of the site HVAC contractor was conducted. Of the numerous allegations several were found to be unfounded, and two were confirmed resulting in the two items of noncompliance (Severity Level V). The noncompliances are covered in Section IV, Paragraph 6 of this report "Support Systems."

- (3) Subsequent to the evaluation period, in December of 1981, allegations were received thru the resident inspector that inadequacies existed in the electrical QC and QA areas. An investigation into these allegations was conducted between January 5 and March 3, 1982. During the investigation significant deficiencies in the electrical QC and QA Program were identified, and the licensee agreed to stop safety related electrical work on January 15, 1982. The results of the investigation were being considered for possible escalated enforcement action and the Stop Work Order was still in effect at the time of preparation of this report.

F. Escalated Enforcement Actions

1. Orders and Civil Penalties

None issued during evaluation period. The adverse findings of two investigations discussed in Section V. E. above are currently under consideration for escalated enforcement sanctions.

2. Confirmation of Action Letters (CAL) (Formerly Immediate Action Letters (IAL))

A CAL was issued on February 13, 1981, which recognized the licensee's Stop Work Order (SWO) which stopped the design, fabrication, installation, inspection, and documentation for all large bore piping supports. The CAL was superseded by a second CAL which was issued on March 5, 1981. The second document clarified the intent of the first CAL, and also addressed unacceptable as-installed tolerances in containment piping guard pipe to pipe seismic supports and deficiencies in the program for documenting and approving the as-built condition of electrical cable raceway supports.

The licensee took corrective actions following the issuance of the CAL and accompanying stop work order, including two sequential trial programs to demonstrate that changes to design, installation and related QC and QA activities for piping supports. Following acceptable inspection results which demonstrated that the conditions specified in the CAL were met, the SWO was lifted.

3. Subsequent to the evaluation period a CAL was issued on January 27, 1982, in response to deficiencies observed during the investigation into allegations of deficiencies in the electrical QC and QA program received in December 8, 1981. This matter is further discussed in Sections V.E "Investigation and Allegations," and IV "Electrical Power and Distribution." The CAL, and resolution of the concerns, are still pending at the time of preparation of this report.

G. Management Conferences

1. Representatives of Region III and licensee management met on October 28, 1980, to discuss the results of the SALP 1 Evaluation and Report. The NRC identified several areas in which the need for improved performance is indicated:
  - (a) Improved communications between the licensee and contractors to provide for adequate resolution of quality and safety issues.
  - (b) Improved timeliness of QC inspections of work in progress or completed.
  - (c) Improvements to procedures and instructions which control safety related work.
  - (d) The need for increased separation of organizational responsibilities for productivity and cost control from Quality Assurance and Quality Control.
  - (e) Improved trending of regulatory performance and nonconforming conditions.
  - (f) Increased management attention and performance in responding to noncompliances.
  
2. A meeting was held between regional inspectors and management involved in the February 1981 team inspection and to discuss the licensee management on March 12, 1981, to discuss the preliminary results of the team inspection. A second meeting was held on May 11, 1981, between Messrs. J. Keppler, R. Knop and other members of the Region III staff, and Messrs. W. Kelley, W. Gerstner, and members of their staff to discuss the final findings of the team inspection and corrective actions to resolve issues which were identified.
  
3. On January 29, 1982, a meeting was held between Messrs. W. Kelley, W. Gerstner, and other representatives of licensee management, D. Eisenhut and members of this Division of Licensing Staff, and J. Keppler and members of the Region III staff. The meeting was to discuss ongoing concerns over the adequacy of the construction phase QA and QC programs, and concerns that present planning for organization and staffing will result in similar problems during the operating phase. Although this meeting occurred after the evaluation period, it is included in this report because of its significance in regard to current concerns over electrical QA and QC.