UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PRC

July 27, 1984

Docket Nos.: STN 50-454
and STN 50-455

MEMORANDUM FOR: The Atomic Safety and Licensing Board for Byron:
Ivan W. Smith
Dr. Dixon Callihan
Dr. Richard F. Cole

The Atomic Safety and Licensing Appeal Board for Byron:
Alan S. Rosenthal
Dr. Reginald L. Gotchy
Howard A. Wilber

FROM: Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

SUBJECT: BYRON SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP) FOR JANUARY 1, 1983 THROUGH APRIL 30, 1984 (BOARD NOTIFICATION 84-135)

In accordance with present NRC procedures for Board Notifications, we are providing a July 10, 1984 memorandum from James G. Keppler to Cordell Reed. This memorandum forwards to the applicant the SALP Board Report for Byron covering the period January 1, 1983 through April 30, 1984. This report was discussed with the applicant during a public meeting on July 19, 1984. Any comments the applicant may have concerning the report will also be sent to you.

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

Enclosure:
1. Memo from James G. Keppler
to Cordell Reed, dtd July 10, 1984

N005

cc: SECY (2)
OGC
OPE
EDO
ACRS (10)
Parties to the Proceeding

DISTRIBUTION LIST FOR BOARD NOTIFICATION

Byron Units 1&2
Docket No. 50-454,455

Dr. A. Dixon Callihan
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Ms. Diane Chavez
Dr. Richard F. Cole
Joseph Gallo, Esq.
Dr. Reginald L. Gotchy
Mrs. Phillip B. Johnson
Michael Miller, Esq.
Ms. Pat Morrison
Alan S. Rosenthal, Esq.
Ivan W. Smith, Esq.
John Streeter, Reg. III
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Steven P. Zimmerman, Esq.
Howard A. Wilber, Esq.
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Atomic Safety and Licensing
Board Panel
Atomic Safety and Licensing
Appeal Panel
Docketing and Service Section
Document Management Branch
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Mr. James G. Keppler
Ms. Lorraine Creek

ACRS Members

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ENCLOSURE

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUL 10 1984

Docket No. 50-454
Docket No. 50-455

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Vice President
Post Office Box 767
Chicago, IL 60690

Gentlemen:

Enclosed for your review, prior to our scheduled meeting of July 19, 1984, is the SALP Board Report for the Byron Nuclear Station, Units 1 and 2, covering the period January 1, 1983, through April 30, 1984.

Your regulatory performance at the Byron Station was considered to be acceptable during this assessment period. The rating improved from a Category 3 to a Category 2 in four functional areas (safety-related components; support systems; electrical power supply and distribution; quality assurance), but declined from a Category 1 to a Category 2 in one area (licensing activities) and remained at a Category 3 in another area (preoperational testing). Additionally, of two areas rated that were not rated during the last SALP, one (fire protection) was rated a Category 3 and the other (reinspection program) a Category 1. Overall, your regulatory performance showed an improving trend.

In the preoperational testing area, problems which surfaced in the previous SALP period relating to the conduct of preoperational tests were largely corrected following an enforcement conference early in this assessment period. However, toward the end of the period other concerns were identified relating to the adequacy of review of preoperational test results. An overall rating of Category 3 is assigned in this area which is the same rating as was given in the last SALP. Continued high priority and management attention are warranted to assure attention to detail and rigorous analysis during the remaining test results reviews.

The success rate of operators in passing the operator and senior operator license exams was considerably below the national average and was a factor in reducing the rating to a Category 2 in the licensing activities area. We believe the lower success rate was largely due to management's determination to achieve a fuel load date which was unrealistic in terms of plant readiness. We believe such action was not in the best interest of the NRC or Commonwealth Edison Company with regard to optimum utilization of resources. The other factor contributing to the reduced rating in the licensing activities area was the occasional lack of supporting details in submittals made to NRR.

cc w/encl:
D. L. Farrar, Director
of Nuclear Licensing
V. I. Schlosser, Project Manager
Gunner Sorensen, Site Project
Superintendent
R. E. Querio, Station
Superintendent
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII Byron
Resident Inspector, RIII
Braidwood
Phyllis Dunton, Attorney
General's Office, Environmental
Control Division
Ms Jane M. Whicher
Diane Chavez, DAARE/SAFE
S. Levis, ELD
INPO
Regional Administrator
RI, RII, RIV, RV
R. C. DeYoung, IE
H. R. Denton, NRR
PAO, RIII
Project Manager, NRR
J. Axelrad, IE

RIII	RIII	RIII	RIII	RIII	RIII	RIII	RIII	RIII
Lerch/as	Tambling	Hayes	Streeter	Norelius	Spessard	Hind	Davis	Keppler
07/09/84	7/9		7/9	7/10/84	7/10	7/9/84	7/9/84	7/10/84

SALP BOARD REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

50-454/84-22; 50-455/84-15

Commonwealth Edison Company

Byron Nuclear Station Units 1 and 2

January 1, 1983, through April 30, 1984

I. INTRODUCTION

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

A NRC SALP Board, composed of staff members listed below, met on June 19, 20, and 26, 1984, 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's safety performance at Byron Station for the period January 1, 1983 through April 30, 1984.

SALP Board for Byron Station:

Name	Title
J. A. Hind	Director, Division of Radiation Safety and Safeguards
C. J. Paperiello	Chief, Emergency Preparedness and Radiological Protection Branch
D. W. Hayes	Chief, Reactor Projects Section 1B
R. F. Warnick	Chief, Reactor Projects Branch 1
B. A. Berson	Regional Counsel
C. E. Norelius	Director, Division of Reactor Projects
L. N. Olshan	Project Manager, Division of Licensing Office of Nuclear Reactor Regulation
W. P. Gammill	Chief, Meteorology and Effluent Treatment Branch, Office of Nuclear Reactor Regulation
R. L. Spessard	Director, Division of Reactor Safety
R. M. Lerch	Project Inspector
J. E. Foster	Compliance Specialist
J. F. Streeter	Director, Byron Project Division
K. A. Connaughton	Resident Inspector
D. H. Danielson	Chief, Materials and Processes Section
C. C. Williams	Chief, Plant Systems Section
W. G. Guldemond	Chief, Operational Programs Section
W. S. Little	Chief, Engineering Branch
R. D. Walker	Chief, Operations Branch
L. A. Reyes	Chief, Test Programs Section
M. A. Ring	Reactor Inspector, Test Programs Section
W. L. Forney	Chief, Reactor Projects Section 1A

II. CRITERIA

The licensee performance is assessed in selected functional areas depending 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 observations.

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 a 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 so 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 so that minimally satisfactory performance with respect to operational safety or construction is being achieved.

III. SUMMARY OF RESULTS

Overall, the licensee's performance was found to be acceptable and showed an improving trend. Followup and resolution of many identified past problems continues. In most cases,the licensee's recent actions on resolution of past problems has been responsive.

Functional Areas	Rating Last Period	Rating This Period	Trend Within the Period
A. Soils and Foundations	NR*	NR	None
B. Containment and Other Safety-Related Structures	2	2	Same
C. Piping Systems and Supports	2	2	Same
D. Safety-Related Components	3	2	Improved
E. Support Systems	3	2	Improved
F. Electrical Power Supply and Distribution	3	2	Same
G. Instrumentation and Control Systems	NR	2	Same
H. Licensing Activities	1	2	Same
I. Quality Assurance	3	2	Improved
J. Preoperational Testing	3	3	Mixed
K. Radiological Controls	2	2	Same
L. Fire Protection	NR	3	None
M. Emergency Preparedness	NR	2	Same
N. Security and Safeguards	NR	2	Improved
O. Reinspection Program	NR	1	None

*NR = not rated

IV. PERFORMANCE ANALYSIS

A. Soils and Foundations

a. Analysis

No inspections were performed in this area during the SALP period. All major soils and foundation work has been completed.

b. Conclusion

The licensee is not rated in this area.

c. Board Recommendations

None.

B. Containment and Other Safety-Related Structures

1. Analysis

Two inspections and portions of three other inspections were performed in this area. One inspection and a portion of another were in response to allegations received by the NRC during the assessment period. The other inspection areas involved evaluation of NDE results on the fuel pool liner welds, review of performance of installation of spent fuel storage racks, structural steel welding, weld joint preparation, structural steel bolted connections, QA records, QA inspector qualifications, and visual examination of completed welds. Portions of these inspections were dedicated to evaluation and assessment of the Reinspection Program discussed in Section O of this report.

No items of noncompliance or deviations were identified.

Since most major work activities are complete, the observations and findings in this area relate mostly to documentation of activities and disposition of deficiencies. Where work activities were observed, they were performed in accordance with regulatory quality requirements. Personnel involved in the areas were properly trained and certified.

At this stage of construction, and in this area, the licensee's resources appear adequate for the current level of work and appear to be effectively used, resulting in a satisfactory performance level.

2. Conclusion

The licensee is rated Category 2 in this area. This is the same rating as was given in the previous assessment period. Licensee performance has remained the same during this assessment period.

3. Board Recommendations

None.

C. Piping Systems and Supports

1. Analysis

Six inspections and portions of four others were conducted in this area. The inspections examined the QC Inspector Reinspection Program (see Section O of this report); fabrication and installation, welding, heat treatment, visual examination of selected welds, field as-built verification, a record review of reactor coolant pressure boundary and safety-related piping; testing of reactor coolant pressure boundary and safety-related pipe support and restraint systems; installation and qualification of the steam generator snubbers; installation and analysis of piping whip restraints; preservice inspection of pressure retaining components; independent ultrasonic examination of selected piping welds; actions related to previous inspection findings, 10 CFR 50.55(e) items and IE Bulletins; and allegations brought to the attention of the NRC.

Nine items of noncompliance were identified during these inspections as follows:

a. Severity Level V - Design methods used for resolving a field problem were documented by a Westinghouse interdepartmental memorandum, bypassing the site document control system (Inspection Report Nos. 454/83-06; 455/83-05).

b. Severity Level V - Snubbers continue to be damaged due to improper handling demonstrating inadequate corrective action for a previously identified, similar noncompliance (Inspection Report Nos. 454/83-06; 455/83-05).

c. Severity Level V - Corrective measures to preclude repetition of snubber damage during installation were deficient in that of 38 deficiency reports reviewed, 6 required replacement of a snubber due to damage (Inspection Report Nos. 454/83-06; 455/83-05).

d. Severity Level IV - Sargent & Lundy Engineers control of pipe whip restraint design was deficient in four areas (Inspection Report Nos. 454/83-06; 455/83-05).

e Severity Level IV - Failure to implement adequate quality program controls for the installation of pipe whip restraints (Inspection Report Nos. 454/83-20; 455/83-17).

f. Severity Level IV - Failure to conduct comprehensive audits of pipe whip restraint activities (Inspection Report Nos. 454/83-20; 455/83-17).

g. Severity Level V - Failure to implement the site nonconforming material program when leakage was observed on the steam generator snubbers (Inspection Report Nos. 454/83-20; 455/83-17).

h. Severity Level V - Failure to conduct surveillances as part of the site maintenance program after components are installed in place (Inspection Report Nos. 454/83-20; 455/83-17).

i. Severity Level V - Failure to follow test procedure requirements to identify and record support types listed in the procedure which differed from the support type installed (Inspection Report No. 454/83-33).

Eight of the nine items of noncompliance were identified during two inspections conducted early in the assessment period. As a result of findings identified regarding the control of pipe whip restraint installation (noncompliances e. and f. above), a Confirmatory Action Letter (CAL) was issued on May 13, 1983. During a September 1983 inspection it was determined that the licensee's corrective action for the CAL was adequate. The inspector determined that procedures had been properly revised, personnel had been trained in the revised procedures, required reinspections had been performed, necessary drawing revisions had been made, and monthly audits were being conducted. Also, in response to the inspectors findings CECo conducted tests on the energy absorbing material that is used in the pipe whip restraints. The test data is being evaluated by the NRC.

In addition, during the May 1983 inspection findings were identified regarding the steam generator snubbers (reference noncompliances g. and h. above). Questions were identified regarding the qualification testing conducted for the steam generator snubbers. In response to the inspector's questions the licensee has performed additional testing of the snubbers. The test data is being evaluated by the NRC and it appears the licensee will have to review the suitability of the snubber design.

Except as stated above, the activities observed, the management controls used, and the records and record control systems in place met NRC requirements. Personnel involved in the areas reviewed were properly trained and certified. The licensee's audit reports were found to be generally complete and thorough.

Most major work activities are complete in this area except for resolution of construction changes and identified deficiencies associated with pipe support and restraint installations.

In general, the observations and findings in this area indicate that overall performance has been satisfactory, that management has been sufficiently involved, and that resources appear to be adequate. In most cases, the licensee has been responsive and timely in implementing corrective actions.

2. Conclusion

The licensee is rated Category 2 in this area. This is the same rating as was given in the previous assessment period. Licensee performance has remained the same during this assessment period.

3. Board Recommendations

None.

D. Safety-Related Components

1. Analysis

Portions of three inspections were performed covering limited activities in this area. These inspections included examinations of the records related to welding of the reactor vessel internals; installation and quality records for a steam generator, reactor coolant pump, pressurizer, and an RHR pump; the QC Inspector Reinspection Program (see Section O of this report); and allegations brought to the attention of the NRC.

Two items of noncompliance were identified during these inspections as follows:

a. Severity Level IV - Failure to have an adequate program to ensure proper care and preservation of safety-related equipment as evidenced by numerous instances of missing or damaged penetration covers and end caps. This is a repetition of a previous noncompliance (Inspection Report Nos. 50-454/83-09; 50-455/83-07).

b. Severity Level IV - The licensee failed to institute an effective program to ensure proper care and preservation of safety-related equipment although conditions adverse to quality were identified in an NRC inspection report (Inspection Report Nos. 50-454/83-09; 50-455/83-07).

The two noncompliances relate to the same issue, care and preservation of equipment, raised in the previous SALP period. A February 28, 1983 management meeting addressed this issue early in this assessment period. Routine follow-up inspections have been made through the assessment period and performance has been found adequate in this area.

Since most major work activities are complete, the observations and findings in this area relate mostly to documentation of activities and disposition of deficiencies. When work activities were observed, they were performed in accordance with regulatory quality requirements. In general, the observations and findings in this area indicate that overall performance has been satisfactory, that management has been involved, and that resources appear to be adequate. In most cases, the licensee has been responsive and timely in implementing corrective actions.

2. Conclusions

The licensee is rated Category 2 in this area. This is a higher rating than was given in the previous assessment period, and is primarily due to improvements noted in the care and preservation of equipment and material and to the adequate level of performance in the other activities observed. Licensee performance has improved during this assessment period.

3. Board Recommendations

None.

E. Support Systems

1. Analysis

The previous SALP report addressed the licensee performance in the areas of heating, ventilation, and air conditioning (HVAC), construction fire protection, and fire protection requirements for operations. For this SALP period, fire protection has been addressed as a separate functional area (see Section L of this report).

Examination of this functional area consisted of one special inspection of the heating, ventilation, and air conditioning (HVAC) contractor and a portion of three other routine inspections, one of which involved the fuel storage area. The special inspection reviewed licensee actions related to the 10 CFR 50.55(e) report on HVAC installation deficiencies and the stop work order placed on the HVAC contractor. Areas examined included a review of specifications, procedures and instructions; welder qualification records; inspector certification records; and selected nonconformance reports and field change requests. In addition, an as-built verification of selected portions of the HVAC systems was performed. A portion of the routine inspections in this area reviewed fuel receipt and storage activities including the testing of fuel handling equipment, receipt and storage of the primary sources for installation in fuel assemblies C37 and C57 and other work activities on the fuel handling deck in preparation for Unit 1 fuel load. No items of noncompliance were identified during these inspections.

In the HVAC area, the major portion of work activities are complete. The corrective actions taken by the licensee have been effective and thorough in establishing construction in accordance with regulatory requirements and assuring that quality is maintained and documented.

Fuel has been received and stored in the new fuel storage area and in the spent fuel pit. No equipment problems were encountered and activities were planned and coordinated.

The observations and findings in this functional area indicate that overall performance has been satisfactory, that management has been involved, that resources appear to be adequate, records and record control systems are in place and meet regulatory requirements, and personnel observed were properly trained and certified. Generally, the licensee has been responsive and timely in providing information requested during inspections.

2. Conclusion

The licensee is rated Category 2 in this area. This is a higher rating than was given in the previous assessment period and is based on effective management attention given to HVAC activities and receipt of fuel with an absence of problems. Licensee performance has improved during this assessment period.

3. Board Recommendations

None.

F. Electrical Power Supply and Distribution

1. Analysis

Licensee activities in this area were observed in eight inspections and portions of nine other inspections. The areas inspected include: equipment trip settings, equipment installation activities, storage and maintenance records, measuring and test equipment records, QC Inspector Reinspection Program activities (see Section O of this report), cable receipt reports, cable installations, allegations and electrical equipment seismic requirements. Seven items of noncompliance were identified as follows:

a. Severity Level V - Numerous cable support grips were not installed in accordance with Sargent & Lundy Standard EB-200 B/B. Acceptance criterion contained in the procedure for quality control inspection of cable grips was inadequate. (Inspection Report Nos. 454/83-49; 455/83-42)

b. Severity Level V - Identification and control of separation violations between Class 1E and non-Class 1E conduits were not being verified or documented. Consequently, several areas were identified where the one inch minimum requirements for conduit separation was not maintained. (Inspection Report No. 454/83-54)

c. Severity Level IV - Hatfield Electric Company failed to provide an adequate response on Deficiency Report (DR) 3382, which resulted in 12 safety-related electrical cables being installed in Unit 1 whose quality was indeterminate. One or more of these cables was overstressed during the attempted pull-backs of cable 1VA-709. These cables were subsequently replaced. (Inspection Report Nos. 454/84-09; 455/84-07)

d. Severity Level IV - Two DC distribution panels were not installed in accordance with the vendor's specifications and drawings. (Inspection Report Nos. 454/84-17; 455/84-12)

e. Severity Level V - Hatfield Electric Company quality records provided no record of applicable acceptance criteria. Equipment installation reports 1 thru 100 had no reference to drawings and revisions used to perform inspections. (Inspection Report Nos. 454/84-23; 455/84-16)

f. Severity Level V - Licensee failed to assure that drawing requirements were translated into instructions or procedures. The requirement is to inspect for cable tray separation and add cable tray covers when the minimum separation requirements have been violated. This is exemplified by the fact that 124 units of safety-related cable tray have been installed since February 1983 and have not been inspected for separation requirements. (Inspection Report Nos. 454/84-27; 455/84-23) (Note: Issued after this SALP period.)

g. Severity Level IV - Licensee failed to assure that nonconforming cable tray hangers were identified and corrected. Two hundred and ninety-five previously accepted cable tray hangers were reinspected and 119 were found defective. (Inspection Report Nos. 454/84-27; 455/84-23) (Note: Issued after this SALP period.)

The noncompliances are not considered unusual in nature or number relative to the level and complexity of the construction activity, the increased number of NRC inspections, and the duration of this SALP period. Noncompliances f. and g. above were identified during an inspection that was ongoing at the end of the SALP period and involved the followup of inspection findings identified during previous SALP periods. These items represent examples wherein the licensee's management attention should have been more effective.

During the previous SALP period, the licensee was rated Category 3 in this area. There were a number of complex considerations involved in the establishment of this rating; however, the common concern was the effectiveness of management involvement in the programs to preclude and resolve problem areas.

During this SALP period, the amount of construction activity increased considerably and so did the corresponding NRC inspection effort. Relative to the last SALP period, the licensee's effectiveness in implementing the routine and remedial construction and quality assessment program improved.

Overall, the licensee's performance, as assessed by approximately 1,121 NRC inspector hours during this SALP period, was substantially in conformance with the requirements. Generally, licensee management was adequately involved in quality assurance, resolution of technical issues, and responsive to NRC issues.

2. Conclusion

The licensee is rated Category 2 in this area. This is a higher rating than was given in the previous assessment period, and is based on the licensee's improved effectiveness in implementing the construction and quality assessment problem. Licensee performance has remained the same during the assessment period.

3. Board Recommendations

None.

G. Instrumentation and Control Systems

1. Analysis

Licensee activities in this functional area were observed during routine inspections by the resident inspectors and significant portions of seven inspections by regional personnel. These inspections included reviews of installation and termination of instrumentation cables, associated procedures and records, CECo audits, cable pulls, instrument component installation and calibration, and installation of instrument sensing lines and reinspection program activities (see Section O of this report).

One item of noncompliance was identified as follows:

> Severity Level IV - Sensing line connections to safety-related level transmitters in containment were installed contrary to the requirements of Sargent and Lundy drawing series M-2036 (Inspection Report No. 455/83-60).

This violation is indicative of a minor procedural problem. Corrective action was comprehensive and appropriate.

During this SALP period the licensee's performance regarding the installation and termination of instrumentation cables sensing lines and components was substantially in accordance with the design requirements. Reviews of associated procedures, records and audit reports, and observation of work demonstrated effective implementation of the design requirements in the as-built systems.

2. Conclusion

The licensee is rated Category 2 in this area. The licensee was not rated in this functional area in the previous assessment period. Licensee performance has remained the same during this assessment period.

3. Board Recommendations

None. The Board notes that subsequent to the assessment period, the licensee identified and reported under the provisions of 10 CFR 50.55(e) a potential problem with butt splices in electrical conductors. The licensee's efforts in resolving this issue will be assessed in the next SALP.

H. Licensing Activities

1. Analysis

During the assessment period, licensing activities were aimed primarily at responding to outstanding and confirmatory items identified in the safety evaluation report (SER) and its supplements. The items receiving significant activity included fire protection, environmental and seismic qualification of equipment, pump and valve operability, control room human factors review, inadequate core cooling, pre-service inspection, improved thermal design procedures, heavy loads, and post-accident sampling.

Management involvement and attention to details are aggressive and directed toward early resolution of open items. The licensee's assignment of resources are ample and used in such a manner that a high level of attention is brought to bear on design and procedural issues needing expedited resolution. Reviews are generally timely, thorough, and technically sound.

The licensee understands the technical issues, and responses are generally sound and thorough. Conservatism is generally exhibited and approaches are viable and usually sound. The licensee sometimes challenges a staff position when it believes safety will not be compromised by an alternate means of meeting the staff position, and the licensee's position is usually well founded and prevails.

In a majority of cases, the licensee has provided timely responses to NRC positions and requests for information. Responses to technical issues are sometimes incomplete in necessary detail. The licensee has been cooperative and efficient in responding to follow-on questions and requests for clarification. However, some delays were experienced and can be attributed to the lengthy hearing that was held during the assessment period. Licensee, as well as staff, involvement in the hearing caused delays in resolving open SER items.

In the last SALP report, we stated "Changes to the FSAR initiated by CECo are not always well distinguished. These changes should be delineated in a separate attachment or cover letter included with the amendment and proper color coded FSAR pages should always be used for these changes." The licensee has satisfactorily corrected this deficiency.

In the area of operator examinations, the first two written examination were administered in May 1983, early in the assessment period. After an initial passing rate of only 42% was achieved, further testing was postponed. In the next set of examinations, administered in October 1983, 75% of the candidates passed. The last passing rate of 75% compares with a nationwide passing rate of approximately 80% during the past year. The passing rate is indicative of the licensee not preparing its candidates well. It appears the licensee was premature in requesting the original exams based on the incomplete procedures and Tech Specs which were received by Region III for examination preparation. Some of the documents were dated just a few days prior to receipt by Region III. The original request for approximately 72 licensed personnel was excessive for cold examinations for Unit 1.

2. Conclusions

The licensee is rated Category 2 overall in this area. This is a lower rating than was given in the previous assessment period, and is based on shortcomings in the areas of occasional lack of supporting detail in responses to technical issues and poor performance in operator licensing. The licensee's performance in operator licensing would have been rated a Category 3 had it been rated separately. Licensee performance has remained the same during this assessment period.

3. Board Recommendations

The Board notes that the licensing activities during the current SALP period were directed toward the most difficult open items and the hearing process consumed licensee and staff resources that would normally be directed toward resolving other open items. The Board recommends that the licensee assure that future candidates for operator licenses are adequately prepared for NRC examinations requested by the licensee.

I. Quality Assurance

1. Analysis

Although no programmatic inspections were conducted in this functional area, quality assurance (QA) elements were reviewed during one inspection and portions of eight other inspections by regional personnel. An Integrated Design Inspection was also conducted by a team of NRC design and construction specialists and consultants to review the adequacy of design details as a means of measuring how well the design process had functioned for the system selected.

Most inspections by regional personnel in the various functional areas involved the assessment of QA elements such as inspection procedures, personnel certifications, test results and audit activities. Four noncompliances were identified as follows:

a. Severity Level IV - Failure to properly qualify a Level II Quality Control Inspector to perform safety-related inspection functions (Inspection Report Nos. 454/83-07; 455/83-03).

b. Severity Level IV - Failure to adequately monitor preoperational testing to verify proper performance (Inspection Report Nos. 454/83-09).

c. Severity Level IV - A Hatfield Electric Company, Level III Quality Assurance Manager was not adequately qualified (Inspection Report Nos. 454/83-09).

d. Severity Level IV - The CECo Lead Auditor performing an audit of Powers-Azco-Pope (PAP) was not qualified. The CECo QA Manager (Corporate) had instituted an informal Interim Lead Auditor Program (Inspection Report No. 454/83-16).

The above noncompliances were identified early in the assessment period, and the licensee responded by taking extensive corrective actions. Noncompliances a., c., and d. above all relate to QA/QC personnel qualifications, an area receiving increased attention due to findings in the previous assessment period. The licensee responses encompassed the entire qualification program and have resolved the issues in this area. Licensee

actions regarding noncompliance b. above were responsive and effective as discussed in more detail in Section J of this SALP report.

Concerning the licensee's actions regarding procurement and inspection of equipment from Systems Control Corporation (SCC), two inspections reviewed the licensee's commitments in response to the noncompliance issued in Inspection Report Nos. 50-454/80-04; 50-455/80-04. At the close of the assessment period an additional inspection was in progress to determine the adequacy of equipment supplied by SCC and to evaluate inaccuracies in associated licensee submittals to the NRC. The licensee actions relating to SCC equipment will be assessed in the next SALP.

The inspections did not reveal continuing problems in the areas of concern noted in the previous SALP report with the exception of addressing potentially reportable items. Additional examples occurred of items which were not reported until identified by inspectors as potentially reportable, such as improper electrical cable grip installations and deficiencies in electrical cable butt splices. A lower threshold for reportable problems appears warranted.

The Integrated Design Inspection (IDI) focused on the Auxiliary Feedwater System as a selected sample. Activities included examination of procedures, records, training, and inspection of the system as installed at the plant. Emphasis was placed upon reviewing the adequacy of design details as a means of measuring how well the design process had functioned for the selected sample. The IDI identified weaknesses/concerns in the following general areas:

(1) Deficiencies in the analyses related to postulated cracks and breaks in high-energy and moderate-energy lines and internal flooding.

(2) Availability of valid, updated calculations to support the current design in the mechanical systems discipline. (This concern is related to bases and calculations supporting the design and, not the design itself. When the team examined a sample of actual design in detail, no significant problems were found.)

(3) Documentation of design criteria: lack of documented bases for setpoints, reset values, accuracy requirements, and margins. (The actual design was found to be generally sound, based on a sample reviewed in detail.)

(4) Minor weaknesses in the civil-structural area.

(5) A systematic weakness in the analysis used to justify the lack of physical separation between safety-related cables and non-safety-related cables.

The original IDI report covered 96 findings, unresolved items and observations. Licensee responses to these issues and additional inspections have reduced this number to 29. These issues are still under review and will be covered in the next SALP.

The licensee's QA program is generally adequate and meets major program objectives as demonstrated by the preponderance of NRC inspection activity that reviewed quality assurance elements in place and found them to be effective. The site enforcement history indicates random program implementation problems but no large programmatic failures. While the licensee's basic QA structure is well established, recent adjustments were made in its structure and staffing to improve overall functioning. Staffing and training are well defined and considered adequate.

2. Conclusion

The licensee is rated a Category 2 in this area. This is a higher rating than was given in the previous assessment period, and is based on moderate overall improvement and greater management attention. Licensee performance has improved during this assessment period.

3. Board Recommendations

The Board notes that the March 22, 1984, letter from Region III to the licensee regarding the previous SALP addressed the inconsistency between the provisions of 10 CFR 50.55(e) and the licensee's interpretation of that regulation relative to potentially reportable items. In light of the examples identified during this assessment period of items not reported until identified by inspectors as potentially reportable, the Board recommends that the licensee reevaluate its threshold for reporting such items and assure that its administrative controls for reporting are fully consistent with the provisions of 10 CFR 50.55(e). The Board notes that an enforcement conference was held subsequent to the SALP period regarding the accuracy of licensee submittals relative to IDI findings and Systems Control Corporation corrective actions and that these matters will be assessed in the next SALP.

J. Preoperational Testing

1. Analysis

Nineteen inspections or portions of inspections and one enforcement conference were conducted in this area on Unit 1, consisting of observations of licensee performance in implementing administrative controls, in-depth reviews of selected preoperational test procedures, verification of preoperational test procedures, witnessing of preoperational test performance, verification reviews of preoperational test results evaluations, and observations of corrective actions for problems identified.

Unit 2 has not yet commenced preoperational testing. Fifteen items of noncompliance were identified as follows:

a. Severity Level V - Failure to ensure requirements and design basis are correctly translated into specifications, drawings and procedures for the Reactor Coolant (RCS) Leak Detection System (Inspection Report Nos. 454/83-12; 455/83-10).

b. Severity Level V - Two examples of failure to confirm the design requirements of the RCS Leak Detection System in the preoperational test (Inspection Report No. 454/83-12).

c. Severity Level IV - Nine examples of failure to perform an adequate review of the Integrated Hot Functional Test Procedure (Inspection Report No. 454/83-17).

d. Severity Level V - Inadequate implementation of the program for cleanliness and housekeeping observed during preoperational testing (Inspection Report No. 454/83-17).

e. Severity Level IV - Four examples of inadequate performance of the Integrated Hot Functional Test (Inspection Report No. 454/83-18).

f. Severity Level V - Failure to follow out-of-service requirements (Inspection Report No. 454/83-40).

g. Severity Level V - Failure to implement FSAR requirements with respect to test personnel qualifications (Inspection Report Nos. 454/83-47).

h. Severity Level V - Failure to comply with posted cleanliness requirements (Inspection Report No. 454/83-47).

i. Severity Level IV - Failure to provide controls requiring an evaluation of the validity of previous tests for permanent plant instrumentation when instrumentation is found out of calibration (Inspection Report No. 454/83-47).

j. Severity Level V - Failure to provide acceptance criteria for all reactor trips in the preoperational test (Inspection Report No. 454/83-47).

k. Severity Level V - Failure to follow re-entry control requirements (Inspection Report No. 454/83-53).

l. Severity Level V - Four examples of failure to follow procedures (Inspection Report No. 454/83-58).

m. Severity Level V - Failure to adequately document corrective action (Inspection Report No. 454/84-07).

n. Severity Level V - Three examples of failure to perform adequate results evaluation (Inspection Report No. 454/84-07).

o. Severity Level IV - Six examples of failure to adequately implement the test program (Inspection Report No. 454/84-16).

A management meeting was held on February 28, 1983, to discuss, in part, concerns in the preoperational test area. Noncompliances a., b., c., and d. above, primarily related to the Integrated Hot Functional Test (HFT), were the subject of an enforcement conference which was held on May 23, 1983. Both of these meetings were discussed in Paragraph 10.c. of the previous SALP report. Subsequent to the enforcement conference, licensee performance in the area of preoperational test performance improved as evidenced by eight inspections in the preoperational test area where no noncompliances were noted. While this is viewed as an improvement, two of these inspections (Report No. 454/83-24 and No. 454/83-35) contained findings which were similar to the noncompliances for the HFT but no noncompliances were issued since the licensee's corrective actions for the HFT items were not yet in place. Of the ten noncompliances identified following the enforcement conference, eight were Severity Level V ("of minor safety significance") and two were Severity Level IV ("more than minor concern").

In the previous SALP period, 10 noncompliances consisting of 7 Severity Level IV and 3 Severity Level V items were identified over a rating period of 12 months. Considering the longer period for this SALP, the enforcement history has not changed from the previous SALP period.

Improvements were observed in most of the areas of concern identified by the NRC during the previous SALP. The following summary lists the areas of concern identified in the last SALP report followed by the trends observed during the current assessment period.

- <u>Experience Level of QA and Test Personnel and Frequency of Turnovers</u>

  Experienced personnel were added to the QA group and the testing staff. .Additionally, attrition in these two groups was reduced during the SALP period.

- <u>Attention to Detail and Conduct of the Programs</u>

  Significant improvement was observed during the conduct of the more complex and important tests such as the "Containment Integrated Leak Rate Test" and the "ECCS Full Flow Test". However, this improvement was not carried through to the test results review phase as evidenced by noncompliances n. and o. above.

Preoperational test results for the containment spray pumps were approved by the Byron Test Review Board even though the results indicated questionable pump performance. Subsequently the fact that the pump impellers had been interchanged such that the low flow impeller was installed in the high flow pump and vice versa was reported to the NRC as a significant deficiency.

- The Scope and Effectiveness of Corrective Actions

The licensee was responsive in implementing corrective actions to NRC initiatives. The implementation of these corrective actions appears to have been effective in the areas of procedure review and test conduct; however, these actions were not sufficiently comprehensive to prevent similar problems from occurring in the test results review area as discussed above.

- Adequacy of Audits and Surveillance of the Program

Increased attention to this area was observed during the SALP period. Most preoperational test results packages included documentation that demonstrated QA reviews were conducted.

- Need to Keep QA/QC Coverage Consistent with Testing

The increased presence of QA/QC personnel during the conduct of preoperational testing was observed by numerous NRC inspectors. This effort was partially accomplished via the establishment of an Observer Program.

- Establishing Priorities and Setting Realistic Schedules

There was no perceptable improvement in this area during the SALP period, as evidenced by numerous changes in the schedule for completion of preoperational testing and fuel load dates.

- Timely Review of Completed Tests

Review of test results was not timely at the beginning of the SALP period when compared to the original fuel load date. Presently, the rate of review of results appears to support the September 15, 1984, fuel load date assuming no major retesting is required.

- Inconsistencies Between FSAR Commitments and Test Procedures

  Most of the issues in this area were resolved. Several FSAR changes have been submitted by the licensee and are expected to resolve the remaining issues.

- Adequate Reviews to Ensure that Test Procedures Verify Design Criteria

  The licensee has prepared a matrix that correlates FSAR commitments to preoperational test procedures to assure that FSAR commitments and design criteria are properly tested and verified.

The areas of test procedure review and performance were the areas where the major inspection effort was dedicated during this SALP period and are essentially complete for Unit 1. The activity level in the area of preoperational test results analysis increased considerably towards the end of the SALP period. Performance in this area was in need of improvement, as evidenced by noncompliances n. and o. above. Noncompliance o. is considered significant in that the six examples noted included failure to evaluate the residual heat removal and containment spray pump curves correctly, use of inappropriate test gear, failure to provide all test data to engineering and violation of residual heat removal and safety injection pump precautions. Since the test results review is the last evolution in the cycle of procedure review, performance and results review, this area should have been given greater emphasis to assure attention to detail and rigorous analysis of results. Because of the NRC concerns, the licensee is conducting a re-review of 13 previously approved preoperational test result packages. Two meetings, on April 2 and 5, 1984, were held to discuss NRC concerns in the area of test results analysis, and the licensee appears to be devoting additional management attention to this area.

Staffing (including management) appears to be adequate. Training effectiveness and qualification of test personnel were the subject of noncompliance g. above and weaknesses in these areas contributed to many of the noncompliances noted previously. More effective training was considered instrumental in the observed improvement in test procedure development and performance. In general, the licensee is responsive to specific noncompliances and concerns; however, corrective actions were not sufficiently broad and comprehensive to ensure that an essentially repetitive problem of insufficient attention to detail did not recur in the area of test results review. The NRC remains concerned, as in the previous SALP, that as the preoperational test program has progressed each new area has produced several violations before the licensee's own programs and corrective actions were able to effect the desired level of performance.

2. Conclusions

The licensee is rated Category 3 in this area which is the same rating as was given in the previous assessment period. This rating was assigned after considerable discussion of the mixed level of performance during this assessment period. For the first five months of the SALP period the licensee performance in procedure review and performance was in need of improvement and culminated in an enforcement conference. Significant improvements were achieved in the area of test procedure review and performance following the July 1983 meeting with the licensee to review its last SALP report; however, these achievements were offset by subpar performance in the area of test results evaluation which occurred in the latter part of this SALP period. Consideration was given to a marginal 2 rating; however, on balance a Category 3 rating was determined to more closely characterize the Board's assessment.

3. Board Recommendations

The Board recommends that licensee management give continued high priority attention to resolution of preoperational test program problems and prevention of additional problems. The Board notes that subsequent to the assessment period test results review problems were identified with the Integrated Hot Functional Test which were similar to previous problems discussed above. The licensee has begun implementation of corrective actions for test results review problems and these actions will address the problems with the Integrated Hot Functional Test. Sufficient NRC resources should be dedicated to ensure that the licensee completes a viable preoperational and startup test program.

K. Radiological Controls

1. Analysis

Eight inspections were performed during the assessment period by region based inspectors. These inspections included preoperational radiation protection; preoperational gaseous, liquid, and solid waste systems; TMI Action Plan Items; preoperational environmental monitoring; and confirmatory measurements. The resident inspectors also reviewed this area during routine inspections. No items of noncompliance or deviations were identified. One significant unresolved item was identified concerning the adequacy of the licensee's review of a design change on the waste gas exhaust line which resulted in a bypass flowpath around the waste gas system isolation valve. This item remains unresolved pending completion of the licensee's review of the matter and NRC reinspection.

Qualification/training concerns related to the station chemist, rad/chem foremen, and rad/chem technicians, identified during the previous assessment period, have been adequately addressed

through training at other plants, additional training at the licensee's facility, and acquisition of additional experienced staff.

Licensee review of preoperational radiological environmental monitoring data appeared to be weak. The contractor was using an incorrect formula for calculating radioiodine concentration; a licensee representative was unaware of the nature and depth of sampling wells; and there was an unreviewed anomaly wherein gross beta activity in the discharge water exceeded that in the intake by a factor of five to seven. The licensee appears to be making satisfactory progress toward resolution of these problems. The licensee is also being responsive to a request from the Office of Nuclear Reactor Regulation (NRR) by installing four additional air samplers to be located on the plant site. The quality assurance/control program conducted by the licensee's contractor is considered adequate.

In confirmatory measurements, the licensee has 16 agreements and one possible agreement in 17 comparisons for spiked samples provided by the NRC. The licensee is making satisfactory progress in developing the chemistry procedures and analytical measurements program. A procedure for laboratory QC for nonradiological samples has been developed and adequately implemented. It is being modified to include a radiochemistry QC program. The licensee is currently establishing a QC cross check program for radiological samples provided by a vendor. The licensee is also analyzing radioactive samples from the Zion Nuclear Plant; comparison of the analytical results appear to be satisfactory.

Problems were identified with the interim calibrations of liquid and gaseous monitors (lack of linearity checks). The licensee has indicated that these problems will be corrected during fluid calibrations scheduled to be performed during startup, using plant generated fluids. Progress during this assessment period concerning installation, calibration, and testing of area and process monitors and radwaste systems has been satisfactory.

The licensee management involvement, technical issue resolution, and responsiveness to NRC issues in the preoperational radiological controls programs have been satisfactory during the assessment period.

2. Conclusion

The licensee is rated Category 2 in this area. This is the same rating as was given in the previous assessment period. The licensee performance has remained the same during this assessment period.

3. Board Recommendations

None.

L. Fire Protection

1. Analysis

During the assessment period one comprehensive team inspection was conducted by Region III and NRR personnel to assess conformance of as-built conditions to FSAR commitments and fire protection program implementation. Additionally, fire protection features and program implementation were observed by other Region III personnel during the course of routine inspection activities.

Three deviations were identified during these inspections as follows:

a. Failure to have a fully operational fire protection program prior to receipt of fuel onsite (Inspection Report Nos. 454/83-62; 455/83-42).

b. Failure to provide qualified staffing to implement the fire protection program prior to receipt of fuel onsite (Inspection Report Nos. 454/83-62; 455/83-42).

c. Failure to inspect, test, or otherwise assure operability of numerous fire protection features (Inspection Report Nos. 454/83-62; 455/83-42).

Numerous other significant deficiencies were discovered in hardware, program development, and program implementation. These deficiencies included failure of station approved procedures to include tests of fire protection systems and components, failure to incorporate required acceptance criteria into station approved fire system preoperational test and surveillance procedures, failure to install fire protection systems in accordance with committed-to guidance, failure to separate/protect redundant safe shutdown equipment, failure to assure conformance to specifications of procured components, failure to review modifications to installed equipment such as fire doors to ensure continued compliance with requirements, failure to develop procedures for safe shutdown which specified all actions to be taken for loss of control of equipment, and failure to involve a fire protection engineer in program development. Licensee audits of fire protection program implementation failed to identify most of these deficiencies. The inspection uncovered no evidence that the licensee was independently pursuing a comprehensive evaluation of the fire protection program to assure conformance with FSAR requirements in support of the issuance of an Operating License in February 1984 (the scheduled date at the time of the inspection).

The scope and nature of the deficiencies identified by NRC inspections were indicative of a lack of management involvement in the fire protection program at Byron compounded by a lack of technical expertise in program development. In a March 30, 1984

meeting with the Region III staff, the licensee provided a comprehensive schedule for resolving the identified deficiencies. Additionally, subsequent to the NRC team inspection the licensee has devoted significant management resources to fire protection including the formulation of two management task forces to oversee implementation of corrective actions commitments.

2. Conclusion

The licensee is rated Category 3 in this area based primarily on the lack of management involvement in this area as evidenced by numerous significant deficiencies. The licensee was not rated separately in this functional area in the previous SALP report wherein fire protection was included in the support system functional area. While management did take aggressive actions to correct these deficiencies, they were taken in response to NRC findings.

3. Board Recommendations

The Board recommends that the licensee continue to devote recently instituted comprehensive management attention to this area. The focus of this increased management attention should be the direction and evaluation of the overall fire protection program to assure proper and effective program implementation, application of quality assurance controls, and fulfillment of commitments made to the NRC. The NRC should dedicate necessary resources to follow-up in this area.

M. Emergency Preparedness

1. Analysis

Four inspections have been conducted in this area to evaluate the ability to comply with NRC requirements and licensee procedures. No items of noncompliance were identified in these inspections.

An emergency medical drill, involving the hospital treatment of a simulated contaminated, injured victim was observed. Station personnel involved in the drill generally performed satisfactorily and demonstrated proper interface with offsite medical

personnel. An inspection was conducted in June 1983 to ascertain the Station's readiness for a preoperational appraisal. While the licensee maintained that a late summer appraisal date was appropriate, the staff concluded that late November or December 1983 was more realistic based on the status of construction, equipment installation, and training activities.

During the emergency preparedness appraisal conducted in December 1983, fifteen Open Items and forty-nine improvement items were identified. Ten of the Open Items must be closed prior to fuel load. While the numbers of open and improvement items were about average for this type of inspection, the licensee requested two extensions for submitting a formal response to the appraisal findings, and still failed to meet the extended due date. The formal response was received about five weeks after the extended due date.

The licensee has conducted a successful exercise of its emergency plan. A second emergency medical drill and a fire drill, both involving offsite participation by offsite support organizations, were included in this exercise. Good coordination and working relationships with offsite medical and fire fighting organizations were evident. Several weaknesses identified during the exercise included communications between the Control Room and Technical Support Center; utilization of coolant sample analysis data in dose projections; contamination control by field monitoring teams; quality of press briefings at the emergency news center; and several instances of exercise controller confusion and resulting mistakes.

The licensee has established an effective training program for emergency response and other onsite personnel. Sufficient numbers of staff have been assigned and trained for key emergency positions.

2. Conclusion

The licensee is rated a Category 2 in this area. The licensee was not rated in this functional area in the previous assessment period. Licensee performance has remained the same during this assessment period.

3. Board Recommendations

The Board notes that the licensee has undergone an intensive appraisal and has conducted a successful exercise without an inordinately large number of open and improvement items having been identified. However, it has failed to provide a timely response to appraisal findings. The licensee should place greater emphasis on timely submittal of required responses to avoid emergency preparedness issues becoming a critical path to licensing.

N. Security and Safeguards

1. Analysis

Eight security inspections and one Material Control and Accountability (MC&A) inspection were conducted during the assessment period. One of the security inspections addressed security measures for onsite nuclear fuel. No items of noncompliance were identified. The seven remaining security inspections and the MC&A inspection were preoperational inspections to verify the licensee's progress in the implementation of the security and MC&A programs. A review of the acceptance testing program for security-related equipment was also conducted.

The licensee's Physical Security Plan, Safeguards Contingency Plan, and Security Force Training and Qualification Plan will become effective upon issuance of an operating license. Therefore, no violations were cited. Twenty-three findings were identified which must be corrected or resolved before issuance of an operating license. The findings pertained to the topics addressed in the 81100 Series Physical Protection Inspection Modules. Thirteen findings requiring resolution by Fuel Load (Category 1) remained open as of April 30, 1984. Adherence to the current security program implementation schedule should allow the licensee to implement their security program when required.

The licensee utilized its nuclear security expertise by scheduling an onsite review of the Byron Security Program in September 1983. This review was performed by Station Security Administrators from the licensee's operating nuclear stations in addition to staff assistants from the corporate nuclear security office. This review was effective in identifying major program deficiencies which would have precluded an October 1983 fuel load date. The findings were indicative of a lack of understanding of program elements by site security personnel. The station reacted positively to the results and implemented a schedule to address all of the findings. The licensee intends to conduct a similar review of the program by the Station Security Administrators prior to fuel load.

The security force appears to be of sufficient size to implement the security program. The majority of required training and personnel screening for the security force has been completed. Administrative supervision of the contract security force has not been stable. There have been three contract security site supervisors during the assessment period. The individual currently in this position appears better qualified than the previous site supervisors. Site security procedures and post orders have been completed and approved.

The major outstanding items that must be completed prior to fuel load are the completion of the vital and protected area physical barriers and associated intrusion detection devices. These

issues cannot be resolved until the licensee's "operations" schedule gets closer to fuel load, and the separation between Units 1 and 2 can be completed. Several security practices have already been held, principally to evaluate the use of the security computer system.

In summary, the licensee's staff has been effective in planning for the implementation of the security program and in identifying problem areas during implementation of the program. Senior site and corporate management personnel appear willing to commit the necessary resources to ensure timely program implementation. Thirteen findings remain open, all of which must be completed prior to fuel load. Resolution of these findings continues with satisfactory progress.

2. Conclusion

The licensee is rated Category 2 in this area. The licensee was not rated in this functional area in the previous assessment period. Licensee performance has improved during this assessment period.

3. Board Recommendations

None.

O. Reinspection Program

1. Analysis

A special Region III team inspection conducted in March and April 1982 revealed deficiencies in the licensee and contractor programs for qualification of inspectors to the requirements of American National Standards Institute (ANSI) Standard N45.2.6-1978. A review of qualifications indicated that "Certain contractor QA/QC supervisors and inspectors were not adequately qualified and/or trained to perform safety related inspection activities". These findings resulted in an item of noncompliance.

In response to the identified problems, the licensee took action to upgrade the contractors QA/QC programs and to assure that inspectors employed after September 1982 were properly certified. Existing contractor records were not sufficient to determine whether inspectors working prior to that date were certifiable. As a result, the licensee proposed the extensive QC Inspector Reinspection Program which was described in its letter to Region III dated February 23, 1983.

Region III personnel and the resident inspectors expended a large amount of inspection resources to assure that the QC Inspector Reinspection Program was properly conducted and that identified deficiencies were properly evaluated and

dispositioned, adverse trends detected, and the program accurately documented.

The QC Inspector Reinspection Program was a more complex undertaking than the original program plan would have suggested. Many management decisions were required to assure that specific implementing instructions were consistent with the program plan and uniformity applied by all contractors. The program plan did not specifically address all circumstances encountered during program execution. In such cases the licensee developed guidance which was conservative and which best served the intent of the program. NRC inspections indicated that management involvement was extensive and appropriate.

Technical issues which arose during the program were appropriately addressed by the licensee. The licensee consulted with NRC personnel on several occasions to assure that the approaches being taken to resolve such issues were acceptable. Positions developed by the NRC staff on certain of these occasions were well received by the licensee and actions were taken consistent with these NRC staff positions.

Data was freely made available to NRC inspection personnel during the program. The data was well organized and further indicative of licensee management involvement. NRC inspection personnel conducted extensive independent reviews of reinspection personnel certification documents as well as independent inspection of reinspected items. In all cases the results of these reviews and inspections indicated that inspector training and qualification requirements established by the licensee were implemented and effective.

The licensee's QA organization was extensively involved in monitoring inspector recertification and reinspection activities. A 100% review of contractor QC inspection personnel certification documentation was performed. Audits of reinspection activities were not initiated until June 21, 1983; however, the audit was extensive in that major aspects of program implementation were assessed for all contractors included in the program. Two additional audits were subsequently performed to evaluate the performance of the onsite electrical contractor and to assure that the "Preliminary Report on the Reinspection Program" was complete and accurate.

Further, the licensee directed Pittsburgh Testing Laboratories (PTL), as an independent agent, to perform special over inspections during the conduct of the QC Inspector Reinspection Program to determine if the PTL inspectors could independently arrive at the same inspection results as the contractor's QC inspectors performing the reinspections and to verify that the contractor inspectors were not biasing inspection results in favor of their company. The PTL results supported the QC Inspection Reinspection Program results.

A final inspection was conducted to provide an overview of the entire QC Inspector Reinspection Program. This inspection indicated the program had been conducted in accordance with commitments. It concluded that the licensee's final report accurately describes the results of the program, that inspectors who may have been improperly certified did not overlook any significant safety related hardware deficiencies, and the safety related work done by the Byron contractors is of acceptable quality. It was also concluded that the licensee had taken proper corrective action to resolve the original noncompliance.

No items of noncompliance related to the QC Inspector Reinspection Program were identified.

2. Conclusion

The licensee is rated Category 1 in this area. Since the program was originated and concluded in this assessment period, the licensee was not previously rated in this functional area and no future SALP assessments are planned.

3. Board Recommendations

None.

V. SUPPORTING DATA AND SUMMARIES

A. Licensee Activities

The main construction activities which occurred during the assessment period were the installation of piping, snubbers, cable trays, conduits, electrical equipment, instruments, cables and HVAC. The QC Inspector Reinspection Program was initiated and completed. Preoperational testing was conducted for many safety-related systems.

Units 1 and 2 were reported by the licensee to be 100% and 70% complete, respectively, as of April 30, 1984. Fuel load dates are estimated by the licensee to be September 15, 1984, for Unit 1 and October 31, 1985, for Unit 2.

B. Inspection Activities

1. Noncompliance Data

a. Facility Name: Byron Unit 1 Docket No. 50-454
Inspections No. 83-01 through 84-23 and 84-27

Functional Areas Assessment	Noncompliances and Deviations Severity Levels I	II	III	IV	V	Dev.
A. Soils and Foundations						
B. Containment and Other Safety-Related Structures						
C. Piping Systems and Supports				(3)	1(5)	
D. Safety-Related Components				(2)		
E. Support Systems						
F. Electrical Power Supply and Distribution				(3)	1(3)	
G. Instrumentation and Control Systems				1		
H. Licensing Activities						
I. Quality Assurance				3(1)		
J. Preoperational Testing				4	10(1)	
K. Radiological Controls						
L. Fire Protection						(3)

Functional Areas Assessment	Noncompliances and Deviations Severity Levels I	II	III	IV	V	Dev.
M. Emergency Preparedness						
N. Security and Safeguards						
O. Reinspection Program						
TOTALS				17	21	3

() Indicates items common to both Units 1 and 2.

b. Facility Name: Byron Unit 2 Docket No. 50-455
Inspections: No. 82-01 through 84-16 and 84-19

Functional Areas Assessment	Noncompliances and Deviations Severity Levels I	II	III	IV	V	Dev.
A. Soils and Foundations						
B. Containment and Other Safety-Related Structures						
C. Piping Systems and Supports				(3)	(5)	
D. Safety-Related Components				(2)		
E. Support Systems						
F. Electrical Power Supply and Distribution				(3)	(3)	
G. Instrumentation and Control Systems						
H. Licensing Activities						
I. Quality Assurance				(1)		
J. Preoperational Testing					(1)	
K. Radiological Controls						
L. Fire Protection						(3)
M. Emergency Preparedness						
N. Security and Safeguards						
O. Reinspection Program						
TOTALS				9	9	3

() Indicates items common to both Units 1 and 2.

2. Inspection Activities

The composite inspection effort by the NRC consisted of 86 inspections of Unit 1 and 60 inspections of Unit 2 during the assessment period, including a team inspection of the design process called the Integrated Design Inspection (IDI). Portions of the inspection effort were dedicated to allegations and the QC Inspector Reinspection Program. The scope of these inspections included quality assurance program effectiveness in areas inspected, corrective action systems, design change control, material traceability, electrical cable installation, in-process inspections, and effectiveness of quality control inspectors. Within these areas, the inspections consisted of selective examinations of procedures and representative records, observations, and interviews with personnel.

On August 8, 1983, the current Senior Resident Inspector was assigned to the Byron Site following reassignment of the previous Senior Resident Inspector to the Region III Office.

C. Investigations and Allegations Review

Twenty-four allegations relative to improper construction activities at Byron Station were received by Region III in the assessment period. Significant inspection effort was expended reviewing these and 25 other allegations which were received prior to the period, including investigations by the Office of Investigations of several allegations regarding site contractor activities. Nine allegations were substantiated (factual statements). Substantiated issues are documented and were followed to resolution. Noncompliances resulting from inspections of allegations are included in the appropriate functional area section of this SALP report.

D. Escalated Enforcement Actions

1. Civil Penalties

None.

2. Orders

None.

E. Management Conferences

1. Conferences

The following meetings were conducted during this period:

January 26, 1983	Management meeting to discuss CECo proposed guidelines for use by CECo personnel in dealing with information requests from NRC inspectors (Report Nos. 454/84-03 and 455/84-03).
February 17, 1983	Management meeting to discuss the increased number of events at CECo operating and construction sites which have lead to consideration or issuance of civil penalties (Report Nos. 454/83-11 and 455/83-09).
February 28, 1983	Meeting to discuss NRC inspection experiences and findings, and priorities and schedules relative to completion of construction and preoperational testing activities (Report Nos. 454/83-10 and 455/83-08).
May 23, 1983	Enforcement conference to emphasize the seriousness of problems observed in conducting preoperational testing and in preparing preoperational test procedures (Report No. 454/83-23).
June 13, 1983	Management meeting to present and discuss the results of the SALP 3 assessment (Report Nos. 454/83-22 and 455/83-18).
July 26, 1983	First management meeting aimed at improving licensee regulatory performance and enhancing communications between the NRC and CECo (Report Nos. 454/83-36 and 455/83-27).
August 4, 1983	Management meeting to discuss the Reinspection Program (Report Nos. 454/83-38 and 455/83-28).

September 9, 1983	Second in a series of management meetings aimed to improving licensee regulatory performance and enhancing communications between the NRC and CECo (Report Nos. 454/83-44 and 455/83-33).
September 22, 1983	Meeting to provide an update on the activities of the Reinspection Program (Report Nos. 454/83-39 and 455/83-29).
October 19, 1983	Third in a series of management meetings aimed at improving licensee regulatory performance and enhancing communications between the NRC and CECo (Report Nos. 454/83-50 and 455/83-36).
November 10, 1983	Meeting to review the CECo preliminary report dated October 28, 1983, regarding actions taken to verify the adequacy of QC inspections (Report Nos. 454/83-39 and 455/83-29).
January 27, 1984	Public meeting between the CECo and Region III to discuss the "Report on the Byron QC Inspector Reinspection Program."
March 30, 1984	Management meeting to discuss actions taken to resolve fire protection issues (Report Nos. 454/83-62 and 455/83-42).

2. Confirmatory Action Letters

A Confirmatory Action Letter was issued to CECo on May 13, 1983, regarding an upgraded program for the installation of large bore pipe whip restraints. CECo committed to complete corrective actions, including procedure preparation and training, prior to restarting the installation of new whip restraints. The licensee's implementation of these actions was reviewed in an inspection and was found satisfactory.

F. Review of Construction Deficiency Reports and 10 CFR 21 Reports

1. Construction Deficiency Reports (CDR)

During this SALP period 15 CDRs were submitted by the licensee under the requirements of 10 CFR 50.55(e). The content of these reports was acceptable. Submitted reports were as follows:

a. Safety-related HVAC installation by Reliable Sheet Metal was not in accordance with dimensional tolerances and details on drawings.

b. Westinghouse gate valve operators indicate that they are closed prior to the valve disc fully isolating flow.

c. Reactor coolant pump and steam generator support columns were not installed within specified tolerances.

d. Design requirements failed to provide for the burring of structural steel bolt threads.

e. Preservice inspection identified seven rejectable indications in weld seams on Byron 1 Steam Generators 1 and 2, and the Pressurizer.

f. Design discrepancy in Westinghouse Model DS-416 reactor trip breakers.

g. Reactor Coolant Pump 1A radial bearing failure during hot functional testing.

h. Certain spring hangers supplied by Elcan Metal Products have welded high carbon steel nuts with a carbon content in excess of Code limits.

i. Westinghouse protection system printed circuit card adhesive failure.

j. Power Conversion Products battery chargers with the wrong type of shunt trip coil.

k. Anaconda flexible conduit split open on several installations.

l. Westinghouse motor starters overload trips were not accurately calibrated.

m. Pacific Scientific snubber capstan springs failed dynamic test.

n. Electrical cable grip supports were not always installed per the requirements of S&L STD-EB-200.

o. Pacific Air Products linear torque converters on HVAC dampers OVC04Y, OVC94Y, OVC199Y failed due to shaft guide wear during flow testing.

Nine of these reports were submitted due to defective vendor supplied components. The frequency of reporting has not changed from the previous assessment period.

2. Part 21 Reports

No 10 CFR Part 21 reports were submitted by the licensee during this assessment period. No situations were identified where the licensee should have submitted a report.