U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/82-02

Docket No. 50-461 License No. CPPR-137

Licensee: Illinois Power Company, Decatur, Illinois

Facility Name: Clinton Nuclear Power Station, Unit 1

Dates of Investigation: January 5 through March 3, 1982

Investigation At: Clinton, Illinois

Investigators: G. A. Phillip — Date: 5/27/82

J. E. Foster — Date: 6/9/82

Inspectors: R. S. Love — Date: 5/24/82

W. J. Key — Date: 6/1/82

K. R. Naidu — Date: 6/1/82

H. H. Livermore — Date: 5/27/82

Reviewed By: R. F. Warnick, Director, Enforcement and Investigation Staff — Date: 6/9/82

C. C. Williams, Chief, Plant Systems Section — Date: 5/24/82

Investigation Summary

Investigation during the period of January 5 through March 3, 1982 (Report No. 50-461/82-02(EIS))

Areas Investigated: An investigation was initiated following receipt of allegations and concerns from several sources, primarily relating to safety-related electrical work. The investigation consisted of an examination of pertinent procedures and records, observations, and interviews of personnel and involved 448 man-hours by six NRC representatives. (Fifty-three hours are attributable to the Senior Resident Inspector. Forty-nine of these hours were recorded on Inspection Report No. 82-01 and four hours on Inspection Report No. 82-03.)

Results: This investigation identified two major problem areas: a general breakdown in the quality program in safety-related electrical work as evidenced by several examples of noncompliance with ten of the eighteen criteria in 10 CFR 50, Appendix B; and, the failure to assure that personnel performing quality functions have sufficient freedom and independence to identify quality problems which is in noncompliance with Criterion I of 10 CFR 50, Appendix B. A total of eleven items of noncompliance were identified during this investigation.

REASON FOR INVESTIGATION

On November 25, 1981, Region III received an anonymous letter containing several allegations regarding piping work packages and personnel qualifications; and on December 30, 1981, the NRC Senior Resident Inspector advised Region III some site personnel had expressed concerns regarding the adequacy of the electrical QC program. An investigation was initiated following receipt of these allegations and concerns.

SUMMARY OF FACTS

During the investigation specific details were obtained regarding the concerns brought to the attention of the Senior Resident Inspector and additional concerns were received. During the investigation significant deficiencies in the QA QC program in the electrical area were identified and the licensee agreed to issue a Stop Work Order on January 15, 1982. A Confirmatory Action Letter, dated January 27, 1982, confirmed an understanding between the licensee and Region III that the Stop Work Order would remain in effect until specific actions were taken by the licensee to improve control over the electrical construction program. Although the licensee initiated actions towards this end, the Stop Work Order was still in effect at the end of this investigation.

Noncompliance with eleven criteria of 10 CFR Part 50, Appendix B, were identified during this investigation. No items of noncompliance were identified relating to the allegations contained in the anonymous letter received by Region III on November 25, 1981.

DETAILS

1. Persons Contacted

Illinois Power Company

W. J. Kelley, President
*W. C. Gerstner, Executive Vice President
L. J. Koch, Vice President
*J. O. McHood, Vice President, Project Manager
A. Sudnick, Director, QA
*M. C. Hollon, QA Supervisor, Construction
*E. E. Connon, Director of Compliance
W. J. Calhoun, Supervisor, Electrical Construction
*J. S. Spencer, Director, Design Engineering
J. King, Assistant Director, Construction (Electrical)
L. Dozier, Assistant Director, Construction (Mechanical)
D. Smith, Supervisor, Security Construction
*R. W. Morgenstern, QA Engineer
*D. J. Ennen, Supervisor, QA Engineering
M. Tindill, Engineer
G. Motsegood, Engineering Supervisor
D. Korneman, Superintendent, Construction

Baldwin Associates

*W. J. Harrington, Project Manager
T. Selva, former Manager, Quality and Technical Services
J. Smart, Manager, QA
L. Gelbert, Manager, QC
G. Chapman, Manager, Technical Services
*J. E. Findley, Manager, Quality and Technical Services (former Resident Engineer)
H. R. Swift, Project Engineer
W. L. Atkins, Assistant Project Engineer
J. C. Wilson, Assistant Manager, QC
H. J. Harris, Senior QC Electrical Engineer
D. L. Richter, QC Electrical Engineer
R. Johnson, Inspection Engineer, QC (Field Supervisor)
L. Ratliff, Electrical QC Engineer
J. Sprague, Supervisor, Materials Control
B. Brown, Manager, Subcontracts
R. Riedy, Assistant Manager, Subcontracts
E. Stumpf, Electrical Superintendent of Construction
F. Modlin, General Foreman
J. Hoban, Manager, Personnel
W. McConnell, Manager, Services
D. Danley, Lead Electrical Engineer
J. Barber, Electrical Engineer

Also contacted were sixteen BA QC inspectors and Lead Inspectors and the IP QA engineering staff.

2. Introduction

On November 25, 1981, Region III received an anonymous letter containing allegations relating primarily to piping work packages and the qualifications of named personnel. On December 30, 1981, the NRC Senior Resident Inspector advised Region III that some personnel at the site had expressed concern regarding the adequacy of the quality control program for the electrical work. One individual advised that a QC Inspector who had been reluctant to sign a traveler had been intimidated by supervision and had signed the traveler. Another individual indicated that fire protection system piping installed in the cable spreading room violated the separation criteria, i.e., some piping touched or was too close to safety-related cable trays and conduits. Other individuals said that nonconforming conditions were being documented on General Inspection Reports rather than on Deviation Reports or Nonconformance Reports which permitted informal resolution of the problems. In addition, concern was expressed that formal inspection instructions and procedures were being modified orally or by memorandum. During the course of the investigation additional concerns were received. Information obtained during this investigation is set forth below.

3. QC Inspector Intimidation

Prior to this investigation, the NRC Senior Resident Inspector was informed by an individual that a named QC inspector had been forced to sign a traveler by a supervisor.

On January 7, 1982, the Level I QC Inspector identified as having been forced to sign a traveler was interviewed. The Inspector said that about two or three weeks earlier he had been assigned to inspect a traveler hold point involving an electrical termination. The traveler instruction was to perform an inspection of all modifications on page 11 of Engineering Change Notice (ECN) 2548. Page 11 specified a fuse block in-place. When he performed the inspection he noted a terminal block was present instead of the fuse block. Since the traveler referenced only page 11 of ECN 2548 and the configuration was not as shown on that page, he did not sign the traveler.

The Inspector discussed the traveler with a Lead Inspector, Level II, who agreed with him that the hold point should not be signed off. The Inspector also discussed the matter with the QC Field Supervisor, Level II, who initially agreed with him. However, after the Field Supervisor discussed the matter with Engineering, he informed the Inspector that it was all right to sign off the hold point, even though there was a terminal block in place of the fuse block. The Field Supervisor pointed out that a subsequent step in the traveler required verification that the fuse block was in place.

The Inspector said he told the Field Supervisor he still felt uncomfortable signing off the hold point. The Inspector said he felt the matter should have been referred to Engineering to have the ECN revised. The

Inspector said the discussion became heated and he told the Field Supervisor he wanted a second opinion. The Field Supervisor responded by saying that if the Inspector would not sign the traveler they would go to see the Senior QC Electrical Engineer, Level III. The Inspector said that, in the atmosphere in which the Field Supervisor made that statement, he interpreted it to mean that if the matter was brought to the Senior QC Electrical Engineer he, the Inspector, would be "chewed out" or possibly fired. He said he perceived the Field Supervisor's statement to be a threat. He said that rather than pursue the matter further, he signed the traveler. The Inspector indicated that the matter could have been resolved, if in view of his reluctance to sign the traveler, the Field Supervisor had signed it himself.

A Lead Inspector, who was present during the above described discussion, said that he considered the Field Supervisor's conduct to be intimidating and that he also felt intimidated.

One other individual who was aware of, but not involved in, the discussion said that he felt that undue pressure had been exerted on the Inspector.

During an interview on January 28, 1982, the Field Supervisor confirmed that when the Inspector initially described the condition to him he agreed that he should not sign the traveler. After this discussion, however, he reviewed the traveler and the ECN. On the basis of this review he felt it was all right to sign the traveler because he determined that a subsequent step required verification that the fuse block was in place. He said he also determined that the traveler contained a section of general information which stated that the fuse blocks had not been received and that terminal blocks would be installed to permit completion of the wiring. He said he also discussed the matter with the QC Electrical Engineer, the engineer who prepared the traveler and an IP engineer. The Field Supervisor said the second discussion with the Inspector started off calmly but did become heated. He said he was perturbed that the situation was not fully explained to him by the Inspector and the Lead Inspector the first time and that it had been necessary for him to get the traveler and read it. He said that he could not convince the Inspector and the Lead Inspector that there was no problem. He said that he offered to sign the traveler if the Inspector was not comfortable signing it. When the Inspector said he wanted a second opinion, he responded by saying that they could ask the Senior QC Electrical Engineer for an opinion. The Field Supervisor said this was the appropriate thing to do, i.e., when a matter cannot be resolved at one level, it should be taken to a higher level for resolution. He said his offer to take the matter to the Senior QC Electrical Engineer was not intended to intimidate anyone. He said that the Senior QC Electrical Engineer has told inspectors they can come to them if they have questions on procedures and instructions. The Field Supervisor said that the Inspector eventually felt more comfortable about the matter and did sign the traveler.

During the interview on January 7, 1982, the same Level I Inspector said following the episode regarding the fuse block he had another concern about the content of ECN 2548. He said that on a list of terminal numbers a circle had been drawn around four of them with a line extending to a note "field to add." Another circle had been drawn around two of the numbers within the larger circle with a connecting line to another note "field to disconnect." He said the instruction was therefore unclear regarding the latter numbers since "field to add" and "field to disconnect" both could be construed as applying to them. He said he brought this to the attention of the Field Supervisor who told him "field to disconnect" probably applied to the numbers in the smaller circle. Although the Field Supervisor implied that the Inspector should conduct the inspection on that basis, the Inspector said he did not sign off on that step in the traveler and did not know whether anyone else had.

The Inspector's Lead Inspector advised that following the above events he was instructed by the Field Supervisor to take the Inspector off of electrical termination inspections. The Field Supervisor stated on January 28, 1982, that he had instructed the Lead Inspector to take the Inspector off of terminations so that he could be given additional training regarding those inspections. He said his being taken off was intended to be temporary and that the additional training could be completed in less than a day.

At the beginning of this investigation IP and BA site management were informed that the investigation would include interviews with BA QC Inspectors. At that time the BA QC Manager stated arrangements for interviews of inspectors should be made through him. The interviews were conducted in the NRC Senior Resident Inspector's office and the QC Manager or, if he was unavailable, the Senior QC Electrical Engineer was requested to have an inspector come to the NRC office for interview. Since these interviews entailed the absence of the inspector from his job for an average of an hour more, no objection was made by NRC personnel to this arrangement. Some inspectors interviewed said that immediately before they arrived for interview they were briefed by their management to the effect that the interview was voluntary and they were not required to provide information to the NRC nor were they required to sign any statement.

Subsequent to these interviews, inspectors or Lead Inspectors were requested to accompany NRC personnel during inspections of various items in the plant. Also, on some occasions, discussions were held with various QC personnel in the QC field office. Since these contacts were brief and informal and were made at the inspectors' workplace, no specific arrangements were made for them with BA QC Management.

On one such occasion, on January 26, 1982, some QC Inspectors were approached by the NRC representatives in the QC field office to obtain information regarding a mechanical assisted cable pull. The QC Inspectors advised the NRC personnel that they could not engage

in any discussion without approval from the BA QC Manager. The QC Inspectors said that a few days earlier the QC Manager had held a meeting with them during which he instructed them if they were approached by NRC personnel the inspectors should refer them to the QC Manager. A telephone contact was made with the QC Manager and the information was obtained from the inspectors.

Subsequently, during interviews with other inspectors, the Field Supervisor, the Senior QC Electrical Engineer, and the Assistant QC Manager, some variations in the understanding of the QC Manager's instructions were given. The concensus, however, was that NRC-initiated contacts with QC personnel were to have the prior approval of QC Management. During an interview on February 3, 1982, the QC Manager said that during the above-mentioned meeting he had made a statement to the inspectors that they should check with him before taking any time away from their assigned duties when approached by personnel of outside organizations. He indicated that problems had arisen in the past because other site organizations had taken up inspectors' time unnecessarily. He said his comment was made in that context and was not directed exclusively at NRC contacts. He said his comment was made in the interest of getting the job done and not to thwart the efforts of the NRC. An agreement was reached with the QC Manager that the NRC would have free access to personnel in the future but that, if such contacts would involve more than a few minutes, assurances would be obtained that they would not interfere with priority assignments, such as delaying the inspection of witness points and hold points.

At about 4:30 p.m. on January 26, 1982, a Lead QC Inspector advised that he and another inspector had just been fired. He said he felt that their being fired was unjust and requested a meeting with the NRC representatives the next day. He was advised that they should come to the NRC Senior Resident Inspector's office the next morning. At about 8:15 a.m. on January 27, 1982, the NRC representatives were advised by an anonymous telephone call that the Senior QC Electrical Engineer had made a telephone call to the IP Security Office that morning instructing them not to allow the two fired inspectors on the site. A few minutes later the NRC Senior Resident Inspector saw the two inspectors being detained at an entrance to the plant. At about the same time a representative of IP QA arrived at the entrance. Arrangements were made for the inspectors to enter the plant as IP visitors. After the inspectors engaged in some discussion with IP QA personnel, they were brought to the NRC Senior Resident Inspector's office where they were interviewed privately.

During an interview on February 2, 1982, the Senior QC Electrical Engineer advised that at the instruction of the QC Manager he had called the IP Security Office on January 27, 1982, to inform them that the two inspectors were not to be allowed on the site. He also advised that when the inspectors were fired on January 26, 1982, he obtained their employee badges and gave them to the Assistant QC Manager. He declined to comment further on the matter.

During an interview on February 3, 1982, the QC Manager said that on the morning of January 27, 1982, he was in the office of the Manager, Quality and Technical Services when the Senior QC Electrical Engineer informed them the two inspectors were at the gate. The Manager, Quality and Technical Services asked the QC Manager to instruct the Senior QC Electrical Engineer not to sign the inspectors in. The QC Manager said his only concern was that BA was not authorizing the inspectors' access to the site. The QC Manager said he understood that BA did not control the site and therefore could not prevent anyone from coming onsite.

During interviews on February 3 and 4, 1982, the IP Supervisor, Security Construction, stated he received a call from the BA Senior QC Electrical Engineer on January 27, 1982, advising him that two named individuals had been fired and that "we don't want to let them back on the job." The Supervisor of Security stated that the call was received before the inspectors arrived at the entrance to the plant. He passed this instruction to the guard on duty at the main gate who relayed the instruction to the guard posted at the building entrance. He stated that no call was made by IP Security to the BA QC office.

On January 27, 1982, the Lead QC Inspector, who had been fired the previous day, was interviewed. The Lead Inspector stated that on the afternoon of January 26, 1982, the Field Supervisor instructed him and another inspector to accompany him to the Assistant QC Manager's office. They were met there by the Senior QC Electrical Engineer and the Assistant QC Manager. The Lead Inspector and the other Inspector were handed their paychecks and were told they were discharged. The Senior QC Electrical Engineer advised the Lead Inspector he was fired for not following the Field Supervisor's instructions. The Lead Inspector said he stated he had followed the Field Supervisor's instructions except when to do so would violate written QC procedures and instructions. According to the Lead Inspector, the Assistant QC Manager said that inspectors were to follow the Field Supervisor's instructions even if to do so would violate QC instructions and procedures. He said the Assistant QC Manager repeated that statement and said that the Field Supervisor would take the responsibility in such cases. The Lead Inspector said he pointed out to the Assistant QC Manager that the Field Supervisor does not take the responsibility since he does not sign the inspection check list or travelers.

A copy of his notice of termination was provided by the Lead Inspector. It states that he was discharged and not eligible for rehire. The explanation states: "Inadequate leadership and lack of cooperation and failure to follow direction of supervisors." The Lead Inspector stated that after he was discharged he and the Field Supervisor walked back to the QC field office together. While enroute the Field Supervisor said that he was a good leader but that "he was leading the inspectors in the wrong direction."

The Lead Inspector stated that on or about January 15, 1982, the Senior QC Electrical Engineer held a meeting with his supervisors and lead men. During that meeting the Senior QC Electrical Engineer instructed the Lead Inspector that he was to follow the Field Supervisor's instructions no matter what they were and the lead men were not to alter the Field Supervisor's instructions. The Lead Inspector said that he had stated at that meeting he would follow the Field Supervisor's instructions as long as they did not violate QC instructions or specifications. The Lead Inspector said he had always followed the Field Supervisor's instructions in that manner. He said he had never challenged the Field Supervisor's authority. He said there had been several occasions in which the Field Supervisor gave him the instructions and he had discussed the instructions with the Field Supervisor. He said this occurred when the Field Supervisor's instructions would have violated QC procedures. He said that on several occasions when he pointed this out to the Field Supervisor, he changed the instructions. He said that on more that one occasion the Field Supervisor had made statements to QC Inspectors that their main job was to support the crafts.

The Lead Inspector advised that one day during the current NRC investigation he was present in the Field Supervisor's office while he was on the telephone. At the end of the telephone conversation he heard the Field Supervisor say "O.K., I'll tell him." The Field Supervisor then turned to the Lead Inspector and told him that the Senior QC Electrical Engineer had instructed him to tell the Lead Inspector that he was not to accompany the NRC personnel around the plant anymore and he was not to hang around the NRC personnel when they were in the QC field office because the Senior QC Electrical Engineer felt he was giving NRC too much information. The Lead Inspector said he felt that this was part of the reason he was fired. He said he felt his firing was unfair and unjust. The Lead Inspector provided a statement under oath regarding these matters (Exhibit A).

On January 27, 1982, the other Inspector, a Level I Electrical Inspector who was fired on January 26, 1982, was interviewed. He said that when he was fired he was told it was for failure to follow the orders of his supervisors. His notice of termination stated he was discharged and not eligible for rehire. The explanation states: "Failure to follow direction of supervisors." The Inspector said he asked the Field Supervisor for an example of his failure to follow directions. The Field Supervisor said there were several instances. The Field Supervisor, however, said that he could not think of a specific example at that time but that there were several. The Inspector said that he felt the real reason he was fired was that BA QC management believed that he had provided information to the NRC regarding problems and weaknesses in the electrical QC activities. The Inspector provided a statement under oath concerning the circumstances of his discharge but declined to include in the statement his perception of the reason he was discharged (Exhibit B).

On January 28, 1982, the QC Inspection Engineer (Field Supervisor) was interviewed. He said that prior to the firing of the two

inspectors he had a meeting with the Senior QC Electrical Engineer in which the latter said that the efficiency and attitude of the QC inspectors must be improved. The Field Supervisor responded by saying that with three managers in the field office it could not be done. The Field Supervisor said that by this remark he meant the two inspectors who were subsequently fired had more influence with the other inspectors than he did. The Field Supervisor said he had further discusssions about the matter with the Senior QC Electrical Engineer and the QC Manager on January 25, 1982, and the decision was made to fire the two men.

The Field Supervisor said he was present when the Assistant QC Manager informed the inspectors they were fired on January 26, 1982. He said the Assistant QC Manager told the inspectors they were being fired for the betterment of the QC Department. He confirmed that the Level I Inspector had asked him for an example of his failure to follow instructions and that he was unable at that time to recall a specific example. Regarding the Level I Inspector, the Field Supervisor said he was a good inspector but that he resisted working overtime and was openly critical of QC management. He expressed dissent with instructions from QC management. He did not like the way they were instructed to perform raceway inspections. He considered the written instructions inadequate. He said the Inspector gave him the impression that he would not be satisfied no matter what instructions QC management issued. He said the Inspector was reluctant to do raceway inspections but did not refuse to do them. According to the Field Supervisor, the Inspector had done about 50% of the raceway inspections. The Field Supervisor said the Inspector was uncooperative and would not follow his directions. If the Field Supervisor instructed him to do an inspection, he did not refuse but let him know that he would do it when he got around to it. On the other hand, if the Inspector was told to do an inspection by his Lead Inspector there was no problem. (This Inspector's Lead Inspector was not the other individual who was fired.)

Regarding the Lead Inspector who was fired, the Field Supervisor said that during a meeting of supervisors and lead men, the Senior QC Electrical Engineer told the Lead Inspector that if he had a problem with instructions he received he should come in and discuss it with him. The Lead Inspector said he did not intend to ignore the Field Supervisor's instructions and that, if he had a problem, he and the Field Supervisor resolved it through discussions. The Field Supervisor stated that most of the time this had occurred but sometimes the Lead Inspector went his own way. The Field Supervisor said his recollection of the Senior QC Electrical Engineer's statement to the Lead Inspector during this meeting was that instructions are instructions and the Lead Inspector should follow them.

Regarding statements made at the time the Lead Inspector was fired, the Field Supervisor said he did not recall the Assistant QC Manager saying that the Lead Inspector must follow instructions even if they violate written procedures. He said he recalled the Lead Inspector saying he did not follow instructions when he knew they were wrong. The Assistant QC Manager responded by saying that that was the

problem. He should "follow instructions even if they are wrong and get clarification from higher authority later."

The Field Supervisor denied telling the Lead Inspector that the Senior QC Electrical Engineer felt the Lead Inspector was giving too much information to the NRC. He said the Senior QC Electrical Engineer advised him that if he could assign someone else to accompany the NRC representatives during tours of the plant he should do so because the Lead Inspector had other things requiring his attention. He said the Lead Inspector should not go with the NRC unless they specifically asked for him.

The Field Supervisor declined to provide a signed statement regarding any of the above information.

On February 2, 1982, the Senior QC Electrical Engineer was interviewed. Regarding the January 15, 1982 meeting he held with supervisors and Lead Inspectors, he said he discussed some matters applicable to all those present and then discussed specific problems he had regarding individual lead men. Regarding the Lead Inspector who was later fired, he said he discussed the Lead Inspector's practice of arguing and debating with the Field Supervisor in front of inspectors. He said he felt any disagreement between them should be discussed privately. He said he did not recall what, if any, response the Lead Inspector made.

The Field Supervisor later told him that he could no longer work with the Lead Inspector. At his request, the Field Supervisor wrote him a memo expressing his concerns about the Lead Inspector. The Senior QC Electrical Engineer said he felt the Lead Inspector, although he had leadership ability and was a good inspector, was anti-supervision and anti-management. He said the Lead Inspector gave the impression he did not want to make a positive decision on specific inspection matters. When the Field Supervisor did make a decision on those occasions, the Lead Inspector would want to debate the matter.

The Senior QC Electrical Engineer said he was present when the Lead Inspector was fired. He said he did not recall any statements being made to the effect that inspectors should follow the Field Supervisor's instructions even if they violated written QC instructions. He said he did recall some discussion between the Lead Inspector and the Assistant QC Manager regarding the Lead Inspector's practice of going directly to Engineering for answers to questions he had relating to items being inspected. The Assistant QC Manager said that was wrong. The QC Department wrote the instructions and he was to follow them. If he had any questions he was to go through the QC supervisory chain to get them resolved. The Senior QC Electrical Engineer said he also recalled that the Lead Inspector said that he felt that he was being fired for giving information to the NRC. The Senior QC Electrical Engineer said he told the Lead Inspector that was not true.

The Senior QC Electrical Engineer said he did not recall telling the Field Supervisor not to let the Lead Inspector accompany the NRC representatives. He said the Field Supervisor told him the Lead Inspector was not doing his job because he was walking over to talk to the NRC when the NRC was talking to other inspectors. He said he felt the Lead Inspector should be attending to his work and, although he did not specifically recall it, he may have said that it would be better to have an inspector accompany the NRC on plant tours rather than the Lead Inspector. The Senior QC Electrical Engineer denied telling the Field Supervisor that he felt the Lead Inspector was giving too much information to the NRC.

Regarding the firing of the Level I Inspector, the Senior QC Electrical Engineer said the Field Supervisor was having problems with him. The Inspector had resisted working overtime and in December 1981, had left the job early. The Senior QC Electrical Engineer said the Inspector could have been fired then, but he was given three days of disciplinary leave without pay.

The Senior QC Electrical Engineer declined to provide a signed statement regarding any of the above matters.

On February 2, 1982, the Assistant QC Manager was interviewed. He said that several days before the two men were fired there were discussions about the need for improving the responsiveness of inspectors to management instructions. The Field Supervisor said the inspectors were not doing what he told them to do and that they were getting advice from other people. The Lead Inspector's practice of making direct contacts with people outside of the department about questions that arose relating to QC inspections was discussed. The Assistant QC Manager said the Level I Inspector had an air of arrogance and independence and established his own priorities. The Field Supervisor was instructed to put his concerns in writing. Upon review of his memos in which he requested that the two men be terminated, the Senior QC Electrical Engineer concurred and the action was taken. The Assistant QC Manager said it was his understanding that the firing of the two inspectors was discussed with the IP Vice President before the action was taken.

The Assistant QC Manager confirmed that the Level I Inspector asked for a specific example of his not following instructions and the Field Supervisor was unable to give him one.

The Assistant QC Manager denied he made the statement attributed to him in the Lead Inspector's sworn statement. He said the only statement he recalled having made was that problems or questions that arise regarding inspections should be brought to QC supervision rather than others for resolution.

The Assistant QC Manager declined to provide a signed statement regarding the above matters.

On February 3, 1982, the QC Manager was interviewed. He said he was not present when the two inspectors were fired on January 26. He said he was aware that they were being fired and had signed the notices of termination. He said he and the Manager, Quality and Technical Services, had discussed the matter with the IP Vice President about an hour before the men were fired and he had concurred.

The QC Manager provided copies of two memoranda, both dated January 26, 1982, from the Field Supervisor to the Senior QC Electrical Engineer. One was a performance evaluation of the Lead Inspector (Exhibit C); the other a performance evaluation of the Level I Inspector (Exhibit D). The QC Manager also provided a copy of a memorandum, dated February 1, 1982, he prepared transmitting additional information to the Manager, Quality and Technical Services concerning the evaluation of the terminated Lead Inspector. (Exhibit E). As indicated at the end of the attachment to this memorandum, the contents were extracted from statements supplied by others. A review of these handwritten statements showed that Items 1 through 7 were based on a statement prepared by the Field Supervisor. Item 8 was based on a statement prepared by an individual who was a QC Electrical Engineer, and who had spent time in the QC field office getting on-the-job training. Item 9 was supplied by the Senior QC Electrical Engineer.

On March 1, 1982, the QC Engineer who supplied the information for Item 8 was interviewed. He advised he was hired as a QC Engineer on November 1, 1981, and had been assigned to the QC field office for on-the-job training and familiarization with electrical inspections. He accompanied inspectors but did not perform any inspections himself. On December 26, 1981, he was transferred to his present position where he is engaged in writing inspection instructions and procedures. He said a few days after the Lead Inspector was fired, the Senior QC Electrical Engineer approached him to discuss conditions in the QC field office. He gave him his observations and was asked if he would write them down. The QC Engineer said he wrote a memorandum, which is dated January 29, 1982, the same day.

He said he felt it was not proper for an individual to question a supervisor's instructions in the presence of others. He said his recollection was that the Lead Inspector's questioning of instructions related to his concerns that written QC instructions and procedures were altered or modified by oral instructions. He said it had been his experience in previous employments that employees followed their supervisor's instructions without challenging or questioning them. He felt that the Lead Inspector should have been more discreet by raising such questions privately rather than in front of inspectors.

On February 4, 1982, the Lead Inspector of the Level I Inspector who was fired was interviewed. He said he had made no complaints about the Inspector and considered him to be the best inspector in his group. He said the Inspector did not like overtime work but he did not refuse to work overtime. He said the Inspector had never refused

to follow instructions he gave him and he did the inspections assigned to him. He said the Inspector was not slow in getting started on his assigned duties and did not keep other employees from their work. He indicated he had no problems with the Inspector but said the Inspector was critical of BA QC management. He said he was surprised when the Inspector was fired.

Regarding the Senior QC Electrical Engineer's meeting with supervisors and lead men on January 15, 1982, he said the only matter he recalled was the specific criticism directed at him.

On February 2, 1982, the personnel files of the fired Inspectors were reviewed. It was noted that the Level I Inspector had been given disciplinary leave without pay for the period December 16-18, 1981. A memorandum, dated December 15, 1981, to the Inspector from the Senior QC Electrical Engineer stated the basis for this action was that he was observed in the main office complex on December 14, 1981, at 4:30 p.m. and "this is in violation of the stated and written policy requiring all inspectors to remain in the power block, i.e., their assigned work area, until 4:30 p.m., their normal quitting time." The memorandum states any future occurrence would be grounds for immediate dismissal.

A copy of the annual appraisals of the two fired individuals were also reviewed. The Level I Inspector was evaluated on May 22, 1981, by the Senior QC Electrical Engineer and the evaluation was approved by the QC Manager. He was rated as fully acceptable on the following: Cooperation tact, initiative, maturity, self-control, attendance/punctuality, problem identification/solution, communications-oral/written, planning-following plan. The evaluation stated the Inspector needed improvement in job knowledge, quality of work and problem identification/solution. The evaluation sheet contains the following remarks: "He is willing to work. Appears to be self-motivated. Needs additional training in electrical and QC philosophies. Needs to be more critical on inspection tolerances and procedures."

The evaluation of the Lead Inspector was prepared on May 22, 1981, by the Senior QC Electrical Engineer and was approved by the QC Manager. He was rated "better than most" in cooperation and tact. He was rated "fully acceptable" on all other items. The evaluation sheet contains the following remarks: "He is knowledgeable in electrical and QC functions. Works well with others. Very stable and reliable. Should be considered for more responsibility and promotion."

The Manager, Quality and Technical Services, was not available for interview regarding the firing of the two Inspectors.

On February 8, 1982, the IP Vice President was interviewed. He advised that he was in his office in Decatur, Illinois, on January 26, 1982. At about 9 a.m. he received a telephone call from the BA Manager, Quality and Technical Services advising him BA planned to fire two QC Inspectors for cause; i.e., they were not performing adequately. The

Vice President stated that he had requested the BA Manager, Quality and Technical Services, to inform him when he was going to fire anyone so that he could discuss the matter and provide some input for BA's consideration. He said BA was not required to obtain his approval before taking such action. He said this was a recent arrangement which was prompted by the events relating to the discharge of an Inspector who had falsified inspection reports, which is a matter described elsewhere in this report.

During the above telephone conversation he advised the Manager, Quality and Technical Services, he was coming to the Clinton site that day and they would discuss the matter further at that time. The Vice President said that about mid-afternoon he discussed the proposed firing with the BA Manager, Quality and Technical Services and the BA QC Manager. He read the two memoranda, dated January 26, 1982, (Exhibits C and D) and concurred with the firing of the two men. The Vice President said he operates on the premise that anything in writing has been or will be seen by almost anyone. For this reason he felt that more problems would be created by not discharging the men since the memoranda were in existence. He said he had intended that he be informed of the possible of firing of QC personnel at an earlier stage. He said that the possiblity of these firings having an impact on the ongoing NRC investigation did not occur to him. He said to his knowledge the matter was not discussed with any other IP personnel before the inspectors were fired.

On February 3, 1982, the two individuals who were fired on January 26, 1982 were rehired. On February 4, 1982, seven BA QC personnel were selected at random and interviewed. The concensus of those interviewed was that the two inspectors were fired for providing information to the NRC, or at least that was part of the reason. The two fired individuals were regarded by the Inspectors as the two best Inspectors and that by firing them, BA QC management was letting everyone know that they also could be fired. They indicated that they felt their jobs were being jeopardized if they communicated with NRC. They regarded BA QC management's stated reason for their discharge as being without foundation. Those interviewed, however, said that morale among the Inspectors had been raised significantly when the inspectors were restored to their jobs. They indicated they were, however, adopting a "wait and see" attitude regarding the future. Based upon the information in this section and Sections 4 and 9 of the report the licensee is in noncompliance with 10 CFR Part 50, Appendix B, Criterion I (50-461/82-02-01).

The licensee issued a notice dated February 23, 1982, to all site personnel stating the project policy on intimidation (Exhibit F). Also, during February 1982, a Quality Report System was initiated by IP at the site to provide a mechanism for all personnel to report concerns and identify problems related to Quality. This system, which is similar to a suggestion box system, provides a means for any site employee to bring a concern or problem to management's attention anonymously in the event the individual is apprehensive about management's reaction.

4. Removal of Hold Tag

On January 7, 1982, an electrical QC inspector stated that during an inspection he was performing on January 6, 1982, he noted that the jacket on two safety-related power cables had been stripped about three or four feet more than necessary. He said this was a nonconforming condition, and that he understood the reason the cables were stripped back that far was to avoid violating a bend radius restriction when the cables were being pulled into a piece of equipment for termination. He said he placed hold tags on both ends of the two cables using tie wraps and prepared an NCR, No. 6088. He said the QC Field Supervisor instructed him to write the NCR.

The Inspector said that on January 7, 1982, the Field Supervisor told him he had removed the hold tag from the opposite ends, the from ends of the cables. The Inspector said he saw the Field Supervisor throw the hold tag in the wastebasket. The Inspector said the Field Supervisor told him the NCR did not affect the from ends of the cables and he knew what the engineering disposition of the NCR would be, so he removed the hold tag. The Inspector said he subsequently checked and found that the craft had proceeded to terminate the from ends of the cables. The Inspector said that he had prepared another NCR, No. 6143, regarding the removal of the hold tag.

During an interview on January 28, 1982, the Field Supervisor advised that on January 7, 1982, the Termination Superintendent informed him he wanted to terminate the ends of the cables that had not been stripped back. The Field Supervisor said that since the problem identified on the NCR did not apply to that end he removed the hold tag to allow the craft to make the terminations.

The Field Supervisor said he had since looked into the matter further and had determined that the procedures do not address the stripping of power cables, only instrumentation cables. He said the NCR was therefore written in error. He said he was aware of the second NCR but was not aware of its status.

Copies of NCR No. 6088 and NCR No. 6143 were subsequently obtained. NCR No. 6088, dated January 6, 1982, states in the nonconformance section: "The jackets on cables 1AP36M(T) and 1AP36F(T) are cut back more than necessary to make terminations. The cable jackets were cut three to four feet more than necessary. Equipment 1AP75E cubicle No. 1." On February 3, 1982, an entry was made in the recommendation section of NCR No. 6088 which is as follows: "The jacket on subject cables was removed in the header box which is part of the equipment, in order to facillitate (sic) installation and termination without violation of restrictions on bending radius. K2999 contains no specific requirements concerning the removal of the jackets from power cables." This recommended disposition was accepted.

NCR No. 6143, dated January 9, 1982, states in the nonconformance section: "NCR written in error, NCR No. 6088 identified the nonconformance against the to end of the cable. The inspector erroneously

tagged both ends of the cable. The Hold Tag was removed from the from end to continue work because the FROM end quality was not in question." This entry was signed by the BA Assistant QC Manager, the Project Engineer and the Resident Engineer on January 20, 21 and 28, 1982, respectively.

QA Manual Chapter 15, Nonconforming Materials, Parts or Components, Paragraph B.4. states: "Measures shall be established which control further use or installation of nonconforming items pending disposition."

The removal of the hold tag from a cable having an open NCR so that work could proceed is in nonconformance of 10 CFR Part 50, Appendix B, Criterion XV (50-461/82-02-02A). The voiding of NCR No. 6143 is in noncompliance of 10 CFR Part 50, Appendix B, Criterion XV (50-461/82-02-02J).

5. Falsified Inspection Records

On January 6, 1982, an individual handed the NRC Senior Resident Inspector a sealed envelope with the Resident Inspector's name on it. The individual said he had been asked by another individual whom he did not identify to deliver the envelope. He said he did not know what the envelope contained and did not wish to be further involved.

The envelope contained a lead QC inspector's handwritten account of his knowledge relating to the apparent falsification of inspection records by an inspector working under his supervision. According to the account, dated December 23, 1981, the Inspector was observed to leave the QC field office with a number of travelers and return in a short time with the travelers completed. The Lead Inspector felt it was not possible to have conducted the inspections during the time the Inspector was gone. Through re-inspection of some of the items the Inspector had inspected, it was determined that the inspections had not been done. The account states the matter was brought to the attention of the Field Supervisor who questioned the Inspector and then took him to see the Senior QC Electrical Engineer.

On January 7, 1982, the Lead Inspector was interviewed. He advised that the Inspector who had falsified inspection records, had been discharged on or about December 22, 1981, and the Field Supervisor had informed him the work inspected by the discharged Inspector would be reinspected. He said that since the Inspector was color blind the types of inspections he was permitted to perform were limited. He said he was aware that some of the reinspections had been done.

On January 12, 1982, the BA Manager, Quality and Technical Services and the BA QC Manager inquired of the NRC personnel whether they were in possession of a document stolen from the desk of a BA Senior QC Electrical Engineer's desk. They were advised the document they described was received and the circumstances under which it was received. The individual who delivered the document was not identified. They were advised that the document was received without

the knowledge that it had been stolen. The original document was turned over to the Manager, Quality and Technical Services after a copy had been made.

The Manager, Quality and Technical Services stated that, when he was informed that the Inspector had falsified his inspection records, he issued instructions to discharge the inspector and to reinspect everything he had inspected. Subsequently, the BA QC Manager said the discharged Inspector had been hired in August 1981. He said the inspections performed by the discharged Inspector during the month of December were currently being redone and that, in all likelihood, inspections performed in November would also be redone. Based upon the results of those reinspections, a decision would be made whether to reinspect those he had performed in October. The reinspection would be done month-by-month backward in time until he was confident the point at which the inspector began to falsify inspection records had been covered.

On January 12, 1982, the BA Senior QC Electrical Engineer advised that it had been determined that the discharged Inspector had performed 401 inspections plus 50 inspections that rejected the items being inspected. He said that of the 401 inspections, 108 had been performed during December 1981. He also provided a copy of a handwritten memorandum, dated January 9, 1982, which he had sent to the BA QC Manager which described the reinspection program of the Inspector's work. He stated that this was the only documentation prepared regarding the matter. No NCR or DR had been initiated.

On January 12, 1982, inquiry was made of the IP QA Supervisor. He stated he had no knowledge of the matter up to that time. On January 15, 1982, the IP Project Manager said he had no knowledge of the matter until it was brought to the attention of the IP QA Supervisor by NRC representatives on January 12, 1982.

BA Procedure No. 1.0, Nonconformances, Revision 8, dated August 6, 1981, Paragraph 3.1 defines Nonconformance as: "a deficiency in characteristic, documentation, or procedure which renders the quality of an item unacceptable or indeterminate." A Nonconformance Report (NCR) is the mechanism used to assure nonconforming conditions are evaluated and corrective action, which concurred in by appropriate officials, is taken. It also permits trending of problems and a review of the condition for reportability to the NRC, as required by 10 CFR 50.55(e). The failure to prepare a NCR regarding the indeterminate condition of the items inspected by an individual who had falsified records of his inspection is in noncompliance with 10 CFR Part 50, Appendix B, Criterion XV (50-461/82-02-02B).

On January 19, 1982, BA QC initiated Corrective Action Request (CAR) No. 078 which stated: "Contrary to BAP 3.3.6 and BAP 2.16, electrical hangers may have been accepted without the adequate performance of required inspections to substantiate their acceptance. See attached list of electrical hangers and anchors." The CAR requires the action

addressee, which is BA QC in this case, to respond by stating the problem cause and the corrective action. Completed CARs are reviewed and determined to be satisfactory or unsatisfactory by BA QA.

By memorandum dated January 23, 1982, the IP QA Manager instructed the IP QA Supervisor to conduct a special surveillance of BA QC's plan for the reinspection of the work performed by the fired inspector.

6. Informal Instructions

As indicated in the Introduction section of this report, a concern was expressed to the NRC Senior Resident Inspector that QC instructions and procedures were being modified or changed informally by oral instructions or memoranda. During interviews of QC inspectors conducted during the period January 5-8, 1982, eight inspectors said informal instructions from QC management created confusion regarding the conduct of inspections. Some expressed concern that because the guidance seemed to be continually changing some hardware requiring inspection would be missed. It was indicated that electrical tray hangers and attachments have been inspected and accepted. Later, when the raceway inspections are performed, the attachments are different but an acceptable type. It was indicated that at one time hanger inspections included checking all attachments. Later, they were instructed to include only those attachments above the horizontal member and were advised the other attachments would be included in the inspections of the raceways. It was further indicated that the travelers sometimes showed one type of attachment but upon inspection showed another type had been installed. Inspectors were advised the installed attachment was an acceptable alternate and therefore the item inspected was acceptable.

It was subsequently noted that these difficulties and others were also referred to in the November 5, 1981, memorandum (Exhibit G) referred to in the Inspection Program section of this report.

The Clinton Power Station QA Manual, Chapter 6, Paragraphs B1 and 2, state, in part, "Documents shall be reviewed for adequacy by appropriately qualified personnel, approved for issue and use by authorized personnel,... Changes to documents shall be subject to the same degree of control as applied to the original documents."

Two instances were identified in which QC instructions were changed by memoranda - Quality Control Instruction QCI-401, Raceway Hanger/Support Fabrication/Installation Inspection, was revised by Baldwin Associates interoffice memorandum QCE-81-032, dated September 23, 1981, and Quality Control Instruction QCI-403, Cable Tray/Conduit Installation Inspection Criteria, was revised by Baldwin Associates interoffice memorandum QCE-81-012, dated June 9, 1981.

The failure to control the issuance of changes to procedures is in noncompliance with Criterion VI of 10 CFR 50, Appendix B (50-461/82-02-03).

7. Inspection Program

During this investigation, it was learned that on or about December 21, 1981, a program was initiated by BA QC to reinspect all electrical raceways. The NRC Senior Resident Inspector had not been informed of this reinspection program or the reason it was initiated. On January 13, 1982, the BA QC Assistant Manager confirmed that a raceway reinspection program had been initiated in December 1981. He said the BA QC Electrical Engineer could provide additional information.

On January 13, 1982, the BA QC Electrical Engineer advised that in October 1981 he performed a final review of raceway release packages and found some discrepancies. In view of these findings, it was decided that all completed packages, a total of 118, should be removed from the document vault and a reinspection program should be undertaken. In addition, all raceways inspections would be stopped. Electrical QC Inspectors were given 20 hours of classroom and on-the-job training before ongoing inspections were resumed and the reinspection program initiated. He said he did not know the length of time the raceway inspections were halted.

The BA QC Electrical Engineer provided copies of two memoranda sent by the BA Senior QC Electrical Engineer to the BA QC Manager regarding this matter. The first memorandum, dated November 5, 1981, (Exhibit G) stated a recently conducted reinspection of several raceway traveler packages which had been accepted or partially accepted by QC identified discrepancies which should have been identified during the original inspection. The memorandum states: "The procedures currently being used at the Clinton Power Station for installation, inspection and documentation of tray to hanger connections are inadequate in their present condition to certify the hanger/tray connections in the field are correct." The memorandum states that inspection of cable tray and riser raceway packages as well as inspections of all "H" and riser hangers have been suspended. The memorandum lists proposed corrective actions, one of which was intensified training of all QC inspectors. The second memorandum, dated December 18, 1981, (Exhibit H) is an update on the matters discussed in an earlier memorandum. It states that inspections had been resumed on "H" and riser hangers if the raceway is installed; that some inspector training had been completed and more was scheduled. It also states that the reinspection effort would begin the week of December 18, 1981, and all discrepancies were currently being documented on General Inspection Reports. The BA QC Electrical Engineer stated that to his knowledge no nonconformance report had been prepared regarding the problems identified which necessitated the reinspection program.

On January 13, 1982, the IP QA Supervisor advised that he was aware of the problem and that BA had initiated a reinspection program. He indicated that IP QA had identified some of the deficiencies in surveillance findings and it was those findings which prompted BA QC to perform the review of completed packages in October 1981.

On February 17, 1982, the IP QA Supervisor advised that in response to the IP QA surveillance findings in mid-1981, BA addressed only the specific deficiencies. Meetings were held in which IP QA pointed this out to BA QC and indicated the problem was more extensive. During subsequent meetings in about November 1981, BA QC agreed the problem was larger and provided IP QA a general informal description of their proposed corrective action. No minutes or other written record was made of these meetings. The IP QA supervisor said he had not seen or been aware of the above-mentioned memoranda.

The memorandum dated November 5, 1981, (Exhibit G) identified the following conditions:

"1. Tray connections bought off by Q.C. inspectors do not reflect the accurate configuration.

NOTE: This item will be dealt with later in the report.

2. The revising of Raceway Packages by Engineering to delete tray sections with discrepancies have not been addressed in a subsequent package.

NOTE: More will be stated on this item later in the report.

3. Unknown connections of tray to hanger, i.e., the connection detail used cannot be verified against approved details specified in the E05 drawings.

NOTE: More on this item later in the report.

4. Tray spotwelds (manufacturers) were not galvanoxed (showing evidence of rust).

5. Technical Services signed off "no weld" on connections where welds were made.

6. Weld burn through in trays.

7. Broken spotwelds in tray, especially at field cuts.

8. Sharp edges on tray not removed or covered by protective edging.

9. Z clips not attached to tray (not making physical contact).

10. Identification numbers hidden, located at the wrong place and damaged."

On January 14, 1982, the BA QC Inspection Engineer (Field Supervisor) advised that several reinspections had been completed and that 50% of the inspections had identified discrepancies. He said the discrepancies were not being recorded on NCRs, Deviation Reports, or General Inspection Reports. He said the discrepancies were being placed on "pieces

of paper" which were given to the BA QC Electrical Engineer. He said it was his understanding that the BA QC Electrical Engineer, the BA Senior QC Electrical Engineer, or the BA QC Manager would later decide whether th' discrepancies would be documented on GIRs, DRs, or NCRs.

It was subsequently determined that discrepancies identified during the reinspection were being documented on GIRs, QC Raceway Installation Inspection Checklists, and/or QC/TS Inspection Lists. The failure to document known nonconforming conditions which resulted in the initiation of the reinspection program as well as the failure to document nonconforming conditions identified during the reinspections on NCRs or DRs is in noncompliance of 10 CFR Part 50, Appendix B, Criterion XV (50-461/82-02-02C).

In view of the above and the concern expressed by QC personnel regarding the electrical inspection program, an inspection of selected installed electrical items was conducted. The results of this inspection are set forth below.

During a review of electrical work activities, it was observed that the spot welds performed during fabrication were not galvanized on cable trays stored in the Power Block and numerous installed cable trays exhibited the same problems. Examples of installed cable trays where the fabrication spot welds were not galvanized or repaired with zinc rich paint are:

17R16-K3E	19123D-P3E
17R17-C3E	19123E-C3E*
17225A-P1E	10708E-C3E*
17225B-C1E	16358B-C1E*
17225C-K1E	16358C-C1E*
19123D-K2E	

*Denotes cables have been installed

The procurement specification for Cable Tray and Supports, K2980, states, in part, "After fabrication of sections, risers, ells and tees is completed, the pieces shall be inspected, and all welds, cuts, and marred surfaces shall be repaired with zinc rich paint or a galvanizing repair stick in accordance with Form 1895." Paragraph 2.2 of Form 1895-E states, in part, "Poorly galvanized work shall be rejected by the Purchaser."

Receiving Inspection Report (RIR) Instructions, Form JV-155(4/81), is used at the Clinton Power Station to perform receiving inspections. Attachment K-2980 to the RIR, dated June 10, 1981, Paragraph 2.0(4) states, in part, "Verify that the ends of the cable trays and accessories are touched up with a zinc rich paint or a galvanizing repair stick. Visually inspect cable trays and accessories to ensure that design members are attached. Note: Verify that all spot weld (on straight sections) and all brazed welds (on fittings) are touched up (by vendor) per latest issue of ECN 1087, dated April 29, 1979, to K-2980, Amendment 1."

Baldwin Associates Procedure BAP 2.3, Receiving and Issuance, Paragraph 6.2, states, in part, "Quality Control shall perform the following:

a. Visually inspect the item or material prior to unloading in accordance with Quality Control Receiving Instructions, Form JV-155.

"(i) Tag or flag items or material which have a pending status as follows:

(i.1) Hold for QC Clearance, Form JV-174

(i.2) Conditional Accept Tag, Form JV-176

(i.3) Accept for Storage Only Tag, Form JV-505

(i.4) Hold Tag, Form JV-177"

The failure to verify that purchased material conformed to procurement documents and controlling the issuance of nonconforming material in accordance with QA program provisions is in noncompliance with Criterion VII of 10 CFR 50, Appendix B (50-461/82-02-04).

During a review of installed raceway, it was observed that the following cable trays were not attached to the hangers as indicated on drawings and cables were installed in the trays:

1H13-P714B	1H13-P717A
1H13-P714A	1H13-P742F
1H13-P742E	1H13-P742A

Paragraph 3.2 of Sargent & Lundy Standard STD-EA-122 states, "Cable trays and hangers should be braced during the (Cable Installation) pulling operations to provide pulling tension reaction."

A review of Baldwin Associates Procedure BAP 3.3.2, Cable Installation, revealed that the requirements of STD-EA-122, Paragraph 3.2, had not been incorporated into the procedure or on Form JV-353, QC Cable Installation Inspection Checklist, as a prerequisite to pulling cables.

The failure to translate the acceptance criteria of STD-EA-122 into the Cable Installation Procedure, BAP 3.3.2, in accordance with QA program provisions is in noncompliance with Criterion III of 10 CFR 50, Appendix B (50-461/82-02-05A).

During a review of Class 1E cable installation, it was observed that 21 cables extending from cable trays into 4160V switchgear, 1A1, and 17 cables extending from cable trays into HPCS panel, E22-S004, were not installed in conduits.

It was also observed that numerous cables extending from cable trays into the PGCC cabinets in the Main Control Room were not installed in conduits but these items were documented on Nonconformance Report

No. 5387, dated September 15, 1981. It was noted that Paragraph 903.1.e of the K2999 Specification was not referenced on the nonconformance report.

Paragraph 903.1.e of Electrical Installation Specifications, K-2999, states, "The greater part of the total length of most cables will be installed in cable trays, but extensions from trays to equipment shall be installed in conduits. In certain cases, the required conduit extensions from the cable trays to equipment may not be shown on the drawings, but contractor shall install the necessary conduit."

The failure to translate the acceptance criteria of Specification K2999, Electrical Installation, into the Raceway Installation Procedure, BAP 3.3.1, and into the Cable Installation Procedure, BAP 3.3.2, as a prerequisite for pulling cable in accordance with QA program provisions is another example of noncompliance with Criterion ~~V~~ III of 10 CFR 50, Appendix B (50-461/82-02-05B).

During a review of electrical work activities, the following observations were made:

(1) Conduit insulation bushings were not installed in the following safety-related conduits per the requirements of the Electrical Specifications: (*Indicates that cables have been installed)

a. C0843*

b. C0884

c. Both ends of five conduits used to extend cables from cable trays into HPCS panel E22-S004*.

d. Tray end of five conduits used to extend cables from cable trays 16351E-K1E and 16352E-K1E into equipment (two conduits had cable installed).

e. Tray end of three conduits used to extend cables from cable tray 10702F-K3E into equipment (50-462/82-02-06A).

f. Also, Class 1E cable 1HP02F had a minimum bend radius violation where it exited cable tray 10702F-K3E and entered conduit C0843, and an unidentified 2C/12 Class 1E cable in tray 10702E-C3E also exceeded the minimum bend radius per the requirements of Baldwin Associates Procedure BAP 3.3.2, Cable Installation (50-461/82-02-06B).

(2) Installed Class 1E electrical cables were not being properly protected in that a metal plate was stored on top of the cables in tray 19122E-C3E and the sharp edge of a cable tray cover was resting on the cables in tray 16336B-C1E. The licensee took immediate action to have the metal plate removed and the tray cover installed properly. There was no apparent damage to the installed cables (50-461/82-02-06C).

(3) Four coiled Class 1E electrical cables in tray 10702E-C3E were not properly supported in that the weight of all the cables were being supported by one of the cables and coiled Class 1E cables, 1LV14J, 1LV14K, 1LV14M and 1RP35B, were not properly supported inside panel H13-P702. Cables 1LV14M and 1RP35B were resting on a sharp edge of the panel structure. The BA QC inspector in the Control Room took immediate action to document the improperly supported cables in panel H13-P702 on a nonconformance report (50-461/82-02-06D).

(4) Class 1E electrical cables were not properly supported in risers 10R167-C3E, 10R168-C3E, and 10R138-C2E in that cable grips had not been installed as required by Baldwin Associates Procedure BAP 3.3.2 and Sargent & Lundy Standards STD-EA-122 and STD-EB-200 (50-461/82-02-06E).

(5) The ends of Class 1E electrical cables 1SX53J and 1VQ25B were not sealed per the requirements of Baldwin Associates Procedure BAP 3.3.2. These cables were located in Motor Control Center 1A2, Section 1AP73E. At the time of inspection, there was no electrical work being performed in the Motor Control Center (50-461/82-02-06F).

(6) Two unidentified Class 1E cables had minor jacket damage in cable tray 16358B-C1E at Riser 16R102-C1E. The damage appeared to have been caused by pulling the cables across a sharp object. The jacket damage was not documented during the postpull inspection per Baldwin Associates Procedure BAP 3.3.2 (50-461/82-02-06G).

(7) Three unidentified Class 1E cables (each approximately 100' long) were improperly stored outside the east battery room, Auxiliary Building - 781'. These cables were not identified and it could not be determined if these cables were to be installed or if they were to be scrapped. Cables that are pre-cut for pulling require temporary identification at both ends of the cable per Procedure BAP 3.3.2. Also, Class 1E cable 1HP05A was not properly stored in the Control Building - 781'. The aforementioned cables were stored in a "walk-way" without protection or barriers (50-461/82-02-06H).

(8) Twenty-one Class 1E cables extending from cable trays into the 4160V switchgear, 1A1, and 17 cables extending from cable trays into the HPCS panel, E22-S004, were not installed in conduits per the requirements of the Electrical Specifications (50-461/82-02-06I).

The 4160V switchgear, 1A1, was energized at the time of the inspection and it was observed that there were uncovered openings on top of the switchgear with much dirt and debris present. The largest of these openings observed was 5-1/2" in diameter.

The failure by inspection to verify conformance with documented instructions, procedures and drawing, for Items (1) through (8) above, in accordance with QA program provisions is in noncompliance with Criterion X of 10 CFR 50, Appendix B (50-461/82-02-06).

During a review of storage and maintenance activities, it was observed that since September 29, 1981, Baldwin Associates Quality Control had not verified the storage conditions for Motor-Operated Valves 1E12-F037A, 1E12-037B, 1E12-F040, 1E12-F042A, 1E12-F042C, 1E12-F047B, 1E12-F048A, 1E12-F048B and 1E12-F049 at monthly intervals as specified on the Storage and Maintenance Instruction and Record (SMIR).

Illinois Power Company Quality Assurance Surveillance Finding No. C-179, dated December 18, 1981, which documented a review of Baldwin Associated storage and maintenance program for 13 items was subsequently reviewed. The surveillance finding states, in part, "The failure to implement proper storage requirements for such a high proportion of the equipment reviewed, indicates that the problems noted are not isolated occurrences; however, reflect an overall deficiency in the contractors involvement in storage and maintenance requirements." The items reviewed by the NRC inspectors were not the same items on which the IP surveillance finding was based.

The failure to verify and control the storage, cleaning, and preservation of material and equipment in accordance with QA program provisions is in noncompliance with Criterion XIII of 10 CFR 50, Appendix B (50-461/82-02-07).

During a tour of the Power Block on January 13, 1982, it was observed that the inert gas pressure gages for electrical penetrations 1EE18E and 1EE23E were indicating zero psig. This was brought to the attention of the IP QA Engineer and the BA Lead QC Inspector accompanying the Region III inspectors. It was confirmed by the Lead QC Inspector that no work was being performed on the subject penetrations. On January 22, 1982, it was observed that the pressure gages for the subject penetrations still indicated zero psig. A review of the nonconformance report (NCR) and Deviation Report (DR) logs indicated that neither an NCR nor a DR had been prepared to document the condition and to assure follow-up actions were taken.

The failure to verify that conditions adverse to quality are promptly identified and corrected in accordance with QA program provisions is in noncompliance with Criterion XVI of 10 CFR 50, Appendix B (50-461/82-02-08A).

On January 19, 1982, it was observed that BA QC Inspectors were performing a pre-pull walkdown of the raceway in which Class 1E cables 1VC06B, 1VC08B and 1VC14B were to be pulled. The BA QC inspectors did not sign-off on the pre-pull checklist because of the following:

(1) Raceway section 10609L was not installed.

(2) Spot welds on raceway sections 10108E, 10109E and 10110E had not been touched up with galvanox.

(3) The weld attaching raceway section 10109E to hanger H-12B had not been touched up with galvanox.

(4) The raceway identification numbers were incomplete on raceway sections 1C609E and 10609L.

The BA QC inspectors documented the above finding on General Inspection Report No. IR82-0162 at the conclusion of the pre-pull walkdown.

No items of noncompliance were identified.

Nonconformance Report No. NCR 6185, dated January 18, 1982, was observed on cable tray 1H13-P714A. The NCR states that the subject tray had reached its maximum fill and further pulling of Class 1E cable 1SX51Q was not possible. The cable pull was stopped.

The Clinton Power Station FSAR, Paragraph 8.3.1.4.3.1 states, "The cable trays are not normally filled above 50% of side rail depth and in no case above the siderails."

The Baldwin Associates cable pull Procedure BAP 3.3.2 does not reflect a requirement to report instances where the maximum fill limit is being approached.

Pending a review of the physical and thermal fill of cable trays, this item is open (50-461/82-02-09).

8. Electrical Penetrations

The following concerns were brought to the attention of NRC personnel regarding electrical penetrations:

a. QC personnel who performed inspections of electrical penetration installations did not receive training for conducting those inspections.

b. Drawings were not changed to show the correct orientation of an electrical penetration whose enclosure was rotated so that the penetration connections could be mated with cables coming from the end of an installed cable tray.

c. Damage to an installed penetration may not have been fully documented to assure all required repairs would be made.

In view of the above concerns, activities relating to electrical penetrations were examined and the following information was obtained.

A review of penetration work travelers showed that the major portion of the inspection points were initialed by three QC inspectors. The Personnel Qualification Files of those inspectors, which contain records of training received, showed no evidence of training on electrical penetration inspections. One of these inspectors is no longer employed at Clinton. The other two inspectors advised that they received no formal training for such inspections. One individual stated that he received on-the-job training, i.e., he accompanied the

departed inspector when he conducted some of those inspections. He said he was then asked questions by the inspector and was observed by him when he conducted an inspection. On this basis he then conducted inspections himself. The individual said that the third inspector had been trained by him in the same manner. He said he did not know how the first inspector, the one no longer employed at Clinton, was trained to conduct the inspections.

The Lead Electrical Engineer, who was responsible for the installation of electrical pentrations, advised that before the installation work began he held meetings with the personnel who were going to do the work to discuss how the work would be done. The penetration supplier's manual was reviewed during those meetings. He said it was his recollection that some QC personnel attended those meetings. He said, although this was considered training, no record was made of those meetings.

Regarding the second concern above, the completed equipment installation traveler package pertaining to electrical penetration No. 1EE14E was reviewed. It contained Revision 1, dated January 15, 1982, to show the rotation of the enclosure from side to bottom for cable entry.

Regarding Item 3 above, it was determined NCR No. 4657 was issued on May 13, 1981, regarding electrical penetration 1EE23E not being covered and apparently used to stand on to perform other work. The NCR, which was still open, states the fire cloth which is wrapped around the penetration prevented visual inspection for damage. The recommended disposition of the NCR was to partially disassemble, clean and "verify there is no damage to terminal blocks." Attached to the NCR is a copy of a letter dated July 10, 1981, from Conax Corporation, the penetration supplier, to BA requesting details on the damage to the penetration for evaluation. It was further determined NCR No. 5616 was initiated on October 15, 1981, regarding penetration 1EE23E. This NCR states: "While uncovering the penetration to perform the repair work as dispositioned on NCR No. 4657, it was noted that the outer end of the penetration was bent downward slightly from apparent weight on top. The outer leads were left uncapped and unprotected allowing dust and residue to accumulate in the leads as well as covering the entire assembly. The lugs were bent on these specified terminal blocs: TB 15-1A12, TB16-1B12, TB 16-1A12, TB 1-1A12, TB 1-1B12." This NCR was voided by the Assistant QC Manager and a Project Engineer on November 6, 1981, with the notation: "This NCR was "written in error" in that, these discrepancies will be addressed and documented during accomplishment of the approved recommendation for NCR No. 4657."

On February 17, 1982, the Electrical Engineer responsible for following up on NRC No. 4657 advised that he had not responded to the Conax Corporation request for details of the damage because the penetration had not yet been opened up to examine it to fully determine the extent of the damage. He indicated this would be accomplished at some future date.

A review of Specification K2978, Installation Manual for Electrical Penetration Assemblies, and the installation travelers for electrical penetrations 1EE-01E, 1EE-02E, 1EE-03E, 1EE-05E, 1EE-06E, 1EE-07E, 1EE-14E, and 1EE-18E revealed that vital steps and data requirements as listed in Specification K2978 were omitted in the travelers. Examples of the omissions identified are:

a. Inert gas pressure was not recorded as required by Paragraph 6.10 of the specification.

b. Paragraphs 6.11 through 6.16 of the specification were omitted in the subject travelers. These paragraphs address the detailed instructions and handling precautions necessary for the removal of the penetrations from their shipping container and the installation of the penetrations in the nozzle.

c. Paragraphs 6.27 through 6.31 of the specification require that the primary and secondary header plate bolts be torqued, using a calibrated torque wrench. The torque values, torque wrench number, and torque wrench calibration due date were not recorded on the subject travelers nor on any documents attached to the travelers.

d. Paragraphs 6.33.1 through 6.33.15 (Blind Flange Installation) and Sections 9.0, Installation of Pressure Switch, Pressure Gauge, and Fill Valve and 10.0, Electrical Tests, of the specification were omitted from the travelers.

e. Paragraphs 7.3 and 7.5 of the specification require that the pressure gauge reading, temperature adjacent to the penetration, and the time and date be recorded during the leak rate test. The temperature readings were not recorded on the subject travelers nor on any documents attached to the travelers. Also, the gauge number and gauge calibration due date were not recorded. No spaces were assigned on the traveler to record such data.

The failure to translate the acceptance criteria of Specification K2978 into the penetration installation travelers in accordance with QA provisions is in noncompliance with Criterion V of 10 CFR 50, Appendix B (50-461/82-02-10).

A review of the subject travelers and backup documentation as pertaining to special processes revealed that:

a. Weld filler material heat/lot numbers were not recorded on the travelers by Technical Services for electrical penetrations 1EE-01E, 1EE-02E, 1EE-03E, 1EE-05E, 1EE-06E, 1EE-07E, 1EE-14E, and 1EE-18E as required by Baldwin Associates Technical Services Procedure BTS 402, Weld Control, Paragraph 6.2 (50-461/82-02-11A).

b. Technical Services Technician/Inspector did not sign and date nor enter the traveler information on Weld Material Field Requisitions, Form BTSF-030, Serial Nos. 051477, 051478, 051458, 051339, 051399,

and 051400 as required for ASME Welds by Baldwin Associates Technical Services Procedure BTS 402, Weld Control, Paragraph 6.2. Welder V-16 was issued weld filler metal on these requisitions between November 25 and December 1, 1980. During this time, welder V-16 performed welding on electrical penetration secondary header plate and enclosure mounting ring. The note under Paragraph 8.8 of Specification K2978 requires that the welding of the secondary header plate and enclosure mounting ring be in accordance with the ASME Boiler and Pressure Vessel Code (ASME Code), Section III (50-461/82-02-11B).

The failure to assure that special processes were controlled in accordance with QA program provisions is in noncompliance with Criterion IX of 10 CFR 50, Appendix B (50-461/82-02-11).

9. Mechanically Assisted Cable Pull

On January 6, 1982, it was observed that Baldwin Associates was setting-up to make a mechanical assisted bulk Class 1E cable pull (11 cables) from Man Hole (MH) 4, via MH 3, to MH 2. The cable reels for the 11 cables were set up at MH 4. The tugger and tensionmeter were set up in MH 2. The maximum allowable cable pulling tension for the bulk pull was 3552 pounds. A review of the engineers calculated tensions indicated that the expected pulling tension between MH 4 and MH 3 was 976 pounds and the expected pulling tension between MH 4, via MH 3, to MH 2 was 2,437 pounds. The engineer used a Coefficient of Friction value of 0.4 and weight of cable value of 4.93 pounds/foot. In the calculations presented to the Region III inspectors, maximum sidewall pressure was not addressed as required by Paragraph 1002.6.d of the Electrical Specifications, K2999.

A review of the records and discussions with the personnel associated with the subject cable pull revealed that the pull began on the morning of January 6, 1982 and continued past the 4:30 p.m. shift change. At this time the Baldwin Associates (BA) Quality Control (QC) inspectors who had been monitoring the cable pull were replaced by second shift QC inspectors. An IP QA Engineer monitored the subject cable pull from start to finish.

The sequence of events were as follows:

a. As stated earlier, the cable pull was set up to pull from MH 4, via MH 3, to MH 2. Cable reels were set up at MH 4 and the tugger and tensiometer were located in MH 2.

b. The measured cable pulling tension, (as indicated on the tensiometer in MH 2), between MH 4 and MH 3 was 2200 pounds (calculated tension was 976 pounds).

c. The cable pull was stopped when the pulling head was approximately 20-30 feet inside the cable duct between MH 3 and MH 2 because the tensiometer indicated 3500 pounds (maximum pulling tension was 3552 pounds).

d. An additional tugger was placed in MH 3 to assist the tugger in MH 2. A tensiometer was not installed in MH 3 to measure the tension being exerted on the cables by the tugger in MH 3.

e. The IP QA Engineer who was monitoring the cable pull requested the BA QC inspectors to stop the pull because he considered it to be a violation of procedure to add the additional tugger without adding another tensiometer. This occurred during second shift operations.

f. A BA QC inspector relayed the order to stop the pull to craft-persons in the MH. There were no craft supervision present in the MH when the order to stop the pull was initiated. Since it was "break time," the cable pull was stopped.

g. The IP QA Engineer and the involved BA QC Inspector went to the QC field office to discuss the matter with the BA QC Field Supervisor. At some point during the discussion, the BA Electrical Superintendent in charge of the cable pull entered the office and joined in the discussion.

h. The BA Electrical Superintendent attempted to intimidate the IP QA Engineer with the cost aspect if he pursued his request to install an additional tensiometer in that the IP QA Engineer would have to accept the responsibility for authorizing the additional time and money to install the tensiometer and complete the cable pull.

i. The BA QC Field Supervisor, after discussing the matter with the Senior QC Electrical Engineer, made an engineering decision that it was all right to continue the cable pull without a tensiometer in MH 3 to measure the tension exerted on the cables by the tugger in that MH.

j. Upon returning to the field, the IP QA Engineer and the BA QC Inspector observed that the cable pull had been resumed after the break, without QC authorization. In later interviews with the BA QC inspectors involved with the cable pull, the NRC was informed that a BA Construction Supervisor stated, "We don't stop the cable pull for anyone."

k. The cable pull was continued between MH 4, via MH 3, and MH 2 with tuggers in MH 3 and MH 2 and one tensiometer located in MH 2. When the pulling head entered MH 2, the tensiometer indicated 2500 pounds.

l. The cable pull set-up was then re-rigged to extend the pull into the screenhouse from MH 2. The setup at this time was cable reels were set up at MH 4 with tuggers in MH 3, MH 2, and in the screenhouse. The tensiometer was removed from MH 2 and installed in the screenhouse.

m. The cable pull was continued between MH 4, via MH 3 and MH 2, and the screenhouse. When the pulling head entered the screenhouse, the tensiometer indicated 2400 pounds, and then dropped to 1500 pounds.

n. An engineering decision was made, by the BA Lead QC Inspector, to discontinue using the tensiometer for the last 100 feet of the cable pull. The cable could only be pulled two feet at a time because the way the tensiometer was rigged and during the preceding 30 to 40 feet of the pull the tensiometer had indicated 1500 pounds.

The BA Electrical Superintendent in charge of the cable pull was interviewed after the fact. He advised the NRC that he did not recognize the second shift inspectors. Although he was aware they were BA QC personnel, he did not know they had been assigned to monitor the pull. He said he listens only to the inspectors he knows are assigned to the job and if one of them had said to stop the pull he would have complied. He said when he made the remark that he would not stop the pull for anyone, he meant he would not stop a pull for anyone except inspectors assigned to the pull. He said he would not stop work for anyone just because he was wearing a hard hat identifying him as a QC inspector, and that this included IP QA Engineers. The failure to comply with a stop work order and the intimidation of an IP QA Engineer by BA Construction Supervision are in noncompliance with Criterion I of 10 CFR 50, Appendix B (50-461/82-02-01).

Two BA QC Lead Inspectors advised that they had indicated to the BA QC Field Supervisor that they felt a NCR should be prepared regarding the use of tuggers without a tensiometer. The BA QC Field Supervisor, however, said that there would be no NCR written on the matter. During an interview on January 28, 1982, the BA QC Field Supervisor said that he did not sanction the stop work and did not authorize resumption of the pull. He said that he was informed that pulling had resumed after the work break. The BA QC Field Supervisor confirmed information previously provided by inspectors that the last 100 feet of the pull were not monitored by a tensiometer. The BA QC Field Supervisor said he reviewed the General Inspection Reports prepared by the inspectors who monitored the pull and did not identify any nonconforming conditions except that the pulling compound used in the pull was Slip X304 instead of Slip X300 as required by the specifications. He said this was a minor matter and that the two compounds were essentially the same. He stated that Nonconformance Report Number 6132 was written in this regard.

The BA QC Field Supervisor said the fact that BA Construction ignored the stop work order was technically a nonconformance but he did not consider it necessary to document the matter on a Nonconformance Report.

On January 8, 1982, IP QA prepared QA Surveillance Finding No. C-185 to document that eleven Class 1E cables were pulled with the use of tuggers in MH 3, MH 2, and in the screenhouse with only one tensiometer which was located in the screenhouse. The subject cable pull was made on January 6, 1982. As of February 19, 1982, neither a NCR nor a DR had

been prepared. The failure to prepare a NCR or a DR regardin the violation of a procedure, in that a mechanical assisted cable pull was not monitored with a tension measuring device, is in noncompliance with Criterion XV of 10 CFR 50, Appendix B (50-461/82-02-02D).

As of February 2, 1982, neither a NCR nor a DR had been prepared regarding the violation of the stop work order. IP QA prepared QA Surveillance Finding No. C-199, dated February 5, 1982, to document that BA Construction violated a Stop Work Order issued by BA QC during a bulk cable pull on January 6, 1982. The failure to prepare a Nonconformance Report regarding the violation of a Stop Work Order is in noncompliance with Criterion XV of 10 CFR 50, Appendix B (50-461/82-02-02E).

As indicated above, the anticipated pull tension calculated by BA Engineering, using a Coefficient of Friction Value of 0.4 and a weight of cable valve of 4.93 pounds/foot, was 976 pounds. The measured pull tension was 2200 pounds. Pending further review of pull tension calculations, this item is open (50-461/82-02-12).

10. Fire Protection System Installation

Prior to this investigation, concern was expressed to the NRC Senior Resident Inspector that the fire protection system contractor was installing sprinkler system piping in the cable spreading rooms without control being exercised to assure that the installed pipe did not violate safety-related requirements. It was also indicated that in some instances installed piping violated the separation criteria applicable to safety-related electrical cable conduit and cable trays. It was indicated that the fire protection system itself is not a safety-related system; therefore, seismic requirements were not applicable to it. However, in instances in which a physical relationship to safety-related electrical equipment could have an adverse impact on those systems during a seismic event, the fire protection piping supports must be seismically qualified and constructed.

On January 21, 1982, the BA Manager of Subcontracts and the Assistant Manager of Subcontracts advised that Automatic Sprinkler Corporation began installing fire protection piping in the cable spreading rooms about the beginning of December 1981. Sometime during that month the BA Electrical Construction Superintendent advised them that some piping hangers were touching the conduit and raised questions regarding the separation criteria. Also the Automatic Sprinkler Corporation was encountering interferences in installing the piping according to the drawings. The Manager of Subcontracts also stated his organization has questions regarding the adequacy of the piping hangers.

In view of the above, the Automatic Sprinkler Corporation work in the cable spreading room was stopped on or about December 30, 1981. The Manager of Subcontracts stated the matter had been brought to the attention of Sargent & Lundy, the Architect-Engineer for the project. The Manager and Assistant Manager of Subcontracts stated

that to their knowledge all communications regarding this matter had been oral and that neither IP QA nor BA QA/QC had any involvement in the matter.

On January 22, 1982 a check of the BA QC NCR Log entries beginning December 1, 1981, to the latest entry showed no NCR had been prepared relating to the fire protection system piping installed in the cable spreading room.

On January 26, 1982, the BA Electrical Construction Superintendent advised that in December 1981, he determined that fire protection piping installed in one of the cable spreading rooms violated the separation criteria and had discussed the matter with BA Subcontracts. As a result the work was stopped. He said that he did not prepare a NCR, and so far as he knew there was no documentation of the problem. He said that it was his understanding that in the last few days the fire protection work in the cable spreading room had been resumed.

On January 27, 1982, the IP Assistant Director of Construction (Mechanical) stated he was unaware any problem in the cable spreading room relating to the fire protection system violating the separation criteria. Also, on January 27, 1982, the IP Assistant Director of Construction (Electrical) advised that he was only generally aware that there might be an interference problem and a problem regarding separation criteria. He said to his knowledge there was nothing in writing concerning these matters. He also stated he was not aware that any fire protection piping had been installed in the cable spreading rooms.

During the observation of electrical work activities in the cable spreading room, the Region III inspectors observed that in the area of column 128, the hangers for the fire protection piping were in physical contact with a Class 1E conduit in one instance and within 1/2" in the second instance. The fire protection piping is being installed utilizing non-seismic hangers. Sargent & Lundy Standard STD-EB-146 requires an 11" minimum separation between Class 1E conduits and piping or ductwork whose supports do not meet Seismic Category I design requirements.

The failure to identify known nonconforming conditions in accordance with QA program provisions is in noncompliance, with Criterion XV of 10 CFR 50, Appendix B (50-461/82-02-02F).

The inspectors also observed that the fire protection piping installation contractor was encountering numerous installation problems due to interferences with installed Raceway. Typical examples of these interferences are:

a. In the area of column 128, two pipe hangers (threaded rod) were bent so as to fit around safety-related conduit.

b. In the area of column 128, the installation of a 4" fire protection pipe was stopped apparently due to dead end interference with a safety-related conduit and pull box 1P0119.

On March 2, 1982, a review of the fire protection piping installation drawing, Contract No. 32-1240SH, Sheet 15 of 23, for the cable spread room indicated Revision 1 dated January 23, 1980, was approved for construction (with no exceptions) on June 2, 1980, by the licensee's architect engineer, Sargent & Lundy. This review indicated that the design interface and coordination between the Architect Engineer's piping and electrical design groups was ineffective, and not documented, as evidenced by the number and type of interferences encountered in the cable spreading rooms by the fire protection piping installation contractor.

The failure to establish design interface and coordination between design groups in accordance with QA program provisions is in noncompliance with Criterion III of 10 CFR 50, Appendix B (50-461/82-02-05C).

A review of the fire protection piping installation specifica ions, K-2856, and the installation drawings, Contract No. 32-1240SH (23 sheets), indicated that the requirements of Regulatory Guide 1.29 (which requires that those portions of structures, systems, or components that form interfaces between Seismic Category I and non-Seismic Category I features should be designed and constructed to Seismic Category I requirements) was not included nor referenced.

The failure to incorporate regulatory requirements into specifications in accordance with QA program provisions is also in noncompliance with Criterion III of 10 CFR 50, Appendix B (50-461/82-02-05D).

11. Review of Records

a. During a review of approximately 70 randomly selected nonconformance reports (NCR), it was observed that the records indicate that Hold Tags were not placed on nonconforming items identified on NCR's 5300, 5952, and 6008 to control their use or installation.

The failure to establish measures for the identification and control of materials, parts, and components in accordance with QA program provisions is in noncompliance with Criterion XV of 10 CFR 50, Appendix B (50-461/82-02-02G).

b. During a review of the licensee's QA Surveillance Finding Report No. C-181, dated December 11, 1981, it was observed this report documents that incorrect attachments were used for raceway to hanger connections identified in Raceway Inspection Release Travelers No. R-T-087 and No. R-T-090. This involved 14 raceways and 10 hangers. A review of the Nonconformance Report (NCR) and Deviation Report (DR) Logs by IP QA Engineers and Region III inspectors indicated that as of February 4, 1982, neither an NCR nor a DR had been prepared to document these known nonconforming conditions (50-461/82-02-02H).

c. During a review of seven reports from the Baldwin Associates (BA) raceway reinspection program, it was observed that BA QC inspectors identified on a General Inspection Report (GIR) No. R-T-001, dated December 29, 1981, that the cable tray hanger connection details at hangers H-12 through H-22 should be DV-9 and DV-48A per Field Change Request No. 5247 which was approved on June 25, 1980. The subject GIR identifies that cable tray hanger details AB-213 and AB-214 were used in addition to the two details authorized (50-461/82-02-02I).

It was also observed that QC Raceway Inspection Checklist for Release No. R-T-004, R/2, dated December 24, 1981, identifies that:

(1) The unit number is not installed on the segregation routing labels.

(2) Routing points 165D, E, and F are located 11' 6" east of 110 and the CPR shows them located 8' 9" east of 110. This difference is not within tolerance.

(3) The AB-213 connection on the south connection of 164D and E26-1000-02b H3 was installed improperly.

(4) Spot welds in tray 164D need to be galvanoxed.

(5) Splice plate bolts on the north side of 1E need to be torqued.

(6) Splice plate bolts on the north side of 164F need to be torqued.

(7) The Z-clip is bent away from the tray at the connection of 164E and H-3 north (50-461/82-02-02K).

A review of the NCR and DR Logs by IP QA Engineers and Region III inspectors indicated that neither an NCR nor a DR had been prepared to document these known nonforming conditions.

The failure to prepare a Nonconformance Report or a Deviation Report (Items b and c, above) in accordance with QA program provisions is in noncompliance with Criterion XV of 10 CFR 50, Appendix B (50-461/82-02-02).

d. During a review of approximately 60 VOIDED Nonconformance Reports, it was observed that 19 of these nonconformance reports were improperly voided between July 31, 1981, and January 15, 1982. Examples are:

(1) Nonconformance Report (NCR) No. 4925, dated July 13, 1981, was prepared to document that the cross bracing between hangers H8A and H7A could not be reinstalled due to interference of hanger E28-1000-03A-CC18.

Field Change Request No. 10605 was issued on August 7, 1981, to resolve the problem identified on the NCR. On October 7, 1981, the NCR was improperly voided in that the reason given for voiding the NCR was that FCR 10605 had been issued to resolve the problem.

By voiding the NCR, the tracking system to verify that the cross bracing was installed was negated, and was removed from the trend analysis system.

(2) NCR 5326, dated September 1, 1981, was prepared to document that Auxiliary Steel AS-14 and Hanger CC-9 were installed to drawing E26-1617-EIH, Revision A and that Revision B to this drawing created hanger CC-41 and deleted AS-14 and CC-9.

The recommended disposition as approved through the IP Supervisor of Construction on September 10, 1981, was to use the existing AS-14 and CC-9 and to revise the applicable drawings to delete CC-41 and reinstitute AS-14 and CC-9. (Revert back to the Revision A condition.)

The NCR was voided because Revision B deleted the hanger. Revision B to the subject drawing was the reason the NCR was prepared.

By voiding the NCR, the tracking system to verify that the drawing was changed to reflect the Revision A conditions or, depending on the Engineer's disposition, that Auxiliary Steel AS-14 and hanger CC-9 were removed and hanger CC-41 installed, has been negated. Also, the voided NCR was removed from the trend analysis system.

(3) NCR 5368, dated September 12, 1981, was prepared to document that the raceway was not grounded between routing points 10510 and 16423, which is a distance of 80'. Electrical Specifications, K2999, requires grounding at 60' maximum intervals.

The NCR was voided on October 3, 1981, because the Baldwin Associates Procedures do not establish criteria for grounding on Class 1E tray.

The approved drawings, specifications, codes, standards and regulatory requirements establish criteria, not BA procedures. By voiding the NCR, the tracking system to verify that the grounding was installed per the specification requirements has been negated and the NCR would be removed from the trend analysis system.

(4) Additional examples of improperly VOIDED/CLOSED NCR's are:

5222 - dated 08/20/81
5375 - dated 09/14/81
5384 - dated 09/15/81

5490 - dated 09/23/81
5519 - dated 09/28/81
5563 - dated 10/05/81
5595 - dated 10/21/81
5675 - dated 10/27/81
5676 - dated 10/27/81
5677 - dated 10/27/81
5760 - dated 11/10/81
5781 - dated 11/12/81
5787 - dated 11/12/81
5919 - dated 12/07/81
6010 - dated 12/17/81
6143 - dated 01/09/82

The improper voiding of nonconformance reports is in noncompliance with Criterion XV of 10 CFR 50, Appendix B (50-461/82-02-02J).

e. During a review of Nonconformance Reports (NCR), it was observed that NCR 3500, dated July 31, 1980, was prepared to document that 30 electrical hangers had welding performed on them after the final QC inspection had been completed. The additional welding resulted in two or more types of attachments being used on the same connection. For example, the latest drawing revision indicates that attachment DV-48A or DV-9 is to be installed but the actual installation indicates that all or part of attachments DV-9, AB-213 and AB-214, were used.

An approved disposition was received on September 30, 1980, and as of January 22, 1982, NCR 3500 was still open. The longer the NCR remains open, the more safety-related cables will be installed in the surrounding cable trays which will result in a larger probability that one or more cables will be damaged while completing the approved disposition on the NCR.

The failure to establish measures to assure that nonconforming items are promptly corrected in accordance with QA program provisions is in noncompliance with Criterion XVI of 10 CFR 50, Appendix B (50-461/82-02-08B).

ANSI N45.2.12, Paragraph 3.5.1, states: "Auditing shall be initiated as early in the life of the activity as practical, consistent with the schedule for accomplishing the activity, to assure timely implementation of quality assurance requirements." The Clinton Power Station QA Manual, Chapter 18, Section D, states, in part: "Baldwin Associates shall institute an audit program assuring that activities associated with construction and installation effort are in compliance with the Baldwin Associates quality assurance program and this Manual."

On September 15, 1981, BA implemented BAP Procedure 1.0.1, Revision 0, Deviation Reports. The purpose was to provide instructions for reporting and controlling deviating items which may be reworked to a conforming condition or replacing a defective item

with another item that meets design requirements. The issuance of this procedure changed the nonconformance reporting system in effect from one in which a single report, a Nonconformance Report, was used, to a system in which two reports, the Nonconformance Report and Deviation Report, were used. Approximately 200 Deviation Reports have been processed since September 15, 1981. As of the date this investigation was concluded, March 3, 1982, neither IP nor BA had performed an audit or surveillance to ensure the system was working correctly or that it was not being abused. The failure to perform an audit or surveillance of the new deviation report system is in noncompliance with 10 CFR Part 50, Appendix B, Criterion XVIII (50-462/82-02-13).

12. Quality of Conduit

On January 30, 1982, the NRC Headquarters Duty Officer received an anonymous telephone call in which the caller said there were rumors that a bad batch of 1 1/2" conduit was received at the Clinton site. This information, without further details, was referred to Region III.

On March 2, 1982, the BA Supervisor of Materials Control was interviewed. He advised that conduit is purchased as non safety-related material and is obtained from various suppliers. He said he could recall no instances in which defective 1 1/2" conduit was received. He said he did recall that about two years ago some difficulty was experienced with some 2" conduit during installation. It was found that the walls of the conduit collapsed or kinked when bent. He recalled that some tests were made and as a result the conduit was returned to the supplier

Records on file showed that the receipt of the conduit was recorded on Receipt Inspection Report No. N-8509, dated December 17, 1979. A Material Returned Report, No. 4030, dated May 22, 1980, showed 3200' of 2" conduit was returned because it kinked when bent. The Material Returned Report referenced NCR No. 3085.

NCR 3085, dated March 17, 1980, identified the 2" conduit as nonsafety and stated it "cannot be bent to the bending radii specified for K-2990, without kinking or flattening." The recommended disposition of the NCR states: "The 2" conduit which has been installed shall be inspected per BAP 3.3.1. Because of the possibility of inadequate bend radii, that which has not been used shall not be available for installation (placed on hold in the electrical laydown yard), and removed from the site."

No other information was obtained regarding the receipt or use of defective conduit during this investigation.

13. Welder Qualification

NCR No. 6093, dated January 6, 1982, was prepared regarding welds in the suppression pools and states: "Welds 1MS30014A-2, 1MS33011A-2, 1MS23011A-2, 1MS29013A-2, 1MS24012A-2, 1MS36013A-2, 1MS34013A-2,

1MS25012A-2, all having a nominal joint thickness of 1.218" were welded by welders F5 and F451 having performance qualifications to a maximum of .730" in P8 Material. This is in violation of ASME, Section IX QW452."

These were stainless welds of the Main Steam Quenchers to the Containment Suppression Pool. The Gas Tungsten Arc Welding (GTAW) and the Shielded Metal Arc weld processes (SMAW) were used. It was determined that prior to making these welds Welder F5 had never been tested to qualify for heavy wall (7.730t) stainless steel. Welder F451 had failed a standard wall stainless steel test in 1978 but had subsequently passed it. He had failed the heavy wall stainless steel test in 1979 and had not been retested prior to making these welds.

Following the issuance of NCR 6093, Welder F5 was tested and qualified to perform such welds. Welder F451 again failed the heavy wall stainless steel test on January 12, 1982, but after undergoing a welding training class, he was retested on January 15, 1982 and passed.

The recommended disposition recorded on NCR 6093 was as follows: "Welders F5 and F451 have since been upgraded so that they are qualified to maximum thickness (heavy wall) to be welded on P-8 materials. The welds were successfully examined by a liquid penetrant examination on the root pass and every 1/4" including the finished weld. Therefore, use-as-is." The corrective action space on the NCR contained the following: "Reiterated importance of proper welder qualifications with Cont. Piping Sup't. on January 21, 1982 - he has reiterated same with crews." IP Construction Engineering subsequently signed the NCR.

It was determined that the IP Construction Management, IP Welding Engineer, BA Piping Engineer, and BA Quality and Technical Services management were aware that Welder F451 had failed his initial after-the-fact test. This information however, was not entered on the NCR and was not available to the design organization for consideration when reviewing the matter for dispostion. ASME Code Section IX, QW351 and QW452 do not permit welder qualification after the fact.

BA Procedure 1.0, Nonconformances, Revision 8, lists the responsibilities of organizations in the disposition of NCRs in sequential order. Paragraph 6.1.10 states that the manager, Quality and Technical Services, shall review NCRs to assure quality requirements are met. This step occurs prior to distribution of the NCR to IP or Sargent & Lundy. The failure to include known quality information on the NCR is in noncompliance with 10 CFR Part 50, Appendix B, Criterion XVI (50-461/82-02-08C).

It was also noted that a Corrective Action Request, No. 080, dated January 29, 1982, prepared regarding welders performing welds for which they were not qualified referenced NCR 6093. Although the BA Quality and Technical Services organization was aware that Welder F451 had failed his after-the-fact retest, this information was not given or addressd in the BA response to the CAR.

14. Traveler Sign-off (Concrete Pour)

During this investigation concern was expressed that travelers were being signed off by BA Electrical QC before required inspections supporting the traveler sign-off were performed. One specific example was given. It was indicated that about three or four months earlier (September 1981) Electrical QC had signed off on a concrete pour traveler before the pre-pour inspection was conducted. When the pour location was inspected, it was determined that two electrical junction boxes were not located as shown on the drawing and a NCR was prepared regarding the matter. It was indicated that the pour was on the 755' elevation at lines 121 and L in the Fuel Building.

A concrete pour traveler for that location, No. 1632, dated August 11, 1981, was reviewed. It was noted that Electrical QC had signed off the Pre-placement Acceptance on August 13, 1981. The pour was made on August 14, 1981. The traveler references, among other things, NCR 5172. This NCR was dated August 13, 1981, the same date as the QC Electrical sign-off. The NCR states the junction boxes were installed out of tolerance because of the placement of rebar. The NCR was preimplemented, i.e., the location of the boxes were evaluated as not being an impediment to proceeding with the concrete pour. The Civil QC Inspector who performed the pour inspections advised that the pour was of a safety-related slab but the electrical work, the junction boxes, were nonsafety-related and their location was not significant. The fact that they were in a slightly different location than shown on the drawing did not adversely affect the safety-related pour. The information obtained regarding this matter provided no confirmation that the traveler was signed off before required inspections were performed.

15. Anonymous Letter Allegations

On November 25, 1981, an anonymous, typewritten letter was received at the Region III office. The letter questioned the qualifications of named site personnel to perform engineering tasks associated with their jobs, both in general, and in two specific cases. The letter also indicated that:

a. The ASME Code requires that, for Class 2 and Class MC Plate and Shell type Support welds, the base metal for at least 1/2 inch on each side of the weld shall be examined by magnetic particle or liquid penetrant examination. Weld packages did not specify this requirement. The letter also alluded to NDE requirements not being included in weld packages for drywell head fittings and other critical high pressure piping head fittings.

b. Weld traceability logs are not maintained in accordance with procedure (no specifics).

c. A General Electric (GE) formula for cold pull has never been utilized.

d. GE weld travelers (work packages) are being prepared by unqualified personnel. Work package traveler logs are not maintained in accordance with procedure (no specifics).

The qualifications of the two named individuals were reviewed as to education, pertinent work experience, and present work requirements. Discussions were held with supervisory personnel regarding the adequacy of the individuals' past and present work. No deficiencies were identified.

a. Weld work packages reviewed did not contain such a requirement. However, a review of nondestructive examination (NDE) procedures indicated that the procedures for magnetic particle or liquid penetrant examination provide for examination of 1/2 inch, or more, on the sides of any weld examined. There is no need to specify such a requirement in the weld work packages.

A review of site nonconformance reports (NCRs) identified several reports pertaining to head fittings and pertinent nondestructive tests. NCRs 3951 and 5618 documented welds completed prior to issuance of Engineering Change Notice (ECN) 1666, which added nondestructive examinations for root passes, and NCR 5294 documented a number of welds where the examinations required by the ECN had not been added to the weld travelers. All of these NCRs had been dispositioned as accept-as-is, since the omitted tests were beyond the requirements of the welding Code. It could not be determined if these NCRs were relevant to the conditions referred to in the anonymous letter, due to its lack of detail, but several facts are in agreement with those in the letter. No items of noncompliance or deficiencies were identified.

b. Weld traceability log procedures and weld traceability logs were examined. BA audits of the system were also reviewed, and discussions were held with personnel responsible for generation and maintenance of the logs. It was found that the log system had been revised due to a previous NRC inspection finding, and extensive effort had been spent in reviewing past records. BA audits of the present system, and a review of a sample of present logs did not indicate any unidentified problems. Since the anonymous letter had not provided any specific logs to review, further efforts were not undertaken.

c. Utilization of a GE formula for the calculation of allowable cold pull at joints was reviewed and discussed with site personnel. This calculation is not performed onsite, but is performed by GE personnel at the San Jose, California office.

Discussion with site personnel indicated that a NCR, which was initiated approximately one year ago, had dealt with the issue of possible cold springing, or cold pull at a joint. It was indicated that the NCR mentioned related to a dome ring header

installation. It had been suggested at one point that a GE formula be utilized to justify springing necessary for the installation. The GE formula for calculating the allowable cold pull was utilized, but the initial results were in error. The suggestion was not implemented, the individual involved indicated, and he did not recall using the formula on an NCR or any other document. Further discussion clarified the point that cold springing was not allowed onsite, and such calculations had not been used to justify acceptance of any work.

d. Work package traveler logs were reviewed. This is a system for tracking the movement of work packages as they pass through the review system. The system provides for engineering to generate the traveler, which receives a preliminary review by Quality Control, a review by Technical Services, and a full review by QC. If GE equipment is involved, the work package is also reviewed by GE personnel. It is then issued for fabrication and installation. The completed package receives a review by QC prior to turnover to document control for storage and filing. A review of a sample of work package traveler logs did not identify any problems. No items of noncompliance or deficiencies were observed.

Based on the contents in the letter, and discussion with site personnel, it appears that the items included were meant to demonstrate that an individual was not qualified for his past or present position. As noted above, review indicated that he was qualified for his position.

16. Posting Requirement

Section 1.1.1 of the Clinton FSAR states in part: "The FSAR is submitted under Section 103(b) of the Atomic Energy Act of 1954, as amended,..." Public Law 96-295, issued June 30, 1980, amended the Atomic Energy Act by, among other things, amending Section 223 by adding Subsection b, which related to willful violations of the Act, rules, regulations, orders and license conditions issued thereunder and the penalties therefor. Subsection 223b requires that: "The provisions of this subsection shall be prominently posted at each site where a utilization facility...is under construction..."

During this investigation it was noted that up to February 8, 1982, the provisions of this subsection had not been posted at the Clinton Power Station. Prior to the conclusion of this investigation on March 3, 1982, however, the licensee took action to comply with this posting requirement.

17. Electrical Stop Work Order

As a result of discussions between Region III and licensee management of deficiencies identified during the first two weeks of this investigation, on January 15, 1982 the licensee issued a stop work order on all safety-related electrical construction activity. A Confirmatory

Action Letter, dated January 27, 1982, was sent by Region III to the licensee concerning the understandings reached regarding the stop work order and the conditions under which safety-related electrical work would be resumed. As of the last day of this investigation, March 3, 1982, the stop work order remained in effect.

18. Meetings with Licensee on January 29 and February 23, 1982

During a meeting with licensee officials in the Region III office on January 29, 1982, the findings of the investigation at that time were discussed. Information concerning that meeting is contained in IE Report No. 50-461/82-03. On February 23, 1982, Region III and licensee management held a meeting in which the latter provided information on actions taken and planned to strengthen the overall QA program at the Clinton site.

19. Exit Meeting

On March 3, 1982, the findings of the investigation were discussed with the IP and BA personnel identified by an asterisk (*) in the Persons Contacted section of the report. The licensee was advised that the number of noncompliances identified in the electrical area when taken together showed the quality program in that area was ineffectively implemented and that this was in noncompliance with 10 CFR Part 50, Appendix B, Criterion II.

Attachments: Exhibits A
through H

ILLINOIS POWER COMPANY

CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

January 15, 1982

Mr. W. J. Harrington
P. O. Box 306
Clinton, IL 61727

Dear Mr. Harrington:

Stop Work

This is formalize my verbal stop work on all safety related electrical work at the Clinton Power Station.

All such work is to be stopped at the end of the shifts which start on January 15, 1982. This order will remain in effect until such time you are notified otherwise in writing by me or one of my superiors at Illinois Power. This also confirms my decision that no electrical work of any kind will be scheduled for the weekend of January 16 and 17, 1982. An exception to this last statement will have to be any emergency work necessary for the protection of life or property.

Sincerely,

J. O. McHood

JOM/cs

cc: [redacted]
W. C. Gerstner
L. J. Koch
A. J. Budnick
M. C. Hollon
George Gandsey - Power Systems
T. Plunkett

Attachment 3

ILLINOIS POWER COMPANY IP CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

January 18, 1982

Mr. W. J. Harrington
P. O. Box 306
Clinton, IL 61727

Limited Lifting of Safety
Related Stop Work

Dear Mr. Harrington:

This is to advise you that I am partially lifting my stop work action which was formally documented in my letter to you on January 15, 1982. All safety related electrical work may resume with the exception of Electrical Cable Tray installation.

Please do not resume installation of tray until all applicable revisions of procedures, plans, and instructions have been reviewed and concurred in by IP Construction and IP QA.

Sincerely

J. O. McHood

JOM/cs

cc: H. H. Livermore
W. C. Gerstner
L. J. Koch
A. J. Budnick
M. C. Hollon
George Gandsey - Power Systems
T. Plunkett

- 980

ILLINOIS POWER COMPANY

500 SOUTH 27TH STREET, DECATUR, ILLINOIS 62525

January 19, 1982

Mr. W. J. Harrington
P.O. Box 306
Clinton, IL 61727

Dear Bill:

Safety Related Electrical Stop Work

This is in addition to my January 18, 1982 letter to you regarding limited lifting of stop work on safety-related electrical activities.

In addition to the limitation on cable tray installation, safety-related cable will not be pulled in any cable tray where the reinspection has identified deficiencies which would be a hazard to the cable being pulled. Such deficiencies must be corrected and documented before cable is pulled. No cable should be pulled which would interfere with reinspection of tray or hanger.

Sincerely,

J. O. McHood
Vice President

cc: H. H. Livermore
W. C. Gerstner
L. J. Koch
A. J. Budnick
M. C. Hollon
George Gandsey
T. Plunkett

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

JAN 27 1982

Docket No. 50-461

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

Gentlemen:

This refers to problems identified during the ongoing inspection in the area of the safety related electrical work at the Clinton facility. Based on discussions between Mr. Norelius and the Region III staff and Mr. Koch and his staff on January 25, 1982, it is our understanding that you will:

1. Continue the stop work order as specified in the memorandum dated January 19, 1982, with the following clarifications. Prior to the pulling of any Class 1E cable do the following: conduct a complete inspection of the cable tray, document all nonconforming conditions as part of the NCR and DR system, and correct and repair all nonconforming items; and inspect each cable tray attachment to the hanger, identify each incomplete or nonconforming attachment whose completion or repair could adversely affect the cable pull or installed cable, document each instance as part of the NCR and DR system, and complete or repair the attachment. Any decision not to repair an identified nonconforming item in the cable tray or attachments prior to cable pulling must be evaluated, justified and documented prior to pulling cable.

2. Place the appropriate control tags on all nonconforming items which are installed or in storage which are identified in nonconformance reports, deviation reports, GIR's and IPQA Surveillance reports. Develop a procedure which clearly assigns status of all adverse findings on NCR's, DR's or GIR's. Review all previous GIR's and IPQA Surveillance reports and CAR's to determine if adverse findings should be documented on NCR's or Deficiency Reports.

3. Conduct repair activities according to approved procedures which assure that such repairs are properly controlled (including QA/QC involvement) to assure that damage to cables in trays does not result from the repair activity.

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Attachment 4

4. Develop a plan for increased Illinois Power QA and construction management involvement in the contractor's Construction Management and QA/QC program including: a) review of all inspection/installation procedures and instructions to assure consistency with SAR commitments and specifications; b) periodic review inspections to confirm findings; c) other action to increase assurance of IPQA and construction management awareness of adverse findings and construction activities.

5. Develop a plan to clarify instructions and procedures to assure that all findings are formally documented, trended, and dispositioned (including corrective actions to preclude recurrence) by qualified personnel.

We further understand that the stop work order will stay in effect until your program for improved control over the electrical construction program as set forth in Items 2, 3, 4, and 5 above, is approved by the Region III office.

Please let us know immediately if your understanding differs from that set forth above.

Sincerely,

/s/ for James G. Keppler

James G. Keppler
Regional Administrator

cc: DMB/Document Control Desk (RIDS)
Resident Inspector, RIII
Mary Jo Murray, Office of
Assistant Attorney General
Gary N. Wright, Manager Nuclear
Facility Safety
Mr. Randall L. Plant, Prairie
Alliance

RIII
Williams/ls Little Knop Norelius Davis for Keppler
1/26/82 1/27/82 1/27 1/27

CLINTON

REPORT NO. 50-461/82-02

CROSS REFERENCE: NONCOMPLIANCE (APPENDIX) TO REPORT DETAILS

Item	Appendix Criterion	Appendix Subparagraph	Section	Report Page(s)	Tracking No.
A	I	1	3	7-8	01
		2	3	9-16	01
		3	3	16	01
		4	3	5-6	01
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		6	9	31-33	01
		7	9	31-33	01
B.1	III	a	10	34-36	05D
		b	10	35-36	05C
		c	7	24	05A
		d	7	24-25	05B
B.2	V	a	8	30	10
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		c	8	30	10
		d	8	30	10
		e	8	30	10
B.3	VI		6	20	03
B.4	VII		7	23-24	04
B.5	IX	a	8	30	11A
		b	8	30-31	11B
B.6	X	a	7	25	06A
		b	7	26	06I
		c	7	25	06C
		d	7	26	06D
		e	7	25	06B
		f	7	26	06E
		g	7	26	06F
		h	7	26	06G
		i	7	26	06H
B.7	XIII		7	27	07
B.8	XV	a	7	21-23	02C
		b	11	36	02H
		c	11	37	02K
		d	11	37	02I
		e	9	31-34	02D
		f	5	18-19	02B
		g	10	34-35	02F
		h	9	31-34	02E
		i	4	17-18, 37-39	02J
		j	4	17-18	02G

Item	Appendix Criterion	Appendix Subparagraph	Report Section	Report Page(s)	Tracking No.
B.9	XVI	a	13	40-41	08C
		b	7	27	08A
		c	11	39	08B
B.10	XVIII		11	39-40	13
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