

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/86008(DRP)

Docket No. 50-461

License No. CPPR-137

Licensee: Illinois Power Company
500 South 27th Street
Decatur, IL 62525

Facility Name: Clinton Power Station

Inspection At: Clinton Site, Clinton, IL

Inspection Conducted: January 27 through February 24, 1986

Inspectors: T. P. Gwynn

P. L. Hiland

RFWarnick for

Approved By: T. P. Gwynn, Chief
Reactor Projects
Section 1B

3/5/86
Date

Inspection Summary

Inspection on January 27 through February 24, 1986 (Report No. 50-461/86008(DRP))

Areas Inspected: Routine safety inspection by resident inspectors of preoperational testing and operational preparedness activities including applicant action on previous inspection findings; IE information bulletin followup; employee concerns; functional or program areas (including site surveillance tours, Stone and Webster maintenance activities, and operating staff training); independent inspection effort - shift technical advisor training; independent inspection effort - diesel generator modification; and site activities of interest. The inspection involved a total of 128 inspector-hours onsite by two resident inspectors including eight inspector-hours onsite during off shifts.

Results: Of the areas inspected, one violation and two unresolved items were identified. The violation and one unresolved item (Paragraph 5.b.) were related to the indoctrination and training of the CPS maintenance contractor's personnel. The activities being performed by the maintenance contractor were not properly controlled. The second unresolved item (Paragraph 6.) concerned the adequacy of the IP Shift Technical Advisor training and qualification program. This item was referred to Region III for further review and possible referral to the NRC Office of Nuclear Reactor Regulation.

DETAILS

1. Personnel Contacted

Illinois Power Company (IP)

D. Antonelli, Director, Plant Operations
*K. Baker, Licensing and Safety (L&S)
G. Bell, Director, Construction and Procurement Quality Assurance (QA)
B. Calhoun, Quality Projects Coordinator, IP QA
R. Campbell, Director, Quality Systems and Audits, QA
*+W. Connell, Manager, QA
J. Cook, Assistant Manager, Clinton Power Station (CPS)
*E. Corrigan, Director, Quality Engineering and Verification, QA
*+H. Daniels, Project Manager
S. Fisher, Manager, NS
*+W. Gerstner, Executive Vice President
*+J. Greene, Manager, Startup (SU)
*+D. Hall, Vice President, Nuclear
D. Holesinger, Director, Startup Test, SU
D. Holtzschler, Director, Safety Analysis, LS
E. Kant, Assistant Manager, Nuclear Station Engineering (NSE)
+H. Lane, Assistant Manager, Project Control Center
*J. Loomis, Construction Manager
J. Miller, Director, Startup Programs, SU
R. Morgenstern, Director, Plant Technical
M. Norris, Supervisor, Testing and Scheduling
J. Palchak, Supervisor, Plant Support Services
*+J. Perry, Manager, Project Control Center
R. Phares, Technical Staff Engineer
S. Richey, Director, Maintenance
+R. Schaller, Director, Nuclear Training
*+D. Shelton, Manager, NSE
*+F. Spangenberg, Manager, L&S
L. Tucker, Director, Maintenance Services
*N. Williams, Director, Support Services
*+J. Wilson, Manager, CPS
F. Worrell, Supervisor, Plant Operations
+R. Wyatt, Director, Nuclear Program Assessment

Baldwin Associates (BA)

M. Daniell, Manager, Technical Services
*J. Hawkins, Manager, Quality Assurance
*D. Schlatka, Project Manager
*J. Thompson, Manager, Quality Engineering

Soyland/Wipco

+J. Greenwood, Manager, Power Supply

Nuclear Regulatory Commission - Region III

- *+T. Gwynn, Chief, Reactor Projects Section 1B
- +M. Ring, Chief, Test Programs Section
- +R. Warnick, Chief, Reactor Projects Branch 1
- *P. Hiland, Resident Inspector

The inspectors also contacted others of the construction project and IP staffs.

+Denotes those attending the monthly management meeting on February 21, 1986.

*Denotes those attending the monthly exit meeting on February 24, 1986.

2. Applicant Action On Previous Inspection Findings (92701)

- a. (Closed) Open Item (461/85015-10): Verify operational controls have been established to preclude operation of the Residual Heat Removal (RHR) system in the Low Pressure Coolant Injection (LPCI) mode unless it is required for an accident, emergency, or for short term testing situations, and to report to the NRC the circumstances of any inadvertent operation of the modified RHR/LPCI system for an extended period of time.

The inspector reviewed procedure CPS No. 3312.01, residual heat removal, Revision 1. Paragraph 4.5 of the RHR procedure specifically provided a precaution to prevent operation of the RHR system in the LPCI mode unless it was required for an accident or emergency. In addition, the inspector reviewed the applicant's surveillance procedure for short term testing (CPS No. 9053.07, RHR Pump A, B, C Operability Test, Revision 20, dated February 2, 1986) and noted that water pumped during the test was cycled back to the suppression pool and not injected into the reactor vessel.

The inspector reviewed the Clinton Power Station (CPS) "Proof and Review" technical specifications. Section 3/4.5, Emergency Core Cooling Systems, Paragraph 3.5.1.f., included a requirement that a Special Report be prepared and submitted to the NRC describing the circumstances in the event an Emergency Core Cooling System (ECCS) actuated and injected water into the reactor coolant system. Operational controls were verified by the inspector to have been established to preclude operation of the RHR system and to report to the NRC inadvertent initiation of the LPCI mode of RHR. This item is closed.

- b. (Closed) Open Item (461/85042-02): The inspector identified cable jacket damage to the High Pressure Core Spray (HPCS) pump power supply cable. The applicant initiated Nonconformance Report (NCR) No. 34346. This item remained open pending verification that the identified condition had been evaluated and corrected.

Since this hardware was subsequently turned over to Illinois Power, NCR No. 34346 was not dispositioned. The identified nonconformance was transferred to Nonconforming Material Report (NCMR) No. 1-1688.

NCMR No. 1-1688 was dispositioned "rework" and the HPCS pump power cable was retrained to relieve pressure on the cable jacket from the cable tray riser's "support fingers". Once the cable was retrained, the jacket was inspected to verify indentation on the cable jacket did not exceed 50% of the jacket thickness.

The inspector noted that Quality Control Inspection Report No. E85-13130 documented verification that the HPCS pump power cable jacket damage did not exceed 50% of the jacket thickness. In addition, the inspector verified by direct observation that the HPCS pump power cable had been reworked in accordance with the approved disposition. This item is closed.

- c. (Closed) Open Item (461/85065-03): Verify certification of a sufficient number of Shift Technical Advisors (STAs) to support the five "normal" operating shift crews prior to fuel load.

The Clinton Power Station (CPS) Final Safety Analysis Report (FSAR), Section 13.2.1.1.1.I, details specific training commitments that were to be accomplished prior to STA certification. The applicant's STA training program, which implements the FSAR commitments, was described in CPS No. 1302.04, Shift Technical Advisor Training, Revision 0, dated December 27, 1985. Review of the CPS STA training program is documented in Paragraph 6. below.

The inspector reviewed the training records of seven STA candidates that were certified by the Manager, CPS on January 14, 1986. The purpose of this review was to verify that training committed to in the FSAR for STAs was provided. The inspector identified one certified STA that had not received the management/supervisory skills training required by the CPS STA program. The applicant decertified this one STA candidate (CPS memo JWW-0846-86) and scheduled the required additional training. The remaining six certified STAs provide a sufficient number of STAs to support the five "normal" operating shift crews. This item is closed.

- d. (Closed) Open Item (461/85065-04): A generic deficiency related to the use of unqualified wire in environmentally qualified Limitorque valve actuators was reported by Commonwealth Edison Company (CECo) in Licensee Event Report (LER) No. 304/85018. Illinois Power Company review of this matter for applicability to the Clinton Power Station was in progress at the conclusion of Inspection Report No. 50-461/85065.

On February 20, 1986, the applicant reported that their evaluation of the CECo LER was complete. The applicant concluded that the defect reported in LER No. 304/85018 was not applicable to the Clinton Power Station. As documented in letter Y-33664 dated February 14, 1986, the applicant based their conclusion on the following:

- (1) Correspondence from Limitorque stated that safety-related Limitorque valve actuators were supplied to CPS with either Flamtrol or Rockbestos Firewall III wire.

- (2) Subsequent information obtained from Limitorque indicated that valve actuators purchased on general purchase orders after 1972, contained only Flamtrol and Rockbestos wire.
- (3) Flamtrol and Rockbestos Firewall III wire was qualified for use at CPS (equipment qualification packages EQ-CL025 and EQ-CL025A).
- (4) Two earlier walkdowns of 100% of safety-related motor actuators by the applicant's equipment qualification task force had identified no wiring inconsistencies.
- (5) A special inspection of the wiring in a random sample of eight Limitorque valve actuators identified no wiring discrepancies; only the Flamtrol or Rockbestos Firewall III wiring was installed.

The inspector interviewed the applicant's lead equipment qualification engineer and determined that the above presented an adequate basis for the applicant's conclusion. This item is closed.

No violations or deviations were identified.

3. IE Information Bulletin Followup (92701)

(Closed) IE Bulletin (461/85001-BB): Steam Binding of Auxiliary Feedwater Pumps. This bulletin, sent to IP for information, notified reactor licensees and permit holders of a potentially serious safety problem involving the inoperability of certain auxiliary feedwater pumps used in pressurized water reactors. The problem involved steam binding of the pump after hot water leaked into the pump and flashed to steam. The steam binding disabled the auxiliary feedwater pump (a safety system component).

The inspector verified through review of records that the applicant had received the bulletin; had reviewed it for applicability to CPS; and had determined that the safety concern identified by the bulletin was not applicable to Clinton Power Station. This bulletin is closed.

No violations or deviations were identified.

4. Employee Concerns (99014)

The inspectors reviewed concerns expressed by site personnel from time to time throughout the inspection period. Those concerns related to regulated activities were documented by the inspectors and submitted to Region III. Four concerns were transmitted to the regional office during this report period.

5. Functional or Program Areas Inspected

a. Site Surveillance Tours (71302/60501)

At periodic intervals throughout the report period, surveillance tours of selected areas of the site were performed. Those surveillances were intended to assess: cleanliness of the site; storage and maintenance conditions of plant equipment and material; potential for fire or other hazards which might have a deleterious effect on personnel or equipment; storage conditions of new fuel; and to witness maintenance and preoperational testing activities in progress.

On January 31, 1986, the inspector observed two Stone and Webster (S&W) (the IP maintenance contractor) maintenance craftsmen performing Generic Test Procedure (GTP) - 40, Low Voltage Control Circuit Checkout, at the remote shutdown panel. This was a safety-related Checkout and Initial Operation (C&IO) phase test. The inspector verified that the drawing in use at the jobsite was stamped "approved for testing"; that the test procedure in use at the jobsite was the most current revision; and that each craftsman was currently certified to perform the activity observed. For the activities observed, the inspector identified no violations of or deviations from the approved procedures and drawings. Additional observations relevant to S&W maintenance activities are presented in Paragraph 5.b. below.

During frequent tours of the power block, the inspectors noted a gradual decrease in the level of general plant cleanliness throughout most accessible areas. One major exception was the Turbine Building which was maintained in a generally adequate state of cleanliness throughout the inspection period. In particular, the inspectors noted that there was a general accumulation of dirt, debris, and trash from a combination of construction and maintenance activities and food, tobacco, and similar trash from consumption in safety-related areas. This matter was discussed briefly with the IP Vice President, Nuclear during a management meeting on February 21, 1986, who acknowledged the observation. The Vice President, Nuclear attributed the cleanliness condition of the plant to two factors; the first factor was a large construction population which he believed will be declining rapidly in the near future; the second factor was a decision made by IP management to concentrate IP resources on plant hardware rather than maintaining plant cleanliness. The inspectors identified no immediately obvious adverse impact on plant hardware from the current cleanliness state of the plant; however, the cleanliness condition of the plant at the conclusion of the inspection period was substantially different from the condition expected to exist at the present stage of plant life. The inspectors will continue to monitor the cleanliness status of the plant during routine plant tours.

No violations or deviations were identified.

b. Stone and Webster Maintenance Activities (71302/92702)

The inspector observed the performance of safety-related maintenance activities by the applicant's maintenance contractor, S&W. S&W had only recently begun to perform safety-related maintenance activities under the applicant's quality assurance program with QA/QC services supplied by IPQA. These activities were observed in order to verify one or more of the following: the applicant has developed the required maintenance procedure and was following the maintenance program; the maintenance procedure was technically adequate; and only qualified personnel performed the safety-related maintenance activity.

- (1) On January 29, 1986, the inspector observed a S&W electrician installing a modification to the motor actuator for the high pressure core spray injection valve (Valve No. 1E22F004). In particular, the electrician was installing Engineering Change Notice (ECN) 6880 in accordance with Maintenance Work Request (MWR) 26689. The inspector determined through interview of the electrician that he had been employed at the CPS for about two weeks; that he had never worked at a nuclear power plant before his arrival at CPS; and that he had been provided no indoctrination or training, other than his craft apprenticeship program, prior to being assigned to the job at hand. The inspector further observed that initially, the electrician was working on his own; he was later joined by another S&W electrician. During the period of this observation, no S&W foreman was observed at the jobsite.

The inspector promptly identified this apparent violation to the applicant's Director, Construction and Procurement QA and to the IP Director, Maintenance Services (the IP supervisor responsible for overview of S&W activities). The inspector requested that the applicant review the matter and determine the cause of the condition and necessary corrective actions.

On January 30, 1986, the applicant initiated Condition Report (CR) 1-86-01-144. That CR detailed the conditions identified by the inspector concerning the performance of safety-related maintenance/modification activities by S&W without the prerequisite indoctrination and training required by the applicant's procedure, CPS No. OAP1502.03N, Personnel Qualifications for Maintenance Activities, Revision 2, dated July 16, 1982. A prompt review by the applicant determined that 42 of approximately 200 S&W craftsmen had not received indoctrination training; additional job-related training and on-the-job training required by the S&W project manual was limited. The total number of MWRs issued to S&W as of February 20, 1986, was approximately 1,195 of which 471 were safety-related. Immediate corrective action taken by the applicant, as identified in block four of the referenced CR, was to reassign S&W craftsmen who had not received the prerequisite indoctrination/training to nonsafety-related tasks.

On February 14, 1986, the S&W Resident Project Manager provided a report to the IP Director - Maintenance Services. The report identified that a review of all S&W personnel files had been performed with the following results:

- 31 personnel had not received general employee training.
- 33 personnel had not received MWR training.
- 33 personnel had not received Safety Tagging training.
- 21 personnel had not received Interim Certification Qualifications.
- 27 personnel had not received Job Rules.

On February 17, 1986, the applicant allowed S&W to resume limited safety-related maintenance activities. The applicant stated that the personnel performing the activities released had been specifically trained and certified to perform the assigned tasks (MOVATS testing and NAMCO limit switch cover torquing). At the conclusion of the inspection period, the applicant was still evaluating the impact of the violation on installed hardware and investigating long term corrective actions.

The failure of Illinois Power Company to assure that personnel performing activities affecting quality had been properly trained and indoctrinated prior to being assigned to perform safety-related work activities is a violation of 10 CFR 50 Appendix B, Criterion II and the IP Operational QA Manual, Paragraph 2.2.4 (461/86008-01).

- (2) On February 6, 1986, the inspectors observed two S&W electricians attempting to perform a safety-related maintenance activity at the remote shutdown panel (the control location for reactor shutdown when the main control room is inaccessible). The inspector reviewed the work documents available at the jobsite and discussed the job briefly with the S&W electricians. The electricians were waiting for their foreman to return to the jobsite with a copy of a General Electric Company (GE) Control Room Assembly Procedure (CRAP). The inspectors reviewed MWR B26909. The MWR was written to retorque switches and terminations that were previously installed with a defective torque screwdriver. The inspector noted the following deficiencies in the "job steps" provided to the S&W electricians for performance of the task:

- The instructions/procedures/drawings referenced in the job steps were GE Field Disposition Instruction (FDI), SKUE, and a CRAP. The inspector noticed that the FDI was a part of the work package. A brief review of the FDI in the package revealed that only five of the 45 pages in the FDI applied to the remote shutdown panel; no specific steps or drawings from the FDI were specified to be used during

performance of the MWR; and none of the five applicable pages reviewed appeared to provide instructions for performance of the job at hand. The inspector noted that the CRAP was not a part of the work package; that the electrician foreman was looking for a copy of the CRAP; and that the MWR did not refer to specific steps or pages of the CRAP to be used during performance of the MWR.

- The terminals to be retorqued had not been clearly identified in the MWR.
- Applicable acceptance criteria (I.E., torque values) were not defined in the MWR or its referenced documents.

The inspector concluded that the MWR in question did not provide sufficient instructions and/or acceptance criteria to assure that the maintenance task would be properly performed.

This matter was discussed in detail with the Manager, CPS, the Director, Maintenance Services, and the Manager, Licensing and Safety on February 7, 1986. The Manager - CPS stated that he would review the matter further and take appropriate action to correct the situation. The Manager, CPS subsequently stopped all safety-related maintenance work being performed by S&W under the maintenance contract.

On February 19, 1986, the inspector attempted to obtain a copy of MWR B26909 to assist in documentation of the above information and to determine what, if any, work had been performed under the MWR with deficient job steps. The applicant provided a copy of MWR B26909; however, no record had been maintained of the original job steps. There was no record to determine whether or not work had been performed by S&W under the MWR. The inspector then interviewed one of the S&W electricians observed on February 6; the electrician stated that no work had been performed under the MWR on February 6, due to their inability to understand the written directions provided; on February 7, all safety-related maintenance work being performed by S&W was stopped by the Manager, CPS and the MWR was transferred back to IP plant staff. IP plant staff apparently rewrote the applicable job steps, performed the work, and closed the MWR prior to the inspectors request.

The failure of IP to assure that personnel performing activities affecting quality had been properly trained and indoctrinated may have also affected the S&W planners. The inspector noted that the violation identified in Paragraph 5.b.(1) above, coupled with inadequate job steps provided by the S&W maintenance planners, indicated a lack of adequate control of the maintenance contract by IP. The potential for reduction in safety resulting from improper maintenance work was increased as a result. This matter was the subject of discussions between the inspectors, the Manager, CPS, the Manager, Nuclear Program Coordination, and the

Vice President, Nuclear. The inspector noted that no direct hardware impact had been identified to date. However, the applicant's review and evaluation of MWRs performed by S&W prior to the Manager, CPS stopping S&W safety-related maintenance work was not scheduled for completion until March 14, 1986. The matter of inadequately detailed job step in S&W MWRs is unresolved pending completion of the applicant's corrective actions and subsequent review and observation of additional safety-related S&W maintenance activities (461/86008-02).

One violation and one unresolved item were identified.

c. Operating Staff Training (41301)

This inspection was to verify that the applicant's operating staff training program was being implemented as delineated in the FSAR. Specifically, this inspection focused on the applicant's on-the-job training objectives, implementation of initial training, training records, and replacement or "new-hires" training.

Review and verification of other portions of the applicant's operating staff training program was accomplished prior to this inspection. The results of these prior reviews are presented in the following inspection reports:

- 50-461/84025: Training materials, License Review Course, Operating Staff Knowledge
- 50-461/85021: Operating Staff Training, Continuing Training Program, Replacement Training
- 50-461/85032: Operating Staff Training, Continuing Training Program, Replacement Training
- 50-461/85042: General Employee Training, Radiation Worker Training

(1) Documentation Reviewed

- (a) Control and Instrumentation Lesson Plan 6.3-1, Operational Amplifier Theory, dated August 1978.
- (b) Nuclear Training Department Lesson Plan 32037, Solid Radwaste Handling and Process Systems Overview, Revision 0, dated January 29, 1986.
- (c) Nuclear Training Department Simulator Exercise, Unit Startup (Close to Critical), Requalification, Events 1 through 12.

- (d) Nuclear Training Department Lesson Plan 95003, Process Computer Functions, Revision 0, dated February 6, 1986.
- (e) Training Records:
 - Principle staff members (2)
 - R.O. Candidates (2)
 - S.R.O. Candidates (2)
 - C&I Technicians (2)
 - QA/QC Technicians (2)
- (f) Nuclear Training Department Manual, Chapter 5, Collection and Maintenance of Training Records, dated October 22, 1985.

(2) Discussion/Results

- (a) The inspector attended portions of four training sessions in order to verify on-the-job training objectives were met. Training sessions attended included Control and Instrumentation, Solid Radwaste Handling, CPS Simulator Exercise, and Process Computer Functions training. These training sessions were conducted by the CPS Nuclear Training Department (NTD). Attendees included reactor operators, radiation protection technicians, C&I technicians, technical staff (STA), unit attendants, and auxiliary operators.

The inspector reviewed the lesson plan for each of the sessions attended and noted that training objectives were being met as evidenced by direct observation of instructor presentation, class participation, training aids available, and instructor response to student questions.

- (b) The inspector reviewed the training records of two individuals in each of the following job classifications:
 1. Principle Staff Members (Manager and Assistant Manager, CPS)
 2. Reactor Operator Candidates (Unit Attendant and Auxiliary Operator)
 3. Senior Reactor Operator Candidates (Assistant Shift Supervisors)
 4. C&I Technicians (Level III C&I Technicians)
 5. QA/QC Technician (Lead QCE and Level II QCE)

The purpose of this review was to verify implementation of initial training programs for the personnel selected. The inspector verified completion of General Employee Training and Radiation Worker Training for each of the above individuals. In addition, completion of specialized training was evident for each of the job classifications selected.

- (c) The inspector interviewed the Manager, CPS, a unit attendant, an auxiliary operator, a level III C&I technician, and the level II QCE whose training records were reviewed in Paragraph (b) above to verify the training records reflected actual training received. In all cases, interview of the individuals confirmed the training records accurately reflected actual training received.
- (d) The inspector reviewed the Nuclear Training Department (NTD) Manual and interviewed the cognizant CPS training staff personnel to verify if replacement or "late-hires" are scheduled to receive appropriate training. As delineated in the NTD Manual, Paragraph 5.4.2, each department head or supervisor is responsible for specifying the training required for each individual in that organization. The inspector reviewed several examples of training matrices (Attachment 5-1 to NTD Manual, Chapter 5) and noted that required training for specific disciplines were delineated.

Since the Clinton Power Station operating staff has remained relatively stable over the last several years, the inspector could not select a sufficient sample to determine if the training provided replacement or "late-hires" was appropriately scheduled; however, the inspector verified that a proceduralized program did exist which appeared to be capable of assuring appropriate training will be provided.

No violations or deviations were identified.

6. Independent Inspection Effort - Shift Technical Advisor Training (41301)

The inspector performed an independent review of the training and qualification program provided by IP for Shift Technical Advisors (STAs). The review was performed because of difficulties experienced by IP in demonstrating the proper qualification of the seven STAs who were certified by IP at the beginning of the inspection period (see Paragraph 2.c. above). The STA training and qualification program was reviewed with reference to applicant commitments documented in the CPS Final Safety Analysis Report (FSAR) and confirmed as the basis for NRC acceptance in the CPS Safety Evaluation Report (SER), NUREG-0853. This review was intended to verify that the applicant's STA training and certification program met the requirements and recommendations of TMI Action Plan Item I.A.1.1, STA.

a. Documentation Reviewed

- (1) NUREG-0737, Clarification of TMI Action Plan Requirements dated November 1980.
- (2) NUREG-0853, CPS SER dated February 1982 through Supplement 5 (SSER5) dated January 1986.
- (3) NUREG-0800, Standard Review Plan dated July 1981.
- (4) CPS FSAR, Chapter 13 and Appendix D, through Amendment 35 dated October 1985.
- (5) Institute For Nuclear Power Operations (INPO) document, Recommendations For Shift Technical Advisor, Revision 1 dated April 1981.
- (6) CPS Nuclear Training Department (NTD) Shift Technical Advisor Program Description, Revision 1 dated December 18, 1985.
- (7) Nuclear Regulatory Commission Policy Statement on Engineering Expertise On Shift, Federal Register Notice dated October 28, 1985.

b. Discussion/Results

The CPS SER, NUREG-0853, documented the NRC review and conclusion that IP's STA program met the requirements of TMI Action Plan Item I.A.1.1, STA. In the SER, the NRC staff acknowledged the applicant's commitment for a STA program that met both the training and educational guidelines of the INPO document "Recommendations for Shift Technical Advisor", Revision 1 (INPO DOCUMENT). Eight exceptions to the INPO DOCUMENT were taken by the applicant and accepted by the NRC staff; those exceptions related to the specific educational contact hours the applicant proposed to provide the CPS STAs in lieu of the INPO guidelines.

The CPS FSAR, Appendix D, Amendment 29 dated March 1984, revised the applicant's commitment to TMI Action Plan Item I.A.1.1, STA. That revision was termed in the amendment as a "slight" variation from the INPO educational guidelines for the CPS STA program.

Review of the CPS STA program and its implementing procedures identified the following apparent deviations from the INPO DOCUMENT guidelines:

- (1) The INPO DOCUMENT, FOREWORD, Paragraph 2, states: "The user is cautioned to ensure that the recommended education and training is conducted in a professional manner by competent instructors and at the proper level. Institutions and programs accredited by recognized agencies such as ECPD/ABET and INPO ensure that adequate standards are met".

The inspector noted that the CPS STA program required that STA candidates have a B.S. degree in engineering, engineering technology, or the physical sciences. The program did not require that the degree be obtained from an accredited institution.

- (2) The INPO DOCUMENT, Section 6.1, Education, and Subsections 6.1.1, Prerequisites Beyond High School Diploma, and 6.1.2, College Level Fundamental Education, prescribe the educational requirements that a STA must meet in order to provide adequate assurance that he will be able to perform his intended safety function.

The CPS FSAR, Appendix D, Amendment 29 dated March 1984, replaced IP's commitment to provide STA candidates the minimum educational requirements delineated in Section 6.1 of the INPO DOCUMENT with a commitment to have a degreed STA on shift (B.S. degree in engineering, engineering technology, or the physical sciences). The degreed STA was provided with operator fundamentals reactor theory training. The B.S. degree was the only prerequisite education that was included in the IP STA program. There was no requirement to evaluate the B.S. degree course work accomplished by the STA candidate against the educational requirements of Section 6.1 of the INPO DOCUMENT. In addition, there was no requirement in IP's STA program that waivers of the INPO educational requirements be granted only by the Vice President, Nuclear as recommended in the INPO DOCUMENT.

- (3) The college level fundamental education specified in Section 6.1.2 of the INPO DOCUMENT was not a part of the IP STA program. The STA training program did provide plant specific applied fundamentals training. The training provided consisted of four to six weeks of classroom training in certain science and engineering subjects. Those subjects did not include the subject of nuclear materials, as recommended by INPO. The classroom training provided to the STA candidates was the same fundamentals training provided to the applicant's licensed operator candidates.

The inspectors did not believe that the level at which licensed operators are routinely trained would meet the accreditation standards of the ECPD (Engineers Council For Professional Development) for the course work specified in the INPO DOCUMENT. Of particular concern was the application of licensed operator training in reactor theory to the STA training program. The INPO DOCUMENT specifies that the candidate have 100 contact hours of reactor theory in such areas as reactor statics, reactor dynamics, point kinetics, and reactivity feedback at the college level. The inspectors were of the opinion, based on personal experience, that a reactor theory course designed for licensed operator training would not meet the intent of the INPO DOCUMENT. IP expects that the CPS STA training program will be acceptable for accreditation by INPO.

The intent of the TMI Action Plan, Item I.A.1.1, STA, as discussed in NUREG-0694, NUREG-0737, and as recently reinforced by a Commission Policy Statement (Paragraph 6.a.(7) above), is to provide on shift engineering and accident assessment advice to the shift supervisor in the event of abnormal or accident conditions. With the requirements imposed by the IP STA training program and the training provided to the STA candidates, it was not clearly evident that the intent of the TMI Action Plan would be met.

c. Findings

SSER5 detailed the Office of Nuclear Reactor Regulation (NRR) review of Chapter 13 of the CPS FSAR through Amendment 33. SSER5 did not explicitly address NRR review of the changes IP had instituted in FSAR Appendix D, TMI Action Plan Item I.A.1.1, Amendment 29. IPs position was that their current STA training and certification program was in compliance with commitments contained in the FSAR, as accepted by NRR. This matter was referred to Region III for review and possible referral to NRR. This matter is an unresolved item pending further NRC review (461/86008-03).

One unresolved item was identified.

7. Independent Inspection Effort - Diesel Generator Modification (71302)

On January 29, 1986, the inspector learned of a modification performed on the Division I and II Emergency Diesel Generators (EDGs) which the applicant believed was required in order to achieve diesel response within the design basis (i.e., the ability to start the machine five consecutive times within the design basis start time without adding air to the diesel air start accumulator). The modifications made were controversial in nature since similar EDGs used at other operating nuclear plants have met their preoperational test acceptance criteria without modification to the machine. This matter came to the attention of the inspector through a third party report of an incident in which the EDG vendor representative and an IP engineer exchanged words in a "heated" discussion in the Division I EDG room in early January.

This independent inspection was undertaken to assure that the nature of the EDG deficiency was fully understood; that the corrective actions taken by the applicant were reasonable and based on good engineering judgement; and that the reliability and operability of the Division I and II EDGs had not been adversely affected by the modification.

a. Documentation Reviewed

- (1) Field Problem Report (FPR) No. 7560 dated December 12, 1986.
- (2) Nonconforming Material Report (NCMR) 2-0608 dated December 15, 1985.
- (3) Field Engineering Change Notice (FECN) 13577 dated December 27, 1985.

- (4) FECN 13620 dated January 4, 1986.
- (5) Construction Work Request (CWR) 20530 dated January 4, 1986.
- (6) Condition Report (CR) 1-86-01-55, Revision 0, dated January 10, 1986.
- (7) IP Memo J. Wells to Operations Supervisor dated January 29, 1986; SUBJECT: Division I Diesel Generator Vendor and NSED Conflict.
- (8) Potential 10 CFR 50.55(e) Referral 86RE01: Failure of Division I Diesel Generator to Meet Starting Criteria dated January 31, 1986.
- (9) Sargent & Lundy Engineering Design Criteria for Clinton Power Station Diesel Generators, DC-DG-01-CP, Revision 6 dated January 25, 1985.

b. Discussion

FPR No. 7560 documented three engineering concerns with the Division I diesel generator which were identified during checkout and initial operation testing of the EDGs, as follows:

- (1) The Division I diesel generator failed to start five times on one starting air train (one air receiver, three air start motors - three starts only). None of the three starts achieved met the 10 second start time criteria specified in the CPS FSAR.
- (2) The Division I diesel generator failed to meet the 10 second criteria for five starts with both air trains available (two air receivers, six air start motors - two starts under 10 seconds).
- (3) Diesel engines will not meet 10 second start criteria with minimum starting air (150 psig).

The engineering disposition of FPR No. 7560 was stated as follows:

- (1) Design of air start system has been revised on FECN 13577. Air start motors have been reworked in accordance with NCMR 2-0608. Per test data taken December 12, 1985, with air regulators removed and modifications to the air start motors, five starts can be made with one start train.
- (2) An FSAR change is in progress to change the 10 second criteria to 12 seconds. See attached G.E. memo, K. K. Berry to J. R. Logan dated January 3, 1986. (Note: The reference document is not attached to this inspection report.)
- (3) Revise the test procedure to require testing for start at minimum set point pressure shown on data sheet PS 254.

Air pressure regulating valves, set at 175 psig and located in each air line leading to the EDG air start motors, were previously included in the EDG air start system design. FEEN 13577, which was superseded by FEEN 13620, deleted the air pressure regulating valves from the system design for the Division I EDG. A similar design change was made to the Division II EDG. The air pressure regulating valves had not been deleted from the design of the Division III EDG air start system.

A heated discussion between the EDG vendor representative and an IP Nuclear Station Engineering Department (NSED) engineer apparently took place in the Division I diesel generator room in early January 1986, as documented in Reference 7.a.(7) above. The discussion centered around whether the temporary modification which removed the pressure regulating valves from the air start piping (FEEN 13620) for performance of a diagnostic test under controlled conditions should be a permanent modification. The vendor representative was apparently concerned that certain components (the oiler assembly, braided hose, and air motor inlet screen) downstream of the air pressure regulator valve were not rated for pressures in excess of 200 psig.

The matter documented in FPR No.7560 was documented in CR 1-86-01-55 and was referred to IP NSED for evaluation as a potentially reportable construction deficiency (potential 10 CFR 50.55(e) referral 86RE01). Referral 86RE01 was evaluated by IP NSED as being not reportable and closed on January 31, 1986. The inspector reviewed that referral and the attached engineering evaluation. The results of that review were discussed with cognizant applicant representatives on February 19, 1986. The inspector noted that the engineering evaluation did not meet the criteria of 10 CFR 50.55(e)(3) in that the engineering evaluation did not address the following:

- (1) The evaluation did not state whether or not the condition identified represented a deficiency in design and construction. During discussion with the applicant's representatives, it appeared that there was some disagreement as to whether or not the as-constructed design met the original design requirements.
- (2) The evaluation appeared to be based in large part on the system response in the "as modified" condition. The regulation (10 CFR 50.55(e)) requires that the condition be evaluated were the condition to have remained uncorrected.
- (3) The evaluation was based on test results for the diesel air start system in the normal operating mode. The regulation requires that the condition be evaluated based on any allowed operating mode (i.e., at any time throughout the expected lifetime of the plant).

Subsequent to the meeting, IP Licensing and Safety (L&S) stated that IP believed the evaluation, which was the basis for the determination that the identified condition was not reportable, was valid. L&S agreed that the documentation of the evaluation could cause confusion and stated that the evaluation would be rewritten and returned to the inspector for review. This is an open item pending review of the revision to 86RE01 (461/86008-04).

This inspection was still in progress at the conclusion of the inspection period. This matter will be documented further in a subsequent inspection report.

One open item was identified.

8. Site Activities of Interest

a. Containment Liner Deficiency (92701)

The applicant notified the inspector of a hole discovered in the containment liner on January 18, 1986. The hole, which measured approximately 7/8" x 1/2" x 1/4", penetrated the full thickness of the containment liner at azimuth 222 degrees and elevation 778'. This matter was referred to Region III specialist inspectors for detailed review.

The applicant investigated the circumstances surrounding the hole and determined that the hole probably existed prior to the successful completion of the Containment Integrated Leak Rate Test on January 2, 1986.

The resident inspectors have participated in meetings with the applicant and have provided information to Region III concerning this deficiency. A special inspection relevant to this matter was scheduled to begin on February 24, 1986. The results of the Region III review of this matter will be documented in a separate inspection report.

b. Fuel Load Schedule (94300)

On February 11, 1986, Illinois Power Company announced that the scheduled fuel load date for Clinton Power Station was changed from January 3, 1986 to March 31, 1986. All planning and scheduling activities for the Clinton Project after February 12, 1986, will be based on the new fuel load schedule.

c. Readiness For Fuel Load Meeting (30702)

On February 21, 1986, NRC Region III management met with IP Management at the Clinton Power Station to discuss the current state of readiness of CPS to load fuel. This was the second of a series of such meetings to be held with IP management on a routine (monthly) basis. The personnel attending the meeting are identified by (+) in Paragraph 1 of this report.

The meeting, which lasted about one hour, included a briefing by IP Management on the new Project Control Center management concept being used by IP to coordinate, plan, and control integrated construction completion, preoperational testing, and operational preparedness activities at the plant site; a discussion of the status of the project master punchlist (or "things" list) and the classification of "things" by project milestone (i.e., integrated ECCS/loss of offsite power test, fuel load, initial criticality, five percent power, etc.); a discussion of the actions IP is taking to assure current activities at CPS are properly controlled; and the current material and cleanliness status of CPS. No substantive licensing issues were discussed during the course of the meeting.

Region III Management concluded that, based on the discussion in the meeting, that an inspection would be scheduled during the first half of March 1986, to review the categorization of items identified as being deferred beyond fuel load and to review the methodology being developed by IP to establish initial technical specification operability of CPS systems. Both Region III and IP Management agreed to schedule the next monthly management meeting sometime after the conclusion of the scheduled inspection.

d. Licensee Awards Dinner

The resident inspectors attended a dinner sponsored by Illinois Power Company to honor the IP employees who had achieved certification as NRC licensees (both reactor operator and senior reactor operator licensees) on February 7, 1986. Region III Management also attended the dinner and made a formal presentation of license certificates.

9. Exit Meetings (30703)

The inspectors met with applicant representatives (denoted in Paragraph 1) throughout the inspection and at the conclusion of the inspection on February 24, 1986. The inspectors summarized the scope and findings of the inspection activities. The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The applicant did not identify any such documents/processes as proprietary. The applicant acknowledged the inspection findings.

The resident inspectors attended exit meetings held between Region III based inspectors and the applicant as follows:

<u>Inspector</u>	<u>Date</u>
Scheibelhut	2/7/86
DuPont	2/7/86
Gill	2/21/86