

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/86049(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: June 30-July 3 and July 7-11, 1986

Inspector:

C.H. Scheivelhut
C. H. Scheivelhut

7/22/86

Date

RF Warrick for

Approved By:

R. C. Knop, Chief
Reactor Projects Section 1B

7/25/86

Date

Inspection Summary

Inspection on June 30-July 3 and July 7-11, 1986 (Report No. 50-461/86049 (DRP))

Areas Inspected: Routine safety inspection applicant actions on previous inspection findings, evaluation of applicant action with regard to Three Mile Island Action Plan requirements, and 10CFR21 items.

Results: Of the three areas inspected, no violations, deviations or safety significant issues were identified.

DETAILS

1. Personnel Contacted

Illinois Power Company (IP)

- *J. A. Brownell, Licensing Specialist
- *E. J. Corrigan, Director, Quality Engineering and Verification
- *W. C. Gerstner, Executive Vice President
- *J. H. Greene, Manager, Nuclear Station Engineering Department
- *R. W. Greer, Director, Outage Maintenance Programs
- *J. E. Loomis, Construction Manager
- *J. S. Perry, Manager, Nuclear Program Coordination
- *R. F. Schaller, Director, Nuclear Training
- *F. A. Spangenberg, Manager, Licensing and Safety
- *J. D. Weaver, Director, Licensing
- *J. W. Wilson, Manager, Clinton Power Station

*Denotes those attending the exit meeting.

The inspector also contacted others of the applicant's staff.

2. Applicant Actions on Previously Identified Items (92701)

- a. (Closed) Open Item (461/86016-02 (DRP)): "Low cell voltage alarm setpoint may be set too low in battery test procedures." During a review of surveillance test procedures, it was found that the individual cell voltage low limit setpoint was 1.00 VDC. This voltage is the cell polarity reversal point defined by the Institute of Electrical and Electronic Engineers (IEEE) standard 450. The setpoint should be set at a higher value to ensure that inaccuracies in the test equipment will not cause a cell reversal that could destroy the cell.

The applicant reviewed the concern and concluded that setting the low cell voltage alarm setpoint at a value higher than 1.00 VDC was desirable. A value of 1.10 VDC was recommended by the Nuclear Station Engineering Department (NSED). NSED also determined that CPS No. 9382.06, "125 VDC Battery Service Test", was correct in requiring termination of the battery service test where an individual cell reached 1 volt. The applicant revised CPS No. 9382.06 and CPS No. 9382.07, "125 VDC Battery Capacity Test", to indicate a low cell voltage alarm setpoint of 1.10 VDC.

The inspector reviewed both of the revised procedures and found that the individual cell low voltage alarm setpoint had been changed to 1.10 VDC. This item is closed.

- b. (Open) Unresolved Item (461/86017-04(DRP)): After a detailed review of Administrative Procedure CPS No. 1029.01, "Preparation and Routing of Maintenance Work Requests", Revision 8, the inspector had a number of concerns about the adequacy of the procedure and the review and approval process that led to revision 8. A meeting was held with the applicant to discuss the concerns that resulted from

the review. At the conclusion of the meeting there were eight questions that remained unresolved. These questions were as follows:

- (1) Comments developed during the applicant's review and approval process leading to revision 8 could not be shown to be documented and resolved in accordance with CPS No. 1005.01, Revision 16, paragraph 8.3.1.5. This was considered an unresolved item (451/86017-04A).
- (2) Definition of the term "a repair disposition that does not affect fit, form or function" (461/86017-04B).
- (3) The definition of job priorities for security systems and other important equipment that do not directly affect plant operations (461/86017-04C).
- (4) Disposition of form CPS No. 1029.01F007 when a maintenance request is converted to a maintenance work request (CPS No. 1005.01, Appendix A, paragraph Documents (g)) (461/86017-04D).
- (5) Definition as to the location where permission to release equipment or systems for maintenance is documented/recorded by designated operating personnel (ANSI N18.7-1976, paragraph 5.2.6) (461/86017-04E).
- (6) Paragraph 8.2.3 did not provide or reference instructions for maintenance planners concerning what was required to obtain a minimally acceptable work package. In addition, no job instructions were available to the maintenance planners concerning the preparation of a work package (461/86017-04F).
- (7) The procedure did not provide or reference limitations on the term "Tool Box Skills" (461/86017-04G).
- (8) CPS No. 1029.01, Paragraph 8.2.17 required clarification of the words "The work can continue if the results will be within design requirements" (461/86017-04H).

The applicant took a number of steps to resolve the questions as follows:

- (1) The required comment control form, CPS No. 1005.01F002 was filled out and initialled by the attendees of the comment/resolution meeting for revision 8 of CPS No. 1029.01. Illinois Power (IP) QA indicated their concurrence with comment resolutions by their final approval signature noted on the IP QA Document Review Transmittal Form for CPS No. 1029.01, Rev. 8. These forms were on record.
- (2) To resolve this item, as well as several others noted below, the applicant revised CPS No. 1029.01. Revision 10 was the revision pertinent to the current review.

In CPS No. 1029.01 Revision 8, the terms "repair" and "rework" were used interchangeably. The two terms do not have the same definitions and in the context of CPS No. 1029.01 the proper term to use is "rework" which means to return a component to fit form or function per the design specifications. In order to avoid any confusion on this point, the term "repair" was eliminated in paragraph 8.0 of CPS 1029.01 Revision 10.

- (3) The definition of job priorities for security systems and other important equipment that do not directly affect plant operations has been addressed in paragraphs 2.2.1 and 2.2.1.1 of CPS No. 1029.01 Revision 10. Basically, the job priority definition has been expanded to include all plant equipment and security systems. Also in this revision, the Shift Supervisor has been given responsibility for assignment of all job priorities (paragraph 8.1.7).
- (4) This was resolved by revising Section 8.2.2 of CPS No. 1029.01 in Revision 10 to have the original copy of the MR (form CPS No. 1029.01F007) attached to the MWR for inclusion in the work package rather than just entering the MR/MWR into the Power Plant Maintenance Planning System as was done in Revision 8.
- (5) Designated individuals release equipment up to three times on any given MWR. All MRs on equipment released to Plant Staff are reviewed and signed by the Shift Supervisor prior to the MR being forwarded to Maintenance. MWRs which remove equipment from service must do so via a tagout request which must be approved by the Shift Supervisor prior to Maintenance beginning work. All MWRs require that Maintenance group supervision notify the Shift Supervisor prior to starting work and document this notification by signing and dating Block 51 of the MWR.

Additionally, the following actions were taken:

- (a) The Operations Department implemented a log book to annotate the MWR and Shift Supervisor/Asst. Shift Supervisor signature. This log is used to document that permission has been given to perform work activities.
 - (b) Plant Staff revised procedures CPS No. 1029.01 paragraph 8.2.13 and CPS No. 1401.01 paragraph 8.5.8 to proceduralize the use of the log book.
- (6) Instructions have been provided in the form of a Maintenance Standing Order (MSO), MSO-023, "In-House Guidelines for Maintenance Work Requests". The purpose of this MSO is to provide guidelines to be used during the preparation, scheduling and closeout of work packages. This MSO is referenced in Section 11.31 of CPS No. 1029.01 Revision 10.
 - (7) Tool box skills have been defined in a position paper by the CPS Plant Manager and Manager of QA. This position paper, "Quality Assurance and Plant Staff Interfaces," dated January

7, 1986, lists examples of skills which are common knowledge for the various disciplines by virtue of their being standard industry practices. Work practices utilizing tool box skills are routinely evaluated by supervisory personnel as required in paragraph 2.2 of CPS No. 1502.03 Revision 2. Currently, each maintenance discipline conducts inhouse tool box skills training; however, beginning July 1, 1986, the Nuclear Training Department will conduct formalized tool box skills training which is required for all maintenance disciplines. Work involving tool box skills is not considered to be a change of work scope providing it is confined to the component covered by the MWR as noted in CPS No. 1029.01 paragraph 8.2.15.

- (8) The last sentence of paragraph 8.2.16 (8.2.17 in Revision 8) of CPS No. 1029.01 was revised for clarification. Actual or expected design deviations will require a review by the Technical Department as defined in 8.2.5 and 8.2.6.

The inspector reviewed Revision 10 of CPS No. 1029.01 and found that the changes indicated in items (2), (3), (4), (5) and (8) were satisfactorily incorporated.

For item (1), the inspector reviewed the completed Comment Control Form, CPS No. 1005.01F002, and the IP QA Document Review Transmittal Form for Rev. 8 of CPS No. 1029.01 and determined that the originals were on record. The review showed compliance with the pertinent requirements of paragraph 8.3.1.5 of CPS No. 1005.01.

For item (5), the inspector also reviewed paragraph 8.5.8 of Revision 7 of CPS No. 1401.01 and found it also proceduralized the use of the Maintenance Work Request log book.

For item (6), the inspector reviewed Revision 6 of MSO-23. The review showed that it provided adequate guidance to the maintenance planners for the preparation of work packages. Paragraph 4.1.21 refers the planner to paragraph 8.12.5.1 of CPS No. 1501.02 if approved procedures are not available to perform the work. However, paragraph 8.12.5.1 uses the terms "guidance," "should," and "may" for the preparation of approved procedures. This appeared to be inconsistent with the requirements of ANSI Standard N18.7-1976, paragraph 5.3.5(4) which indicates that such procedures "shall" be approved. The inspector requested that the applicant demonstrate compliance with applicable requirements of ANSI N18.7-1976. This matter remained unresolved at the conclusion of the inspection. This is considered another example of unresolved item 461/85012-02 which questioned the use of the terms "should" and "may" in administrative procedures used to fulfill regulatory requirements and applicant commitments.

For item (7), the inspector reviewed the position paper, CPS No. 1502.03 Revision 2, and paragraph 8.2.15 of CPS No. 1029.01. The review showed that tool box skills were adequately defined and their use controlled by the procedures.

In summary, the inspector considers subitems 461/86017-04A, B, C, D, E, G, and H to be closed. Subitem 461/86017-04F remains open until a future inspection shows that paragraph 8.12.5 of CPS No. 1501.02 complies with the requirements of paragraph 5.3.5 of ANSI Standard N18.7-1976.

- c. (Closed) Open Item (461/86017-06): "For the containment purge and vent valves determine that (1) mechanical stops were installed to limit 24 inch and 36 inch valves to 50° open, (2) body to bracket bolting material for the 36 inch valves were changed to higher stress allowable material (A-354 GR BD), and (3) preferred orientation of all valves were verified."

The work accomplished by the applicant to satisfy the three items above was completed and documented on the following travellers: VQ-4-E, VQ-7-D, VQ-8A supp. 8, VQ-8-F and VR-2 supp. 7.

The inspector reviewed the travellers and found documented evidence that mechanical stops were installed in the 24 inch and 36 inch valves that limited their travel to 50° open; that body to bracket bolting for the 36 inch valves was changed to A-354 GR BD; and that the orientation of all of the pertinent valves was checked. Two were found incorrectly installed. They were removed and installed correctly. The inspector also selected two 36 inch and one 24 inch valves at random and inspected them in the plant. The orientation of all three was found to be correct. High strength (A-354 GR BD) body to bracket bolting material was found on the 36 inch valves. Physical evidence (scratched paint, paint removed from bolt threads, paint removed from gasket edges, etc.) was found that the pneumatic operators had been removed from all three valves. This was necessary to install the mechanical stops. Based on the review and inspection, this item is closed.

- d. (Closed) Deviation (461/86018-02): "Failure to provide for periodic testing of instrument air for particulate contamination, failure to provide for acceptance criteria concerning the size of particulates present in the instrument air, and failure to provide for testing of instrument air quality following repair or modification of the instrument air system."

The applicant took the following steps to correct the deviation:

- (1) Vendors of safety-related equipment were contacted and the maximum contaminant particle size that the components can accept in the air stream and maintain operational reliability was determined.
- (2) The smallest of the above particle sizes was set as the new acceptance criterion for the Instrument Air (IA) system. Amendment 38 to the Final Safety Analysis Report incorporated the criterion in section 9.3.1.
- (3) Startup procedure No. XTP-IA-01, "IA Cleanliness Verification Procedure," was written, accomplished, reviewed, and accepted by IP QA.

- (4) Procedure CPS No. 2603.01, "Instrument Air Quality" was revised. It was upgraded to safety-related status (designated as class code SNQN). Revision 1 addressed: (a) periodicity (yearly) of dewpoint measurements, (b) periodic changes of all IA system filters, (c) periodic blowdowns to monitor IA system cleanliness, (d) procedural examinations for cleanliness during preventive maintenance, and (e) corrective action required when acceptance criteria are not met.
- (5) Procedure CPS No. 6804.01, "Collection and Determination of Instrument air particulates", was revised. Revision 1 addressed periodicity of testing and corrective action required when 3 micron criterion at the filter discharge is not met.
- (6) Procedure CPS No. 1019.02, "System Cleanliness", was revised. Revision 1 contained specific instructions related to IA testing after repairs/maintenance/modifications.
- (7) Sargent and Lundy (S&L) Specification K-2882, "Cleaning Specifications," Appendix A, was revised. Revision 4 of Appendix A showed the additional cleanliness requirements of the IA system that supplies air to safety-related components.
- (8) Personnel training for CPS No. 6804.01 Revision 1 was completed. Personnel training for the revisions to CPS Nos. 2603.01 and 1019.02 were not considered necessary because of the nature of the changes. Training for startup procedure XTP-IA-01 was not necessary because the author supervised the testing.

The inspector reviewed the list of air-operated safety-related components that require IA and the vendor correspondence concerning acceptable air cleanliness requirements. The inspector also reviewed section 9.3.1.4 of amendment 38 to the Final Safety Analysis Report (FSAR) and found that the amendment reflected the requirements of ANSI Standard MC 11.1-1976 and the vendor requirements for air quality. The inspector reviewed startup procedure XTP-IA-01 and the test results. The review showed that all safety-related components requiring air for operation were receiving air of the required quality. The inspector reviewed Revision 1 of CPS No. 2603.01 and found that it was classified SNQN and properly addressed a yearly determination of dewpoint, periodic changes of all IA system filters, periodic blowdowns of the IA system to monitor IA system cleanliness, procedural requirements to inspect pertinent components for cleanliness during preventive maintenance, and corrective actions required when cleanliness criteria are not met. The inspector reviewed CPS No. 6804.01 Revision 1 and found it addressed required periodic (yearly) testing of IA for particulate contamination and the corrective actions required when the criteria are not met. The inspector reviewed Revision 1 of CPS No. 1019.02 and found it contained instructions to test for air quality following repair/maintenance/modifications to the IA system. The inspector reviewed Revision 4 of Appendix A to S&L specification K-2882 and found that it contained the additional

IA system cleanliness requirements. The inspector determined that training for procedure CPS No. 6804.01 was completed and agreed with the applicant's reasons for not requiring additional training for the other procedures. The inspector concluded that the corrective actions taken and the actions taken to prevent recurrence were adequate. This item is closed.

- e. (Open) Open Item (461/86026-01): "A. Inadequate preventive maintenance procedure, B. No list of approved solvents for the plant, C. Inconsistent lubrication requirements for threaded fasteners, D. Clarification of the role of PMT requirements in maintenance procedures." During a review of maintenance procedures, four specific concerns were identified. These were as follows:
- (1) The technical adequacy of CPS No. 8019.01, "Personnel Airlock Maintenance," was in question because it did not contain preventive maintenance lubrication instructions even though it was classified as a preventive maintenance procedure (461/86026-01A).
 - (2) The inspector determined that a list of approved solvents did not exist for the plant. The solvent specified in most of the procedures reviewed, acetone, may be inappropriate in some mechanisms that contain organic seals or diaphragms that may be degraded by the acetone. This appeared to be a generic problem (461/86026-01B).
 - (3) There was inconsistency between procedures in steps requiring the torquing of threaded fasteners. Some procedures required lubrication of the threads with a specified lubricant. Other procedures did not require thread lubrication before torquing. This appeared to be a generic problem (461/86026-01C).
 - (4) Section 8 of each maintenance procedure contained a subsection sometimes called Post Maintenance Testing (PMT) and sometimes called Operational Test. The inspector learned that specifying PMT is now the responsibility of the plant technical staff and is a function of the MWR process. Since these procedures were written before this requirement was effective, the procedures may not be adequate to address the PMT requirements. It was noted that the current revision of CPS No. 1029.01 contained provisions for specifying PMT. The applicant was requested to clarify the use of PMT information contained in the maintenance procedures in light of current MWR practices (461/86026-01D).

To resolve these concerns, the applicant took the following actions:

- (1) Routine preventive maintenance lubrication is scheduled by the applicant's "Survtrac" computerized maintenance scheduling system. Therefore, routine lubrication instructions were not included in preventive maintenance procedures. Routine lubrication of the airlocks was identified in the "Survtrac" system as preventive maintenance items MMMCSA004S, and MMMCSA005S.

The inspector reviewed items MMMCSA004S and MMMCSA005S in the "Survtrac" system and found that the items listed the frequency (6 month), approved lubricants, and reference to a controlled document (vendor manual). Review of the listed document in the vault showed it contained identification of the lubrication points. The inspector considers this approach to routine lubrication satisfactory since approved lubricants for the individual components were given, and reference was made to a controlled document for specific lubrication details. This subitem is closed.

- (2) The applicant has prepared a list, "NSED Approved Products List," that included solvents approved for use at CPS. For each solvent, the list included typical applications and limitations on its use. The applicant reviewed all (128) mechanical maintenance procedures to identify usage of acetone. Of the procedures reviewed, 43 were found to contain a reference to the use of acetone as a solvent. These 43 procedures were revised to remove the reference to the use of acetone and referenced the NSED Approved Products List instead.

The inspector reviewed the approved product list and found it adequate. In particular, one of the limitations on the use of acetone is that it is not to be used on non-metallic items. The inspector chose three of the revised procedures at random and found that reference to the use of acetone as a solvent was removed. This subitem is closed.

- (3) The applicant reviewed all (128) mechanical maintenance procedures to determine conformance with the threaded fastener lubrication requirements given in the vendor manuals. A total of 15 procedures deviated from vendor requirements and were revised to reflect the methods given by the vendor.

The inspector selected three of the revised procedures and compared them with their pertinent vendor manuals. In all cases the revised procedures reflected the methods given in the vendor manuals. This subitem is closed.

- (4) The applicant's actions on this subitem were not complete at the time of the inspection. Therefore this item remains open.

No violations or deviations were identified.

3. Evaluation of Applicant Action with Regard to Three Mile Island (TMI) Action Plan Requirements (25401)

The NRC Office of Inspection and Enforcement issued Temporary Instruction (TI) 2514/01, Revision 2, dated December 15, 1980, to supplement the Inspection and Enforcement Manual. The TI provides TMI-related inspection requirements for operating license applicants during the phase between prelicensing and licensing for full power operation. The TI was used as the basis for inspection of the following TMI items found in NUREG-0737, "Clarification of TMI Action Plan Requirements."

- a. (Closed) Item II 2.4.1: "Dedicated hydrogen penetrations." Hydrogen recombiners for postaccident use located external to the containment shall have dedicated containment penetration systems that meet the single failure requirements of General Design Criteria 54 and 56 of Appendix A to 10CFR50. The procedures for the use of the combustible gas control system following an accident that results in a degraded core and release of radioactivity to the containment must be reviewed and revised, if necessary.

In Inspection Report 50-461/86010, the inspector determined that the hardware aspects of the item were satisfactory. However, one procedure had not been written and another was incorrectly classified as non-safety related.

The applicant has rewritten and reclassified CPS No. 3316.01, "Containment Combustible Gas Control," which covers the operation of the hydrogen recombiners. The applicant wrote Off-Normal Procedure CPS No. 4111.01, "Combustible Gas Mitigation," which integrated the operation of the combustible gas control system with other techniques for combustible gas control.

The inspector reviewed the two procedures and found that they were both classified as safety-related and covered the operation and timing of use of the systems. This item is closed.

- b. (Closed) Item II.E.4.2: "Containment Isolation Dependability." In NUREG-0737, the following requirements for improved dependability of containment isolation were listed:
- (1) The containment isolation system design shall comply with the requirements of Standard Review Plan Section 6.2.4.
 - (2) All systems that penetrate containment shall be classified as essential or non-essential and the results of the evaluation reported to the NRC.
 - (3) All non-essential systems shall be isolated by the containment isolation signal.
 - (4) The design of the control systems for automatic containment isolation valves shall be such that resetting the isolation signal will not result in the automatic reopening of containment isolation valves.
 - (5) The containment setpoint pressure that initiates the isolation signal must be reduced to the minimum compatible with normal operating conditions.
 - (6) Containment purge valves that do not satisfy the operability criteria of the Staff Interim Position of October 23, 1979, must be sealed closed or modified to meet the operability criteria.

- (7) Containment purge and vent isolation valves must close on a high radiation signal.

In response to these requirements, the system designs and their control systems were reevaluated and the results included in the FSAR and amendments to the FSAR. In section 6.2 of the CPS Safety Evaluation Report (SER) (NUREG-0853), and Supplements 2 and 5 to the SER, the NRC accepted the design and definitions of essential and non-essential systems. For item 6, above, modifications were required to satisfy operability requirements for the containment purge valves and made an SER confirmatory item (461/86017-06) to assure that the modifications were made.

The applicant completed the modifications indicated in item 461/86017-06 (see paragraph 2.C above). The applicant performed the following Preoperational Tests (PTPs) to demonstrate, among other things, that the requirements of this TMI Action Plan Item were met:

- PTP-NB-04 demonstrated that requirements 3 and 4, above, were met.
- PTP-RH-01, -HP-01, and -LP-01 demonstrated that isolation of essential systems performed as designed.
- PTP-VP-01, and -VQ-01 demonstrated that the requirement 7, above, was met.

A Region III inspector witnessed performance of parts of the PTPs listed and reviewed the results of all the PTPs following applicant review and approval. The inspector found that the PTPs satisfactorily demonstrated operation of the systems in accordance with the requirements. This inspection and review was documented in Inspection Report 50-461/86052. This item is closed.

No violations or deviations were identified.

4. Applicant Actions on 10CFR21 Item (92700)

(Closed) 10CFR21 Item (461/86007-PP): "Failure to Incorporate Rockwell Bulletins in S&L Design Documents". Rockwell International, supplier of the hydrogen recombiner units for CPS, identified the failure of an electrical component (timer KS-2) during environmental qualification testing. Rockwell reported this matter to the NRC under the requirements of 10CFR21. Rockwell then initiated and issued Bulletin #0020 describing required modifications to correct the condition and transmitted it to S&L (the applicant's Architect Engineer) for insertion into the operations/maintenance manual. During the resolution of an unrelated matter, the applicant discovered that the hardware modifications required by Bulletin #0020 had not been performed. Further review determined that the bulletin had been inserted in the manual as an "Information Only" document and no design change had been initiated.

The applicant requested a listing and copies of all Rockwell bulletins that applied to CPS. Review of the information supplied by Rockwell identified another bulletin (#0034) applicable to CPS. That bulletin had

also been sent only to S&L. However, S&L had no record of receipt of the bulletin. The applicant and S&L reviewed the bulletins and determined that hardware changes were required by both. Accordingly, Field Engineering Change Notices (FECNs) 13011 and 13590 were issued to implement the contents of Rockwell Bulletins #0020 and #0034. Bulletin #0020 required removal of a timer and wiring modifications in the control panel. Bulletin #0034 required replacement of some capacitors and cleaning of the annunciator control circuits. To preclude recurrence, Rockwell was requested to address future correspondence regarding the Clinton hydrogen recombiner units directly to the Illinois Power Company for technical evaluation and processing.

The inspector reviewed the FECNs and their accompanying work requests and QA records. The review indicated that the work had been accomplished in accordance with the applicant's QA program. The inspector reviewed the applicant's letter, F-1452, dated March 14, 1986 to Rockwell International and concluded that the problem should not recur. This item is closed.

No violations or deviations were identified.

5. Exit Meeting

The inspector met with the resident inspector and applicant representatives (denoted in paragraph 1) at the conclusion of the inspection on July 11, 1986. The resident inspector summarized the scope and findings of the inspection. The applicant acknowledged the inspector's findings. The applicant did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.