U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/85-04(DRSS)

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

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

Facility Name: Clinton Power Station, Unit 1

Inspection At: Clinton Site, Clinton, IL

Inspection Conducted: January 7-11, 1985

Inspectors: R. A. Paul 2/7/85
Date

P. Hovendale for
C. F. Gill 2/7/85
Date

P. Hovendale for
Approved By: L. R. Greger, Chief 2/7/85
Facilities Radiation Protection Section Date

Inspection Summary

Inspection on January 7-11, 1985 (Report No. 50-461/85-04(DRSS))
Areas Inspected: Routine, announced inspection of preoperational radwaste and radiation protection programs, including staffing, status of tests and test procedures for liquid and gaseous radwaste, ALARA reviews, training, radiation protection procedures, facilities, status of certain NUREG-0737 items, HEPA/charcoal filter housing drain systems, ANSI Standard N510 acceptance test program for air cleaning systems, and drain systems for equipment racks and valve stem leak-off. The inspection involved 82 inspector-hours onsite by two NRC inspectors.
Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

Illinois Power Company

A. Beahar, BOP Lead-Startup
G. Braddick, Supervising Engineer - NSED/C&I
*R. Campbell, Director - QC & A
*W. Connell, Manager - QA
*J. Cook, Assistant Plant Manager
J. Douglas, Staff Engineer - NSED/TA
J. Funk, Health Physics Supervisor
M. Gandhi, Staff Engineer - NSED/Mech.
*W. Gerstner, Executive Vice President
T. Gregel, Supervisor - Licensing
*J. Greene, Manager of Startup
*R. Haight, Supervisor - Radiation Protection
*D. Hall, Vice President
*m. Hassebrock, Director - QE & V
M. Hedges, Supervisor - Plant Staff/Chem.
D. Hillyer, Supervisor - Radiological Operations
D. Holsinger, Lead Startup Engineer
*D. Holtzscher, Supervisor - NSED/TA
*H. Lane, Director - Construction and Startup Engineering
T. Lones, Nuclear Chemist - Plant Staff/Chem.
J. Miller, Director - Startup Programs
A. Mueller, Jr., Supervisor - Quality Technical Support
J. Panici, Engineer - NSED/TA
*J. Perry, Manager of Nuclear Programs Coordination
T. Riley, Project Engineer - Licensing
*F. Spangenberg, Director - Nuclear Licensing
*J. Sprague, Station QA Specialist
L. Tucker, Assistant Supervisor, Startup
P. Walberg, Supervising Engineer - NSED/Mech.
J. Zwyner, Project Engineer - NSED/C&I

Contractors

D. Crumpacker, C&I Project Engineer - Sargent and Lundy
M. Kaiseruddin, Shielding Group Supervisor - Sargent and Lundy

USNRC

*P. Gwynn, Senior Resident Inspector
*R. Hasse, Region III Inspector

The inspectors also contacted other licensee employees and contractors including radiation protection technicians, craft personnel and radiography personnel.

*Denotes those present at the exit meeting on January 11, 1985.

2. General

This inspection, which began at 10:30 a.m. on September 4, 1984, was conducted to review the status of the preoperational tests of the liquid, gaseous, and solid radwaste systems, and the preoperational radiation protection program, including health physics staffing, radiation monitoring systems, status of FSAR and procedural changes, filter housing drain systems, drain systems for instrument racks and valve stem leak-off, ANSI N510 acceptance test programs for air cleaning systems, and certain NUREG-0737 items. In addition, a review was made of the circumstances surrounding a radiography incident involving minor radiation exposure to two unmonitored personnel. Extensive tours of the licensee's facility were also made.

3. Organization and Staffing

Since the previous inspection (Report No. 50-461/84-26), the licensee, has appointed a Supervisor - Radiological Engineering. Currently, there are three Radiation Protection Shift Supervisors with three positions unfilled, and eleven Radiation Protection Technicians with seven positions unfilled. The licensee intends to have all of the Shift Supervisor positions filled and fifteen of the eighteen Radiation Protection Technician positions filled at fuel loading.

4. Training

The training program for all personnel entering into or working in the facility is described in Procedure CPS No. 1902.10 "Radiological Control Program". Those parts of the training program which include general employee and radiation worker training were developed by the training department in conjunction with the radiation protection department. The content of the material which is to be presented in these programs appears sufficient to meet regulatory requirements.

The licensee continues to give a comprehensive training program for the radiation protection personnel which was described in Report No. 50-461/82-06. In addition, the licensee intends to continue sending radiation protection supervisors and technicians to operating plants to receive OJT during normal and refueling operations. According to the Supervisor - Radiation Protection, fifteen of the eighteen technicians already have had, or will have had training in an operating facility by fuel load. This matter will be reviewed further at a future inspection. (461/85-04-17)

5. Liquid Radwaste Systems

There has been no significant change in the status of the preoperational tests of the liquid radwaste system since the previous inspection (50-461/84-26). The status of the test programs will continue to be reviewed during future inspections. (461/84-01-02)

Licensee procedures concerning liquid releases/alarm setpoints, laboratory analyses, sampling analyses, sampling schedules, and surveillance and calibration for instrumentation have been completed. They will be reviewed during a future inspection. (461/84-01-03)

The licensee is currently completing a redesign of the radwaste solidification system so it can be used to support a portable liquid solidification system, which is to be used instead of the as built system. Licensee long term solidification plans will be reviewed during a future inspection. (461/84-01-04)

6. Liquid Effluent Process Radiation Monitors

The liquid process monitors had not been turned over to startup at the time of this inspection. There has been no preoperational testing and calibration of the monitors, nor have procedures for testing and calibration been developed. This matter will continue to be reviewed by the inspectors. (461/84-26-01)

7. Liquid Waste Preoperational Test Procedures

The inspector reviewed the status of the following radwaste preoperation test procedures.

PTP-WY-01	Revision 0	Laundry Equipment and Drain Radwaste Reprocessing and Disposal - Approved - Test Completed
PTP-WE-01	Revision 0	Equipment Drain Radwaste Reprocessing and Drain Disposal - In Revision
PTP-TE-01	Revision 0	Turbine, Off Gas, Radwaste, Control and DG Building Equipment Drains - Test in Progress
PTP-WF-01	Revision 0	Floor Drain Radwaste Reprocessing and Disposal - Approved
PTP-WX-01	Revision 0	Solid Radwaste - Being written - On hold pending design
PTP-WZ-01	Revision 0	Chemical Radwaste Reprocessing and Disposal - Approved
PTP-RE-01	Revision 0	Containment Auxiliary and Fuel Building Equipment Drains - In rewrite
PTP-RF-01	Revision 0	Containment Auxiliary and Fuel Building Floor Drains - In rewrite
PTP-TF-01	Revision 0	Turbine, Off Gas, Radwaste, Control and DG Building Floor Drains - In review
PTP-OG-01	Revision 0	Off Gas - Approved

No problems were identified with those procedures which were either approved or in the review cycle. The procedures being rewritten were not reviewed.

8. Gaseous Radwaste System

There has been no change in the status of the preoperational testing or preoperational test procedures since the previous inspection (50-461/84-26). The results of the tests and test procedures will be reviewed during a future inspection. (461/84-09-01)

9. Radiation Monitors

The licensee's area radiation monitors (ARMs) and the continuous airborne radioactivity monitors (CAMs) are designed to continuously measure, indicate and record the levels of radiation and radioactive levels. The licensee uses fixed and portable ARMs and CAMs. To date, only the portable ARMs and CAMs have been turned over from construction to plant startup personnel. Test procedures, for the fixed and portable ARMs and CAMs have been written, but not approved. Testing and calibration of these monitors has not begun. The results of the tests, calibrations and test procedures will be reviewed at a future inspection. (461/85-04-18)

10. ALARA

During a previous inspection the ALARA review program was described (50-461/84-26) and it was noted that the analysis and findings of ALARA reviews are to be submitted to the ALARA committee for consideration. It was also noted that at the time of the inspection, no findings had been submitted to the committee. Since that inspection, the licensee hired a Supervisor - Radiological Engineering who has been appointed the ALARA Coordinator, and who has reviewed many of the items found by the ALARA reviewers. Many of these items have been tasked out to the responsible departments for review before submittal to the ALARA committee for final disposition. According to the ALARA Coordinator, some minor modifications to the ALARA review program may be warranted to better meet the intent of the program. The ALARA committee is addressing contamination control as a generic problem and special emphasis will be placed on controlling contamination.

The progress of the ALARA review program will be reviewed further during future inspections. (461/84-26-03)

11. Review of Radiography Incident

During this inspection, a review was made of the circumstances surrounding a radiation exposure incident during a radiography operation in the drywell area of the containment building which involved two unmonitored craft workers (surveyors). The radiographic operations were conducted by U.S. Testing Company under NRC License No. 37-15445-02 which authorized radiography at field locations. Although the radiography was being conducted under the USTCo license; Clinton Power Station HP personnel had

worked with USTCo to develop procedures for conduct of radiography at the station. The inspector reviewed pertinent records and procedures, interviewed persons involved, and physically inspected the areas where the incident occurred.

At approximately 1:12 a.m. on Saturday, January 5, 1985, two U.S. Testing Company (USTCo) radiographers began performing a 4-minute radiographic exposure of a joint on the biological shield at the 730' level of the drywell using a 76-curie iridium-192 sealed source. The source had been exposed for approximately 2 minutes when a radiographer noticed two surveyors descending a ladder approximately 20 feet from the source, at which time the source was immediately retracted into the shielded camera device. USTCo personnel escorted the workers from the area for questioning and notified the Illinois Power (IP) Station Supervisor - Radiological Control (SRC), who in turn notified one of the Senior NRC Resident Inspectors.

Details

In discussions with the inspector and the SRC, the surveyors indicated that at approximately 12:30 a.m. on January 5, 1985, they entered the drywell on the 737' elevation and proceeded by ladder to the 755' elevation (staging area) to inspect hangers.

According to the workers they had moved no more than 7 to 10 feet from their assigned work area on the 755' elevation when they heard someone shout "we're ready to shoot" or words to that effect, at which time they departed from the area and climbed down a ladder to the 737' elevation. The workers also indicated they had not heard any bullhorn or public address announcement (Gaitronics), nor had they seen anyone on the 755' elevation who had warned them to leave the area. Until they heard some words to the effect of "we're ready to shoot", they had no knowledge that "X-raying" was imminent.

During these discussions the surveyors traced their path with the inspector and SRC from entry into the drywell to the location on the 755' elevation where they were working. Because they stated they had not heard either the Gaitronics or bullhorn announcements, the SRC made announcements on both systems while the inspector was located in the same areas as the surveyors when the incident occurred. The Gaitronics announcement was not heard, however the bullhorn announcements were clearly audible.

Discussions with USTCo personnel indicated that between 12:00 a.m and 12:30 a.m. on January 5, 1985, USTCo personnel, in accordance with their procedural requirements, notified cognizant IP and contractor (Baldwin Associates) personnel, and posted a notice of the radiographic operations that were to occur during the third shift. This notice was posted at the main security entrance for contractor workers and at the main entrance to the plant buildings. At approximately 12:30 a.m., eight USTCo personnel (2 supervisors, 3 radiographers, 2 assistant radiographers and a trainee) began setting up for the radiography operations. According to a USTCo

supervisor, the radiographers were initially planning on doing three 4-minute shots on the shift, (which is confirmed in the Restricted Volume Radius and Survey Meter Reading Worksheet); however, the plans were later changed to include as many as six 4-minute shots.

During the time in which the equipment was being set up (12:30 a.m. to approximately 1:00 a.m.) a radiographer verified that no persons were in the vessel cavity and that the reactor hatches leading into the drywell were closed. Searches were reportedly made on the 737' and 712' elevations (360°) and a bullhorn was reportedly used approximately five times on each of these levels. Searches were also made on the 782' and 726' elevations (360°), on the 755' scaffolding (staging) elevations (the level on which the surveyors were working), and inside the reactor vessel bioshield on each of these elevations. Although USTCo has two bullhorns for use, none were used on these latter elevations; this appears to be a violation of USTCo procedures (CPS-1, Revision 7, Section 3.b) which specifies the utilization of a portable bullhorn as an additional measure to assure evacuation of unauthorized personnel.

The restricted areas were established at the equipment and personnel access entrances (the only two access points), which were posted with Caution-Radiation Area signs and flashing red lights. An audible alarm and a flashing red light was placed near the source. A High Radiation Area (HRA), which was determined by calculation before the shot, was established, controlled and posted on the 737' elevation. However, areas on the 712' and 755' elevations were not posted as HRAs although they were in fact HRAs based on radiation surveys during the reenactment and the exposure schedule which indicated radiation fields of 600 mrem/hr and scheduled radiographic six 4-minute shots. This appears to be a violation of posting requirements in accordance with 10 CFR 20.203 regulations.

Approximately five minutes before the shot, a bullhorn and Gaitronic announcement was reportedly made warning persons that the shot was to occur in five minutes. The first of several planned shots was performed under the direction of a supervisor and two radiographers, one of which used a stopwatch to time the shot. The source was cranked out between 1:10 a.m. and 1:12 a.m. At approximately 1:14 a.m. (two minutes into the shot), one of the USTCo radiographers posted near the personnel entry hatch to the drywell noticed the surveyors descending the ladder from the 755' staging area, (approximately 20 feet from the source). The radiographer yelled to the radiographer operating the camera, who in turn retracted the source. The presence of the surveyors in the area during the radiographic shot appears to be a violation of the requirements of 10 CFR 20.201, for failure to control access to a High Radiation Area and the USTCo procedures (CPS-1 - Revision 7) which require that conducting a reasonable, prudent and thorough search of scaffolding is the responsibility of the radiographers.

Reenactment

In conjunction with IP radiation safety personnel, USTCo radiographers reenacted the incident for purposes of gathering information concerning the positions of the workers relative to the source, and to determine

the radiation fields in the areas where the workers were located, or could have been located. During the reenactment it appears the highest radiation field the surveyors could have been exposed to was 600 mR/hour. This radiation field existed above the source on the 755' level near where the surveyors were positioned. By conservatively estimating the surveyors were in this location for two minutes, USTCo and IP assigned a personal radiation whole body exposure of 20 mrems to each worker.

During the review of this incident, the inconsistencies noted in the surveyors' and radiographers' descriptions of the event concerning location of the surveyors during the search, search patterns by the radiographers, and the audibility of the bullhorn announcements were not resolved.

Actions taken by IP to strengthen their control of radiographic operations and to prevent recurrence of this incident were taken. These actions include strengthening the procedures, training of personnel, providing twenty four hour health physics coverage for radiographic operations, and health physic's approval for each drywell shot.

12. Drain Systems for Instrument Racks and Valve Stem Leak-Off

The inspectors reviewed the instrument rack and valve stem leak-off systems for potential contamination problems. Physical system inspection, design drawing review, procedure review, and interview of licensee representatives indicate that system design and installation are adequate. After the proposed revisions are approved, the procedures should be adequate to ensure minimizing exposure and contamination problems for these systems.

No violations or deviations were identified.

13. Status of Certain NUREG-0737 Action Items

The inspectors reviewed the status of the post-accident sampling system, high range noble gas effluent monitors, accident range iodine and particulate effluent sampling system, and containment high range radiation monitors. In discussions with licensee managers, the inspectors explained that NUREG-0737 commitments associated with these systems had become critical path licensing items on two recent Region III Near Term Operating License (NTOL) plants. In order to avoid such problems at Clinton, the inspectors recommended that the licensee carefully review implementation/compliance approaches, identify a compliance coordinator, and prepare compliance and action plan reports for these four NUREG-0737 systems.

At the exit meeting, the licensee identified D. L. Holtzscher and H. R. Victor as supervisor and manager-level coordinators, respectively. Mr. Holtzscher will be responsible for the day-to-day coordination effort for NUREG-0737 Items II.B.3 and II.F.1 (Attachments 1, 2, and 3). Mr. Victor will be responsible for assuring a timely station-wide coordinated effort.

The inspectors recommended that the licensee prepare two documents to track commitment compliance for NUREG-0737 Items II.B.3 and II.F.1 (Attachments 1, 2, and 3). These documents would be internal reports made available for NRC review. The first report would be a NUREG-0737 commitment and compliance analysis. It would provide a detailed (line-by-line) identification of each commitment associated with the previously listed NUREG-0737 items, ascertain compliance, identify any corrective measures needed or variance requests required, and identify actions needed to document compliance. The second report would be a detailed action plan providing a tracking system for actions needed to comply with NUREG-0737 commitments and to document compliance. This report should be detailed enough to include specific tasks, individuals assigned to each task, a schedule for completion, and a periodically-updated status. In a letter to the Regional Administrator, dated January 18, 1985, the licensee stated that: (1) the commitment and compliance analysis report will be completed by April 19, 1985; (2) any variance requests will be submitted to NRR on a timely basis; and (3) the action plan report will be completed by June 19, 1985. This matter will be reviewed during future inspections. (Open Item 461/85-04-01)

a. NUREG-0737 Item II.B.3, Post-Accident Sampling System

Section II.B.3 of Appendix D to the FSAR describes the post-accident sampling system for reactor coolant and containment atmosphere, a Sentry, Model B, high radiation sampling system (HRSS) consisting of three subsystems: the liquid sample panel (LSP), the chemical analysis panel (CAP), and the containment atmosphere sample panel (CASP).

The post-accident sampling panel is being installed in the Control/Diesel Generator building on the same floor as the Rad/Chem laboratories. A discussion of the accessibility of this vital area is presented in Section II.B.2 of Appendix D to the CPS FSAR.

The post-accident sample panel room ventilation system design is denoted in Figures 9.4-3, sheet 1 and 9.4-13, sheet 1 of the CPS FSAR. The room is cooled with a 9500 cfm chiller and supplied with 300 cfm of outside air. Room exhaust is through drywell purge filter train C.

Section 9.3.5 of the SER states that the applicant has committed to a post-accident sampling system (PASS) that meets the requirements of Item II.B.3 of NUREG-0737 and contains a draft license condition which requires that PASS capability be demonstrated before exceeding five percent power. Licensee progress in completing installation, procedures, and training will be reviewed during future inspections. (Open Item 461/85-04-02)

b. NUREG-0737 Item II.F.1, Attachment 1, Noble Gas Effluent Monitor

Section II.F.1 of Appendix D to the CPS FSAR contains commitments to install noble gas effluent radiation monitors as specified by Table II.F.1-1 of NUREG-0737 and to provide design details of this monitoring system no later than four months prior to the issuance of an operating license.

The licensee plans to monitor the HVAC vent stack and the SGTS vent post-accident noble gas effluent. Each pathway will be monitored by an Eberline SPING-3 for the lower ranges and an Eberline AXM-1 System for higher ranges. The SPING-3 consists of one noble gas detector assembly (SA-13) and the AXM-1 consists of two noble gas detector assemblies (SA-14 and SA-15). These monitoring systems have not arrived onsite. Licensee progress in completing installation and calibration, writing procedures, and training personnel will be reviewed during future inspections. (Open Item 461/85-04-03)

c. NUREG-0737 Item II.F.1, Attachment 2, Sampling and Analysis of Plant Effluents

Section II.F.1 of Appendix D to the CPS FSAR contains commitments to provide for continuous sampling of plant gaseous effluent for post-accident releases of radioactive iodines and particulates as specified by Table II.F.1-2 of NUREG-0737 and to provide design details of this sampling system no later than four months prior to issuance of an operating license.

The licensee plans to sample the HVAC vent stack and the SGTS vent post-accident radioactive iodine and particulate effluent. Each pathway will be sampled by an Eberline SPING-3 for the lower range and an Eberline AXM-1 system for the higher range. The SPING-3 sampling system is designed to have a sample flow rate of 60 l/m from an isokinetic probe, through a 1" O.D. stainless steel sample line, to a two-inch iodine cartridge and particulate filter. The AXM-1 system is designed to have a sample flow rate of 6 l/m from an isokinetic probe, through a 3/8" O.D. stainless steel sample line, to a bulk filter protecting the noble gas channels. The AXM-1 system also has a grab sampler assembly (SA-16) which isokinetically diverts 0.1 l/m from the main sample line, through a short length of approximately 3/32" O.D. stainless steel sample line, to a two-inch iodine cartridge and particulate filter. These sampling systems have not arrived onsite. Licensee progress in completing installation, writing procedures, and training personnel will be reviewed during future inspections. (Open Item 461/85-04-04)

d. NUREG-0737 Item II.F.1, Attachment 3, Containment High-Range Radiation Monitor

Section II.F.1 of Appendix D to the FSAR contains commitments to install Containment High-Range Radiation Monitors as specified by Table II.F.1-3 of NUREG-0737 and to provide a plant drawing indicating the location of the monitors and the design details of this monitoring system no later than four months prior to the issuance of an operating license.

The inspectors were shown a draft letter to NRR which enclosed four drawings indicating the locations of the four high range gamma monitors that will be installed to meet the criteria of Item II.F.1, Attachment 3 of NUREG-0737. Monitors 1RE-CM059 and 1RE-CM060 will

be located in sealed drywell penetration sleeves 1MD-64 (El 790', AZ 138°) and 1MD-104 (El 791', AZ 304° 30'), respectively. Monitors 1RE-CM061 and 1RE-CM062 will be attached to the containment liner El 834' at AZ 46° and 263°, respectively. None of these monitors have been installed. Licensee progress in completing installation and calibration, writing procedures, and training personnel will be reviewed during future inspections. (Open Item 461/85-04-05)

No violations or deviations were identified.

14. ANSI/ASME N510 Acceptance Test Program

The inspectors met with licensee representatives to: (1) determine the status of the ANSI/ASME N510 acceptance test program; (2) inform them of the types of documents which should be available onsite for NRC inspector review; (3) discuss programmatic deficiencies discovered recently at other Near Term Operating License (NTOL) plants; and (4) request that spinster carbon be laboratory retested, an ANSI/ASME N510 acceptance test compliance analysis be prepared, and the use of silicone sealant on HVAC ductwork and filter housings be evaluated.

a. Program Status

The ANSI/ASME N510 acceptance test program is still in the early planning stage and is not scheduled to begin in earnest until August 1985. Requests for bids to conduct these tests have been sent to three firms. The progress made towards the successful completion of this test program will be reviewed during future inspections. (Open Item 461/85-04-06)

b. Types of Documents Subject to Review

The licensee was informed that the ANSI/ASME N510 acceptance test programs at two NTOLs were recently reviewed by Region III inspectors. The types of documents which were reviewed included: (1) acceptance test inspector qualification records; (2) licensee quality assurance vendor audits; (3) filter qualification documents; (4) licensee N510 test acceptance criteria; and (5) acceptance test procedures and reports.

c. Potential Programmatic Deficiency Areas

Although the licensee's program was not developed sufficiently to warrant review, the inspectors met with licensee representatives to discuss programmatic deficiencies discovered recently at other NTOLs. Potential deficiencies discussed included: (1) performance of tests by uncertified personnel; (2) unresolved vendor audit findings and observations; (3) inadequate carbon adsorber qualification records; (4) lack of carbon adsorber batch traceability; (5) lack of a formal deficiency reporting and resolution tracking system; (6) misuse of or lack of adequate test acceptance criteria; (7) inadequate timing of visual inspections; (8) significantly

degraded "spinster" carbon; (9) lack of detailed compliance with N510 test procedure and report specifications; and (10) improper use of silicone sealants. The last three items are discussed in more detail in the next three subsections.

d. Spinster Carbon

Partly because of significant delays in the startup dates for many reactors, qualified carbon has been in storage at some sites for five years or more. This unused carbon is commonly referred to as "spinster" carbon. Due to the lengthy storage times, spinster carbon may be significantly degraded by the time it is used and therefore may have to be retested to verify adequate retention of performance characteristics. The amount of degradation depends on many factors, including: storage period; damage due to handling, moving, and storage techniques; packaging methods; and exposure to contaminants. Although no requirement for retesting spinster carbon currently exists, it appears that if the carbon has been properly stored, it probably need not be retested if the storage time is 18 months or less. Retesting should be considered for longer storage times and if storage approaches five years, retesting should definitely be performed. Batch samples should be tested with methyl iodide to Regulatory Guide 1.52, Table 2 or Regulatory Guide 1.140, Table 2 (as appropriate) acceptance criteria. The carbon should be replaced if it fails the prescribed test.

In a letter to the Regional Administrator, dated January 18, 1985, the licensee stated that: (1) iodine retention testing of spinster charcoal for HVAC filters, for the initial filter loading, will be performed if the charcoal is over 18-months old or has been stored under questionable conditions and (2) this testing, if required, will be performed on the affected filter prior to fuel load. This matter will be reviewed during a future inspection. (Open Item 461/85-04-07)

e. ANSI/ASME N510 Compliance Report

Region III inspectors have recently noted, during review of ANSI/ASME N510 acceptance test programs at two other NTOLs, a significant lack of detailed compliance with N510 test procedure and report specifications. Lack of detailed compliance has the potential of invalidating acceptance tests. Since N510 acceptance tests are often completed just before scheduled fuel load, invalidation of the test results could influence the actual fuel load date. In an attempt to preclude an occurrence of this kind at Clinton, the inspectors recommended that the licensee prepare a line-by-line ANSI/ASME N510 compliance analysis report and make the report available for Region III review. In a letter to the Regional Administrator, dated January 18, 1985, the licensee stated that: (1) a CPS procedure for ANSI N510 acceptance testing will be prepared by May 1985; (2) a compliance analysis report will be completed by April 19, 1985; (3) any variance requests will be submitted to NRR on a timely basis; and (4) a detailed action plan report which provides a status of compliance, remaining action

required, and schedule for completion will be completed by June 19, 1985. This matter will be reviewed during future inspections. (Open Item 461/85-04-08)

f. Use of Silicone Sealant on HVAC Ductwork and Filter Housings

During a plant tour, the inspectors noted that silicone sealant was used on longitudinal duct seams for ESF (Control Room) and non-ESF (Radwaste Exhaust and Drywell Purge) air cleaning systems. The use of silicone sealants on non-ESF filter housings was also noted.

Regulatory Guide 1.52, Revision 2 (March 1978), Regulatory Position 3.n states that ESF ductwork should be designed, constructed, and tested in accordance with the provisions of Section 5.10 of ANSI N509-1976. The CPS FSAR, Table 6.5-3 commits to the intent of the ANSI standard. ANSI N509-1976, Subsection 5.10.4 states that longitudinal seams shall be either all welded, seal welded mechanical, or in accordance with SMACNA - High Velocity Duct Construction Standards (Pittsburgh Lock or Acme Lock Seam) as required to meet structural and leak-tightness requirements of Pars. 5.10.3 and 4.12, respectively. ANSI N509-1976, Subsection 4.12 states that the allowable leakage will, by reference to Par. 4.12.3, indicate the required type of duct construction; i.e., welded or nonwelded; however, ducts for ESF systems and all housings shall be welded. Contrary to the above, mechanical lock longitudinal seams with silicone sealant are apparently being used in the construction of ESF Control Room air cleaning system ductwork.

Regulatory Guide 1.52, Revision 2 (March 1978), Regulatory Position 5.c states that the use of silicone sealants or any other temporary patching material on ESF filters, housings, mounting frames, or ducts should not be allowed. The CPS FSAR, Table 6.5-3 states that silicone sealants will not be used on the ESF filter systems. Contrary to the above, mechanical lock longitudinal seams with silicone sealant are apparently being used in the construction of ESF Control Room air cleaning system ductwork.

The inspectors informed the licensee that NRR was currently ascertaining the acceptability of silicone sealants on HVAC ductwork and filter housings at another NTOL, and concurrence for the use of silicone sealants on Clinton HVAC systems should be obtained by the licensee from NRR.

The inspectors also informed the licensee that another NTOL has a license condition pending because of the use of silicone sealants on Control Room emergency filtration ductwork. The inspectors requested the licensee provide, for inspector review, information adequate to determine if a similar license condition would be applicable to Clinton. A copy of the other plant's draft license condition (as stated in a docketed letter from that licensee to NRR) was supplied to the licensee for information.

Regulatory Guide 1.140, Revision 0 (March 1978), Regulatory Positions 3.f and 5.c have the same wording as Regulatory Guide 1.52, Revision 2 (March 1978), Regulatory Positions 3.n and 5.c, respectively (which are discussed above). In the CPS FSAR, Section 1.8, the licensee did not take exception to these regulatory positions which state, in part, that all housing shall be welded and the use of silicone sealant or any other temporary patching material on the welded housing should not be allowed. Contrary to the above, the inspectors noted that apparently silicone sealant has been used on non-ESF HVAC filter housings.

In a letter to the Regional Administrator, dated January 18, 1985, the licensee, in response to the above concerns, agreed to review the use of silicone sealants and notify the Region III office of the results of their review within 60 days. This item is considered unresolved. (Unresolved Item 461/85-04-09)

No violations or deviations were identified.

15. HVAC Filter Housing Drain Systems

The inspectors reviewed the installed HVAC filter housing drain systems and associated P&IDs for the Control Room, Standby Gas Treatment, Radwaste Exhaust and Drywell Purge air cleaning systems. All the filter housing drain systems have been installed except for the Control Room air cleaning system. The P&IDs indicate that all these filter housings are to have manual or solenoid isolation valves installed in each individual drain line per CPS FSAR commitments to Regulatory Guides 1.52 and 1.140. However, during the plant tour of these filter housings, a number of inspector concerns were raised, including: (1) the installed drain line configuration for SGTS filter housing did not agree with the P&ID; (2) administrative controls are needed for the isolation valves; (3) procedures are needed to ensure that the drain line loop seals stay filled; (4) water check valves may be needed on some drain lines; and (5) fire protection system leakage may damage carbon adsorbers. These concerns are discussed in the following five subsections.

a. SGTS Filter Housing Drain System Configuration

In Table 6.5-3 of the CPS FSAR, the licensee's commitment to Regulatory Guide 1.52, Revision 2 (March 1978), Regulatory Position 3.h states that water drains are designed in accordance with the recommendations of Section 5.6 of ANSI N509-1976 which states, in part, that drain lines shall be individually valved, sealed, or otherwise protected to prevent bypassing of contaminated air around filters or adsorbers through the drain system. Contrary to the above, the installed SGTS filter housing drain system configuration consists of 9 drain lines of which only two are valved. The nine drain lines are all welded construction and hardpiped to a common header. The as-built configuration is not acceptable because it allows filter bypass via the drain lines. Both SGTS trains have the same installation detail.

The inspectors notified licensee management and Quality Assurance personnel that this matter may represent a QA procedural problem inasmuch as, (1) P&ID M05-1005, Sheet 1, Revision H (11/16/84) shows a manual isolation valve on each of the nine drain lines located on the SGTS filter housings; (2) the turnover exception list for Turnover Package Number 1-TP-1, dated August 14, 1981, indicated that on each SGTS filter housing seven drain lines and isolation valves were not yet installed; and (3) the drain lines and isolation valves are clearly shown on Baldwin Associates installation detail drawing No. VG-753, Revision 0, which was approved for fabrication and installation by Sargent & Lundy on September 30, 1983. However, although all nine drain lines were eventually constructed, seven do not have the specified isolation valve installations.

In a letter to the Regional Administrator, dated January 18, 1985, the licensee, in response to the above concerns, stated that: (1) the above seven drain valves were previously identified by IPC as not being installed on a system turnover exception list; (2) the installation of these valves is being systematically tracked as part of the normal construction process; and (3) therefore, IPC does not consider this to be a breakdown of the QA Program. However, the inspectors could not find evidence that the licensee was adequately tracking installation of the seven drain valves. This matter will be reviewed durther during a future inspection. (Unresolved Item 461/85-04-10)

b. Filter Housing Drain Line Isolation Valve Administrative Controls

The position (open or closed) of HVAC filter housing drain line isolation valves must be procedurally controlled to ensure that these valves are closed during filter operation to preclude filter bypass. In a letter to the Regional Administrator, dated January 18, 1985, the licensee, in response to the above concern, stated that: (1) a review will be performed by March 18, 1985, to identify procedures needed to ensure that specific instructions are provided on controlling filter housing drain line isolation valves and (2) these procedures will be revised to incorporate this requirement prior to the associated systems being released to Plant Staff for operation. This matter will be reviewed during a future inspection. (Open Item 461/85-04-11)

c. Filter Housing Drain Line Isolation Valve Leakage Determination

Even if proper administrative control is established to ensure that filter housing drain line isolation valves are closed during filtration train operation, filter bypass via the drain lines is not precluded unless the isolation valves are leak tight. The licensee should verify air leak tightness for all filter housing drain line isolation valves as part of the preoperational test program. This matter will be reviewed during a future inspection. (Open Item 461/85-04-12)

d. Filter Housing Drain Line Loop Seals

In Table 6.5-3 of the FSAR, the licensee's commitment to Regulatory Guide 1.52, Revision 2 (March 1978), Regulatory Position 3.h states that the water drains are designed in accordance with the recommendations of Section 5.6 of ANSI N509-1976, which states, in part, that loop seals shall not be used. Contrary to the above, the inspectors found that loop seals have been installed on Control Room and SGTS air cleaning system filter housing drain lines.

Similarly, loop seals have been installed on Drywell Purge System filter housing drain lines, although Regulatory Guide 1.140, Revision 0 (March 1978) and Section 5.6 of ANSI N509-1976 takes exception to such installation.

The inspectors informed the licensee that: (1) concurrence on the acceptability of using loop seals on Clinton HVAC filter housing drain lines should be obtained by the licensee from NRR; (2) if NRR finds the use of loop seals unacceptable, the licensee should propose design corrections for NRR review; and (3) if NRR finds the use of loop seals acceptable, the licensee should clarify the commitments to the appropriate regulatory positions in the CPS FSAR by amendment.

If NRR finds the use of loop seals acceptable, procedures will be required to ensure that the loop seals remain properly filled. In a letter to the Regional Administrator, dated January 18, 1985, the licensee, in response to this concern, stated that: (1) a review will be performed by March 18, 1985, to identify all procedures for filling and surveillance of the loop seals on filter housings and (2) these procedures will be reviewed to incorporate this requirement prior to the associated systems being released to the Plant Staff for operation.

Pending resolution of this issue by NRR and the development of adequate procedures, this item is considered unresolved. (Unresolved Item 461/85-04-13)

e. Filter Housing Drain Line Water Check Valves

During the plant tour of the station filter housings, the inspectors noted there were no water check valves installed in any of the drain lines to prevent water backup into the housings. The inspectors requested the licensee to review the situation and ascertain whether water check valves should be installed in filter housing drain lines to protect the filters from possible water damage. In a letter to the Regional Administrator, dated January 18, 1985, the licensee stated that: (1) loop seals are provided on open filter drain lines to prevent the backflow of air or water and (2) check valves are not required since the loop seals provide the required filter protection. This response does not appear adequate because loop seals, if properly designed and maintained, normally constitute ventilation

boundaries but not adequate water boundaries where the driving pressure may be much greater. The CPS FSAR, Section 9.3.3.1.1, item e specifically states that loop seals/traps are provided in drainage piping for maintaining ventilation boundaries. Consideration should also be given to installing water check valves to preclude water backup into the housings due to improper operation of loop seal fill systems. This matter will be reviewed further during a future inspection. (Open Item 461/85-04-14)

f. Fire Protection System Potential Leakage Problems

The inspectors briefed licensee representatives on problems another NTOL plant had with filter damage due to fire protection system leakage and system modifications a second NTOL plant is considering to preclude the problem occurring at that plant. The inspectors requested the licensee to evaluate means for preventing fire protection system leakage from damaging air cleaning system filters. In a letter to the Regional Administrator, dated January 18, 1985, the licensee, in response to this request, stated that: (1) IPC will perform a review of the charcoal filter fire protection isolation provisions to ensure that there are adequate provisions to prevent leakage through the Fire Protection System from wetting filter charcoal and (2) this review will be completed by March 18, 1985. This matter will be reviewed during a future inspection. (Open Item 461/85-04-15)

No violations or deviations were identified.

16. Engineering Safety Feature HVAC Filter Train Capacity

Regulatory Guide 1.52, Revision 2 (March 1978), Regulatory Position 2.f states that the volumetric air flow rate of a single cleanup train should be limited to approximately 30,000 cubic feet/min (cfm). In Table 6.5-3 of the FSAR, the licensee states that no ESF filter train capacity exceeds 4000 cfm, while section 6.4 of the SER, Supplement No. 1 refers to a 55,000 cfm capacity for the control room HVAC recirculation train. The inspectors requested the licensee correct the apparent FSAR discrepancy and resolve the acceptability of the 55,000 cfm control room capacity with NRR. In a letter to the Regional Administrator, dated January 18, 1985, the licensee stated that a clarification will be submitted in FSAR Amendment 33 which is scheduled to be submitted in March 1985. This matter will be reviewed during a future inspection. (Open Item 461/85-04-16)

No violations or deviations were identified.

17. Exit Interview

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on January 11, 1985. The scope and findings of the inspection were summarized. The licensee committed to prepare responses to certain issues raised by the inspectors in the areas of NUREG-0737 Items (Section 13), ANSI/ASME N510 acceptance test program (Section 14), HVAC filter housing drain systems (Section 15), and ESF HVAC filter train capacity (Section 16).