U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/94011(DRSS); 50-316/94011(DRSS)

Dockets No. 50-315; 50-316 Licenses No. DRP-58; DPR-74

Licensee: Indiana Michigan Power Company
1 Riverside Plaza
Columbus, OH 43216

Facility Name: D. C. Cook Nuclear Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgman, Michigan

Inspection Conducted: May 31 through July 5, 1994

Inspector: C. F. Gill 8/12/94
C. F. Gill Date

Approved By: J. W. McCormick-Barger 8/12/94
J. W. McCormick-Barger, Chief Date
Radiological Programs Section

Inspection Summary

Inspection on May 31 through July 5, 1994 (Report Nos. 50-315/94011(DRSS); 50-316/94011(DRSS))
Areas Inspected: Routine announced inspection of the solid radwaste program (Inspection Procedure (IP) 86750), and the gaseous and liquid waste programs (IP 84750).
Results: The licensee's gaseous, liquid, and solid radwaste programs were generally good, with some exceptions. Although liquid radioactive effluent releases have been trending downward in recent years (Section 7.0), equipment and operational problems (Subsections 7.1 and 7.2) still occasionally produced elevated releases and offsite doses. There was a significant increase in noble gas released in 1993, compared to releases during previous years (Section 6.0). Unplanned gaseous radioactive releases point out the importance of implementing and maintaining strong engineering and maintenance programs for the waste gas system (Section 8.0). Although solid radwaste generation, processing, and storage appeared adequate, numerous concerns were self-identified by the licensee regarding the radioactive material shipping program (Section 9.0). Also, concerns with the air cleaning systems, some self-identified, were noted regarding filter testing (Section 11). However, all effluent radioactive releases and offsite doses remained within technical specification limits.

No violations of NRC requirements were identified during the inspection. However, the following two Inspection Followup Items (IFIs) were identified:

- Concerns regarding the radioactive material shipping program (Subsection 9.2).
- Miscellaneous ventilation system testing concerns (Subsection 11.2).

DETAILS

1.0 Persons Contacted

+ A. Blind, Plant Manager
#@ M. Ackerman, Senior Engineer
+ M. Barflez, Nuclear Safety and Assessment Supervisor
@ J. Center, Radiation Protection/Radioactive Material Control Supervisor
# S. DeLong, Tech/Admin Supt. Supervisor
@ D. Fitzgerald, Environmental Safety and Health Superintendent
#@ C. Flis, Staff Engineer-Systems
#@ D. Foster, Radioactive Material Specialist
J. Fryer, General Supervisor-Radioactive Material Control
+@ L. Gibson, Assistant Plant Manager-Projects
+ S. Lehrer, General Supervisor Chemistry
# J. Long, Radwaste Handling Supervisor
#@ W. MacRae, Senior Engineer
@ D. Malin, Nuclear Licensing & Fuel Section Manager
+#@D. Noble, Radiation Protection Superintendent
+#@R. Ptacek, Licensing Coordinator
I. Rippie, System Engineer
@ J. Rutkowski, Assistant Plant Manager-Technical Support
# M. Schaefer, Radioactive Material Specialist
#@ J. St. Amand, Performance Supervising Engineer
C. Toth, Senior Engineer
E. Trader, Project Engineer
+ D. Walton, Site QA Auditor
+ G. Weber, Plant Engineering Superintendent
@ J. Weber, Engineer
+@ J. Wiebe, Quality Assurance and Control Superintendent
@ D. Williams, Rad/Chem Support Section Manager
# H. Young, Senior Engineer

J. Isom, Senior Resident Inspector
D. Hartman, Resident Inspector

@ Denotes those present at the interim exit meeting on June 3, 1994.
# Denotes those contacted by telephone on June 6 - July 5, 1994.
+ Denotes those present at the telephone exit meeting on July 5, 1994.

2.0 Licensee Action on Previous Inspection Findings

Several problems and concerns identified in previous NRC inspection reports were reviewed for appropriate corrective actions. The items reviewed and the inspector's evaluations of the actions are discussed in this section.

2.1 (Closed) Licensee Event Report (LER)(315/90009-00):

Access to an extreme high radiation area (EHRA) not controlled in accordance with technical specifications. Soon after this event

occurred regarding the discovery that the outer door to the 587 foot elevation Drumming Room was unlatched and the lock on the internal gate was unlocked, a similar event occurred in that the door to the Seal Water Injection Filter Room was found unlocked (LER No. 315/90014-00). LER No. 315/90014-00 was closed in Inspection Reports No. 50-315/92009 (DRP);50-316/92009 (DRP) based on corrective action that was applicable to all EHRA doors and gates. The inspector reviewed the licensee's closure files on both LERs, checked EHRA doors and gates during plant tours, and reviewed documentation regarding installed Request for Change (RFC) No. DC-12-4114, which significantly upgraded all EHRA doors and gates. No problems were identified; therefore, this matter and the LER are closed.

2.2 (Closed) Inspection Followup Item (IFI) (315/91015-02; 316/91015-02):

Submit 10 CFR 20.302 application to NRR regarding onsite disposition of low level radioactive turbine room sump absorption pond sludge used to construct an onsite graveled parking lot circa 1981/1982. The licensee first submitted the application to NRR on October 9, 1991. The application was resubmitted on October 23, 1991 to include Attachment 6, a December 9, 1983 letter from the Michigan Department of Natural Resources approving the sludge disposal. On September 3, 1993, Attachment 5 (Gamma Spectrum Analysis) was retransmitted because it was missing from the original submittal copies received by the NRC staff from the Public Document Room. The latest submittal to the NRC on this matter was on September 29, 1993, in response to NRR staff reviewer questions. Since this application is under active review by NRR, this item is closed.

2.3 (Closed) Inspection Followup Item (IFI) (315/92010-01; 316/92010-01):

Failures of liquid discharge monitor RRS-1000 to automatically terminate radwaste releases due to monitor inoperability (Ref: LERs No. 315, 316/91003-00; No. 315, 316/91010-00; and No. 315, 316/92003-00). This Eberline monitor was installed in early 1991 to replace the Westinghouse monitor R-18. After each RRS-1000 failure, the technical problems identified with this new monitor were corrected. Review of licensee corrective action documentation and subsequent LERs indicated that problems of the type which resulted in the failures of the monitor to terminate liquid radioactive releases last occurred on March 7, 1992.

A review of condition reports since this last event showed that RRS-1000 had numerous times terminated releases successfully at the high radiation alarm trip setpoint; however, the monitor demonstrated a chronic problem with radioactive contamination of the SA-5 sample assembly liner and poor back flushing capability. This condition resulted in the necessity of often taking the monitor out of service to replace the liner. The licensee stated plans to replace the sample liner assembly with a new sample liner assembly featuring a bolted-on removable lid for ease of internal decontamination by implementing minor modification No. 12-MM-547 in the near future. The new assembly and sample liner were from Eberline, compatible with the RRS-1000, and have

electropolished surfaces to reduce radioactive contamination buildup. No further concerns exist regarding this monitor; therefore, this item is closed.

2.4 (Closed) Violation (315/94006-01; 316/94006-01):

Two procedures proved inadequate to control valve lineups that resulted in a resin spill and 20 personnel contaminations. The inspector reviewed the licensee response dated May 25, 1994, confirmed that the appropriate procedural revisions were issued, noted valve control panel enhancements during plant tours, and interviewed licensee representatives responsible for the resultant corrective action. The inspector concluded that all necessary corrective action had been completed to prevent recurrence and that the licensee still expected to complete additional actions on the dates stated in the May 25, 1994 response. This item is closed.

3.0 Changes

There were no significant recent changes in organization and management controls in the area of gaseous, liquid, and solid radwaste. However, recent operational and facility changes had adverse effects on effluent radioactive releases to the environs. For example, the conversion from a mixed bed radwaste demineralization system to a higher capacity advanced liquid processing system inadvertently increased the liquid radioactive effluent released to the environs during the last half of 1993 (see Subsection 7.2). Licensee representatives stated that the new processing system was, however, expected to reduce liquid effluent concentrations in the future. Also, the upgrade of the effluent radiation monitoring system (RMS) was being installed to improve RMS reliability, effluent measurement accuracy, and effluent release control (see Subsections 2.3 and 10.0).

No violations or deviations were identified.

4.0 Training and Qualifications

Training in current NRC and Department of Transportation (DOT) requirements remained essentially as discussed in Section 6 of Inspection Reports No. 50-315/92010(DRSS); 50-316/92010(DRSS). The inspector was shown recent training course certifications by radiation material specialists. Discussions with these individuals indicated that the courses were thorough, comprehensive, and well taught. The specialists interviewed were knowledgeable about the course subject matter and were applying this information to the radwaste processing and the radioactive material shipping programs. Nevertheless, the licensee corrective action program identified numerous problems with the radioactive material shipping program (see Subsection 9.2).

No violations or deviations were identified.

5.0 Audits and Appraisals

A review of quality assurance (QA) audits conducted by the licensee for 1992, 1993, and 1994 to date indicated that audits were of good quality and management review of findings were generally thorough, timely, and technically sound. QA auditors assigned to this area had the necessary expertise and experience prerequisites, and a good working relationship existed between radwaste and QA management. The licensee also performed self assessments of the radwaste and radioactive material control programs. The inspector reviewed recent self assessments, their recommendations, and the resultant improvements in plant performance. These assessments had resulted in significant program improvements, including reduction of operational solid radwaste and considerable volume reduction. The QA audit and self assessment programs were complementary.

No violations or deviations were identified.

6.0 Gaseous Radioactive Waste

Sampling and release methods and procedures, records, and reports appeared good with some exceptions which are delineated in Subsections 6.3 and 8.0. The inspector reviewed summary records of gaseous radioactive effluent releases for 1991-1993.

The releases and associated offsite doses for 1991 and 1992 were generally well within technical specification (T/S) limits and similar to data during earlier refueling and non-refueling outage years. However, 1993 releases and offsite doses were significantly higher than usual for a non-refueling outage year (see Subsection 6.1). The main contributing factors for this increase appeared to be leaking fuel and containment purges during reactor power operations (see Subsection 6.2), and a total noble gas release that was about twice the expected value (see Subsection 6.3).

The licensee reported about 29 times the noble gas released and 63 times the beta air dose in 1993 than in the previous non-refueling outage year (1991). However, the quarterly releases and offsite doses were within T/S limits (see Attachment 1).

6.1 Release and Offsite Dose Data

The 1991 noble gas activity release, gamma, and beta air dose (percent of T/S limit) totals were approximately 70.8 curies, 0.227%, and 0.139%, respectively; corresponding 1992 totals were 205 curies, 0.188%, and 0.472%; and 1993 values were 2060 curies, 1.90%, and 8.80%. The 1991 I-131, tritium, and particulate activity releases and critical organ dose (percent of T/S limit) totals were approximately 8.28 E-4 curies, 29.04 curies, 1.57 E-3 curies, and 0.409%, respectively; corresponding 1992 totals were 7.29 E-3 curies, 19.55 curies, 4.75 E-3 curies, and 2.86%; and 1993 values were 7.68 E-5 curies, 25.77 curies, 4.24 E-4 curies, and 0.201%. The quarterly release values, as compiled by the licensee, were

as shown in Attachment 1 to this report. (Note: One curie equals 3.7E+10 Becquerels.)

6.2 Data Review

The release data seemed to correspond to the operational evolutions of the two units and apparently were a function of the frequency and types of gaseous batch releases including waste gas decay tank (WGDT) discharges, chemical and volume control system holdup tank (CVCS HUT) releases, containment purges, and containment pressure reliefs (CPRs). There were 198, 401, and 484 total gaseous batch releases which included 160, 345, and 457 CPRs in 1991, 1992, and 1993, respectively. Discussions with licensee representatives indicated that although CPRs were numerous, they generally only accounted for 10 to 20 percent of the total annual releases and offsite doses.

The main increase in gaseous releases for 1992, compared to 1991, was that there were no refueling outages in 1991 and both units had refueling outages in 1992. Most of the 1992 gaseous radioactive releases occurred during the refueling outages due to normal and expected work activities. Although 1993 was a non-refueling outage year, the reported gaseous effluent releases were much higher than those during the previous non-refueling outage year (1991), in part, due to several containment purges during reactor power operations in the fourth quarter of 1993 and a much higher than expected gaseous release in the third quarter of 1993 (see Subsection 6.3). For example, the radioactive release for three containment purges at power during the fourth quarter of 1993 was 42% of the total quarterly release.

Another contributing factor for high 1993 offsite releases and doses was leaking fuel. For example, the gaseous iodine released during the third quarter of 1993 showed a marked increase (see Attachment 1) due to the Unit 1 letdown demineralizer system being out of service for two days with known leaking fuel. This allowed the iodine concentration in the reactor coolant to increase significantly which subsequently showed up in the vent stack samples and was included in July's effluent release data and offsite dose calculations.

6.3 Possible Invalid Effluent Noble Gas Surveillance Sampling and Analysis

On September 21, 1993, an effluent gas sample was collected from the Unit 2 vent stack. The resultant analysis indicated about 1050 curies of noble gas were released from this source to the environs during the month of September 1993. This release (if valid) was more than the sum of all other 1993 gaseous releases from all other Unit 1 and Unit 2 sources. Although no discernable event or possible cause for this very large release was identified (Unit 2 was stabilized at about 75% reactor power), the licensee treated the release as real without conducting a formal investigation or issuing a condition report. The licensee apparently failed to adequately consider the potential for a problem with the sampling and analysis program.

On June 15, 1994, after obtaining and reviewing documentation of another plant's evaluation of a similar event, D. C. Cook plant representatives issued a condition report and stated plans to conduct a formal investigation of their possibly invalid sampling and analysis of the noble gases released from the Unit 2 vent stack in September 1993. After completion of this investgation, this matter will be reviewed further during a future inspection.

No violations or deviations were identified.

7.0 Liquid Radioactive Waste

Sampling and release methods and procedures, records, and reports appeared good with some exceptions (see Subsections 7.1 and 7.2). The inspector reviewed summary records of liquid radioactive effluent releases for 1991-1993. There were 152, 157, and 76 liquid radioactive effluent batch releases for 1991, 1992, and 1993, respectively; the corresponding discharge of waste water was 1.60 E+6, 1.84 E+6, and 1.09 E+6 gallons.

The inspector reviewed summary records of liquid radioactive effluent releases for 1991-1993. The 1991 whole body and maximum organ dose totals were 2.44% and 1.15% of the T/S dose limits, respectively; corresponding 1992 totals were 7.83% and 3.50%; and 1993 values were 8.40% and 3.65%. The quarterly release values, as complied by the licensee, were as shown in Attachment 2.

7.1 Data Review

Overall, the offsite doses from liquid radioactive effluent decreased significantly compared to those from 1985-1988 (see Section 7 of Inspection Reports No. 50-315/89016 (DRSS);50-316/89017 (DRSS)). For example, the 1988 whole body and maximum organ dose totals were 6.07% and 2.39% of the T/S dose limits, respectively; the corresponding 1987 totals were 39.4% and 16.0%. The liquid release data for 1985 and 1986 were comparable to those for 1987 and 1988, respectively.

However, there was a marked increase in the doses due to liquid release in the third and fourth quarters of 1992 (see Attachment 2). According to licensee representatives, this was due to Unit 1 shutdown and the subsequent refueling outage that began on June 22, 1992, and that both units were shutdown during this time and there was minimal use of circulating water pumps for dilution flow until October 23, 1992. Likewise, the 1993 liquid releases and offsite doses for the third and fourth quarters were significantly elevated due, in part, to a radwaste system modification (see Subsection 7.2 below).

7.2 Radwaste System Modification

Request for Change (RFC) No. DC-12-1409 replaced a mixed bed radwaste demineralization system with a higher capacity state-of-the-art advanced liquid processing system with coagulant filtration, ion exchanger resin

beds, and activated charcoal adsorbers. Licensee representatives indicated that the new processing system became operational about October 1, 1993; however, during the previous three weeks the mixed bed operated with significantly depleted resins which resulted in higher than usual radioactive liquid discharge concentrations. This resulted in elevated releases and offsite doses in the third quarter and, due to delay of some later releases from holdup in discharge tanks, in the fourth quarter of 1993 (see Attachment 2).

No violations or deviations were identified.

8.0 Abnormal Radioactive Effluent Releases

The inspector reviewed records of abnormal (unplanned) radioactive effluent releases for 1991-1993. There were no abnormal liquid releases during these three years; however, there were abnormal gaseous releases from WGDTs in the fourth quarter of 1992 (see Subsection 8.1) and the first quarter of 1993 (see Subsection 8.2). The releases all involved valve problems. Although no release limits were exceeded, these unplanned radioactive releases point out the importance of implementing and maintaining strong engineering and maintenance programs for the waste gas system.

8.1 Abnormal Gaseous Releases During Steam Generator Sparging

Between November 1 and 5, 1992, there were five unplanned gaseous releases involving WGDT No. 2 and routine steam generator (SG) sparging evolutions. During nitrogen sparging for the Unit 2 SGs, some of the contents of the WGDT leaked into the nitrogen header due to isolation valve back leakage. The mixture of nitrogen and waste gas was subsequently released to environs via the Unit 2 SGs. The total activity released during the five hours nine minutes of unmonitored releases was 0.206 curies. The calculated offsite doses were all less than one percent of the 1992 offsite doses for the fourth quarter (see Attachment 1).

8.2 Abnormal Gaseous Release During Maintenance Activities

On March 9, 1993, during maintenance activities on the north waste gas compressor, 612 cubic feet (0.566 curies) of gas was released from WGDT No. 6. The cause of the inadvertent release was the concurrent failure of two waste gas system valves. The calculated offsite doses were all less than one percent of the 1993 offsite doses for the first quarter (See Attachment 1).

No violations or deviations were identified.

9.0 Solid Radioactive Waste and Radioactive Material Shipping

Although the inspector concluded that solid radwaste generation, processing, and storage were apparently adequate (see Subsection 9.1),

numerous self-identified problems were noted with the radioactive material shipping program (see Subsection 9.2).

9.1 Waste Generation, Processing, and Storage

Waste generation and processing remained essentially as stated in Section 7 of Inspection Reports No. 50-315/92010(DRSS); 50-316/92010 (DRSS). However, most dry active waste (DAW) was sent to vendors who reduced the volume by compaction and/or incineration, then returned the material to D. C. Cook to be stored in the licensee's interim radwaste storage facility (IRSF). The inspector toured the IRSF (also known as the radioactive material building (RMB)) and noted that the DAW was stored in approved boxes and was at about 20% storage capacity. The high integrity container (HIC) storage area was about 40% full. Because the HICs contain significant amounts of radioactive waste, they were stored in concrete cells with thick lids for shielding (shield plugs). Only limited areas of the IRSF were posted as radiation areas. The facility seemed to be appropriately used except for occasional problems with the shield plug lift crane grapple and a design problem that resulted in the truck bay door not being in alignment with the internal loading dock. Security for the facility was thorough and all areas could be placed under video observation. The RMB began to accept radwaste for temporary storage on May 15, 1992. Plant tours showed that process areas and temporary storage of radwaste in the radwaste areas of the main plant facility were also well controlled. Most of this radwaste would require further processing and installation in approved containers before storage in the IRSF (RMB) would be acceptable.

Based on a review of the approved Process Control Program (PCP) requirements, procedures, and facility tours, it appeared that the solid radwaste processing activities were properly performed. The licensee improved the PCP in late 1991 when the Radioactive Waste Process Control Manual (Procedure No. 12 PMP 3150 PCP.001) was upgraded, improved, and separated into four distinct activity procedures. This upgrade separated PCP activities from the radioactive material control and radioactive material shipment activities to simplify and clarify procedural instructions. The PCP procedural changes were required to be reported to NRC in semi-annual effluent reports. The inspector reviewed those reports issued since the PCP was reorganized.. This review confirmed the licensee was updating and upgrading the PCP procedural requirements, as appropriate.

9.2 Radioactive Material Shipping Program

The inspector selectively reviewed radioactive material (RM) shipping records and manifests; no problems were identified. However, a review of condition reports (CRs) identified problems with the RM shipping program. Although none of these CR incidents represented a significant radiological hazard to occupational workers or the general public, the apparent repetitive nature of these events was of concern. This matter will be reviewed further by inspectors in the near future to verify that appropriate corrective actions were taken to prevent recurrence of the

CR events and to determine whether previous corrective actions for earlier events were inadequate to prevent the CR events. This is an Inspection Followup Item (IFI). (315/94011-01(DRSS); 316/94011-01(DRSS))

No violations or deviations were identified; however, one inspection followup item was identified.

10.0 Effluent Control Instrumentation

Although the gaseous effluent radiation monitoring system (RMS) remained, generally reliable, continuing problems with the original Westinghouse liquid effluent radiation monitors (see Section 12 of Inspection Reports No. 50-315/89016(DRSS); 50-316/89017(DRSS)) resulted in issuance of request for changes (RFCs) to replace these monitors, usually with upgraded versions of the Eberline liquid radiation monitors which were stored in a warehouse at the D. C. Cook site since 1981. Most of the RFCs were to comply with the licensee's commitments to NRC Generic Letter No. 89-06, regarding replacement of obsolete equipment.

Likewise, RFC-DC-12-4078 would replace the Westinghouse area monitoring RMS.

No violations or deviations were identified.

11.0 Air Cleaning Systems

Technical Specifications (T/S) required filter testing of the Control Room Emergency Ventilation Systems (one filter train for each unit) as specified by T/S 3/4.7.5; the ESF Ventilation Systems (two independent filter trains for each unit) as specifically T/S 3/4.7.6.1; and the Spent Fuel Storage Pool Exhaust (SFP) Ventilation System as specified by T/S 3.9.12. The inplace leakage test criterion specified both the DOP testing of HEPA filters and freon testing of charcoal adsorbers was equal to or less than one percent penetration. The laboratory test criterion for carbon sample removal efficiency for methyl iodide was equal to or greater than 90 percent. A selective review of surveillance tests data for the last five years showed that the surveillances for the above ventilation systems had met test acceptance criteria.

11.1 Filter Testing Criteria Concerns

Although the licensee had passed the T/S surveillance test requirements for all appropriate ventilation systems, the inspector noted that the T/S test conditions were less stringent than those recommended in NRC Information Notice (IN) No. 87-32. The licensee had improved the filter testing program significantly in recent years by conducting dual charcoal sample testing using T/S and IN 87-32 testing protocol and acceptance criteria. However, the inspector noted examples where the charcoal passed the T/S test protocol and acceptance criteria, yet failed the more stringent IN 87-32 recommended test protocol and acceptance criteria. The decision on the need to replace the charcoal

was made by engineering judgement without an established evaluation process.

During a recent inspection (Inspection Reports No. 50-315/94007(DRS); 50-316/94007(DRS)), the NRC was critical of the licensee's overreliance on engineering judgements. On June 28, 1994, the licensee stated tentative plans to develop formal acceptance criteria, perhaps in a Standing Order or procedure, that reflects the planned acceptance criteria of proposed ventilation system T/S amendments.

11.2 Miscellaneous Ventilation System Testing Concerns

Inspector Concerns: The inspector reviewed various filter testing documents, including test records, procedures, and the filter testing log book. The following concerns were identified.

- During review of CREVS filter testing records, it was noted that the required visual examination of the filtration systems often resulted in written comments which indicated significant degradation of the filters, filter seals, housing seals, cleanliness (dirt in housings or on filters), and the control room gas control boundary seals. Although action requests were issued for these degraded conditions, generally condition reports were not issued and the findings were not trended. Nor did the test procedure (No. 12 EHP 4030 STP. 229) contain any criteria for evaluating findings to determine whether they warranted action requests, condition reports, or system/test engineer approval before proceeding with the test sequence.

- Although the positive pressure of the control room gas control envelop was measured with respect to adjacent areas, these values were not trended to check for possible degradation.

- On April 11, 1994, during the visual examination of the Unit 1 CREVS filtration system, the test personnel noted that as-found charcoal adsorber banks were mounted incorrectly (which produced significant filter bypass leakage). Maintenance was notified and the positioning of the adsorber banks was corrected. No action request or condition report was issued. The system engineer indicated to the inspector that the plant had been unable to get identical replacement adsorber trays for several years. The same type of trays were used for all air filtration systems onsite. Although the replacement trays were of the same type as the original trays, the manufacturing differences in the trays resulted in the need for maintenance personnel to use special installation techniques to mount the new trays properly. The inspector expressed concern when informed that engineering relied on proper installation based on the skill of the craft and word-of-mouth among the maintenance workers.

Response to Concerns: In response to the inspector concerns, the licensee stated plans to take the following corrective actions:

- The filter testing procedures would be revised to contain criteria for evaluating test personnel observations or comments to determine the appropriate disposition of the findings. Also, consideration would be given to trending significant findings, including degraded conditions.

- The test/system engineer would trend the results of the control room positive pressure tests.

- The system engineer would send a memorandum to the maintenance department explaining that different techniques were needed to properly seat HVAC charcoal trays supplied by different manufacturers, the maintenance procedure for installation of the trays may need revision, and special training sessions may be necessary. The system engineer also stated plans to add special steps or precautions to the filter testing procedures to ensure that the trays have been properly mounted.

These concerns and resultant corrective actions will be reviewed further in future inspections as an Inspection Followup Item (IFI). (315/94011-02(DRSS); 316/94011-02(DRSS))

No violation or deviations were identified; however, one inspection followup item was identified.

12. Exit Meeting

An interim exit meeting was conducted onsite at the D. C. Cook Nuclear Plant on June 3, 1994, discussions continued with licensee representatives by telephone through July 5, 1994, and the final exit meeting was conducted by telephone on July 5, 1994. Licensee representatives in attendance at these meetings and those contacted by telephone between the meetings are documented in Section 1.0 of the report. The scope and findings of inspection were reviewed with licensee representatives at the conclusion of the inspection on July 5, 1994. The licensee did not identify any documents as proprietary. The specific items discussed with the licensee during the final exit meeting are summarized in the Results portion of the Inspection Summary section of this report.

Attachments:
1. Gaseous Effluents from D. C. Cook Station
2. Liquid Effluents from D. C. Cook Station

Gaseous Effluents from DC Cook Station

1991

QTR	Ci I131	Ci Part	% of T.S.	Ci H3	% of T.S.	mRad Dose γ	% of T.S.	mRad Dose ß	% of T.S.
1st	7.36E-7	4.34E-4	1.33E-1	4.42E+0	4.02E+0	4.80E-4	9.60E-3	3.29E-4	3.29E-3
2nd	4.32E-4	3.86E-4	2.13E-1	2.74E+0	2.40E+0	2.13E-3	4.26E-2	1.13E-3	1.13E-2
3rd	3.62E-4	4.60E-4	3.16E-1	2.02E+1	1.53E+1	1.59E-2	3.18E-1	1.98E-2	1.98E-1
4th	4.32E-5	2.89E-4	1.55E-1	1.68E+0	1.40E+0	4.14E-3	8.28E-2	5.59E-3	5.59E-2

1992

QTR	Ci I131	Ci Part	% of T.S.	Ci H3	% of T.S.	mRad Dose γ	% of T.S.	mRad Dose ß	% of T.S.
1st	5.20E-3	1.33E-4	4.15E+0	1.66E+0	1.61E+0	6.01E-3	1.20E-1	1.36E-2	1.36E-1
2nd	8.73E-4	1.05E-3	7.28E-1	6.43E+0	5.56E+0	3.94E-3	7.88E-2	8.07E-3	8.07E-2
3rd	1.30E-3	1.79E-4	6.97E-1	8.89E+0	7.25E+0	3.16E-3	6.32E-2	5.93E-2	5.93E-1
4th	2.98E-6	6.47E-4	1.95E-1	2.57E+0	2.38E+0	5.69E-3	1.14E-1	1.33E-2	1.33E-1

1993

QTR	Ci I131	Ci Part	% of T.S.	Ci H3	% of T.S.	mRad Dose γ	% of T.S.	mRad Dose ß	% of T.S.
1st	4.22E-6	7.53E-5	3.68E-2	3.17E+0	5.54E+0	5.43E-2	1.09E+0	3.91E-2	3.91E-1
2nd	9.62E-6	1.54E-4	5.72E-2	3.73E+0	6.60E+0	1.83E-2	3.66E-1	4.84E-2	4.84E-1
3rd	4.59E-5	8.81E-5	1.48E-1	8.27E+0	1.26E+1	8.63E-2	1.73E+0	1.51E+0	1.51E+1
4th	1.71E-5	1.07E-4	1.59E-1	1.06E+1	1.73E+1	3.07E-2	6.14E-1	1.63E-1	1.63E+0

Liquid Effluents from DC Cook

1991 QTR	mRem Total Body Dose	% of T.S.	Organ	mRem Dose	% of T.S.
1st	1.80E-2	1.20E+0	Liver	2.50E-2	5.00E-1
2nd	1.54E-2	1.03E+0	Liver	1.97E-2	3.94E-1
3rd	2.66E-2	1.77E+0	GI-Tract	5.40E-2	1.08E+0
4th	1.33E-2	8.87E-1	Liver	1.65E-2	3.30E-1

1992 QTR	mRem Total Body Dose	% of T.S.	Organ	mRem Dose	% of T.S.
1st	2.60E-2	1.73E+0	Liver	3.57E-2	7.14E-1
2nd	2.20E-2	1.47E+0	GI-Tract	5.57E-2	1.11E+0
3rd	1.37E-1	9.13E+0	Liver	1.91E-1	3.82E+0
4th	5.00E-2	3.33E+0	Liver	6.78E-2	1.36E+0

1993 QTR	mRem Total Body Dose	% of T.S.	Organ	mRem Dose	% of T.S.
1st	9.76E-2	6.51E+0	Liver	1.38E-1	2.76E+0
2nd	1.78E-2	1.19E+0	GI-Tract	3.42E-2	6.84E-1
3rd	9.00E-2	6.00E+0	Liver	1.29E-1	2.58E+0
4th	4.76E-2	3.17E+0	Liver	6.42E-2	1.28E+0