

effluents released to the environment, and reactive inspection of the circumstances surrounding the licensee identified, falsification of records.

Results: The inspectors determined that the licensee was implementing the radioactive waste effluent program (RWEF) in accordance with the Radiological Effluent Technical Specifications (RETS) and the Offsite Dose Calculation Manual (ODCM). The quantities of radionuclides released in the radioactive waste effluents were within the limits specified in the RETS. Offsite doses were calculated using methods described in the ODCM and were within Technical Specification (TS) limits. Initial confirmatory dose calculations were performed during the inspection using the NRC PC-DOSE computer code for offsite dose calculations. The licensee and the NRC's calculated doses were in agreement for the radioactive liquid effluents and the noble gas effluents. Comparisons between the licensee and the NRC's calculated dose results indicated differences for the total body and critical organ doses resulting from radioactive airborne tritium, iodines, and particulates effluents. These differences in the calculated offsite doses are the subject of an open item discussed in paragraph 5 of this report. Quality assurance (QA) audits were comprehensive and the licensee's responses to the findings were timely. Surveillances of air cleaning systems were in accordance with TS requirements. Semiannual effluent release reports contained all required information. The licensee identified a violation of 10 CFR Part 50.9 in that a health physics (HP) technician had falsified some radiation survey records (see paragraph 9). Within the areas inspected, no deviations were identified.

DETAILS

1. Persons Contacted

HL&P

- *S. L. Rosen, Vice President, Nuclear Engineering
- *C. A. Ayala, Supervising Licensing Engineer
- *H. W. Bergendahl, Manager, HP Division
- *E. S. Chandrasekaran, Acting General Supervisor, Chemical Support
- S. E. Citzler, General Supervisor, Chemical Analysis, Unit 1
- M. R. Ebels, Staff Engineer, Plant Engineering Department (PED)
- *R. A. Gangluff, Manager, Chemical Operations and Analysis (CO&A) Division
- *J. D. Green, Manager, Nuclear Assurance
- *W. H. Humble, Supervisor, PED, Plant Programs Division
- *W. J. Jump, Manager, Maintenance
- *A. K. Khosla, Senior Licensing Engineer
- J. R. Lovell, Manager, Technical Services
- S. R. Maples, CO&A Surveillance Coordinator
- S. D. Mick, Surveillance Scheduler
- *H. B. Ray, Licensing Engineer
- F. F. Reed, Instruments & Controls (I&C) Surveillance Coordinator
- M. J. Rejeck, General Supervisor, Chemical Operations, Unit 1
- K. W. Reynolds, Senior Nuclear Chemist, Chemical Support
- G. D. Trimble, Consulting Engineer, Radiation Monitoring System Section
- J. W. Wallace, I&C Maintenance Specialist
- J. J. Woods, Senior Nuclear Chemist, Chemical Support

*Indicates those present at the exit meeting on December 14, 1990.

2. Followup on Licensee Event Reports (LER) (92700)

(Closed) LER 89-17: Inadvertent Contamination of Nonradioactive Systems - The licensee informed the NRC of an event occurring on August 14, 1989, which resulted in the contamination of the liquid waste processing system (LWPS) condensate tank, the auxiliary boiler, and the inorganics basin. The incident occurred after two valves were left open during the shutdown of the LWPS waste evaporator, allowing liquid waste to backup through the waste evaporator gas stripper into the auxiliary steam system. The licensee identified the causes of the event to be: inadequate controls over the interfaces between radioactive and nonradioactive systems, failure of chemical operations personnel to follow proper procedure, and absence of radiation monitors in the auxiliary steam system. The event was discussed in NRC Inspection Report 50-498/89-35; 50-499/89-35.

The inspectors reviewed documentation related to the occurrence and determined the following:

- a. The licensee completed a review of system diagrams by December 1989. The licensee's review identified similar interfaces which could

result in the spread of radioactive contamination and design modifications were initiated as preventive measures.

- b. The division manager issued a memo on September 9, 1989, to the CO&A Division reemphasizing that verbatim compliance to procedures was mandatory.
- c. A licensee committee conducted a plant-wide assessment of the workers' understanding of the plant procedures and management's enforcement and determined that enhancements would be initiated.
- d. Liquid waste processing system procedures were revised to include caution statements to warn operators of the potential for contamination of nonradioactive systems during their operations.

The licensee's actions appeared to be sufficient to close this item.

(Closed) LER 90-10: Failure to Perform a Sealed Source Surveillance - On June 14, 1990, the licensee notified the NRC that the intervals between leak tests of sealed sources had exceeded TS 4.7.10.2.a and TS 4.0.2. The date of review of surveillance results was entered into the computer tracking and scheduling program rather than the date of the surveillance test. Since the review was 3 months after the actual test, the subsequent surveillance test was automatically scheduled at a date beyond the allowable TS limits.

The inspectors reviewed the licensee's corrective actions and noted the following:

- a. Station Procedure OPGP03-ZE-0004, "Plant Surveillance Programs," and Station Procedure OPGP03-ZA-0055, "Plant Surveillance Scheduling," were revised to clarify the definition of "test completion date."
- b. Training was presented on June 11, 1990, to the individual responsible for the sealed source surveillances. The training included a review of TS 4.7.10 as well as surveillance documentation and tracking procedures. Other individuals responsible for surveillance coordination within their respective divisions received training in regard to the events described in the LER on May 23, 1990.
- c. The sealed source surveillance dates were "fixed" within the surveillance and scheduling system to ensure that surveillance testing was performed in January and July of every year.
- d. Station Procedure OPSP08-ZR-0001, "Radioactive Source Surveillance," and Station Procedure OPSP03-ZM-0001, "Inventory and Leak Testing of Radioactive Sources," were revised to administratively require that sealed radioactive sources be checked within January and July of every year.

- e. A meeting was held on May 23, 1990, to consider other examples of surveillance testing which could be effected by performance of the testing over a period of time. Other examples were identified and reviewed, and administrative controls were planned for them as well.
- f. Station Procedure OPSP03-ZE-0004 was revised to require special scheduling instructions if surveillance tests contained multiple constituents, in order to ensure that all portions of the surveillance tests would be accomplished within the required time interval.

The licensee's actions appeared sufficient to close this item.

3. Open Items Identified During This Inspection

An open item is a matter that requires further review and evaluation by the licensee and the inspector. Open items are used to document, track, and ensure adequate followup on matters of concern to the inspector. The following open item was identified:

<u>Open Item</u>	<u>Title</u>	<u>Paragraph</u>
498/9039-01; 499/9039-01	Dose Calculations	5

4. Radioactive Liquid and Gaseous Effluent Systems (84750)

The inspectors reviewed the licensee's liquid and gaseous radioactive effluent programs including: radwaste sampling and analyses, procedures for performance of effluent releases to the environment, surveillance tests, and radwaste effluent radiation monitor tests and calibrations to determine agreement with the commitments in Chapter 11 of the Final Safety Analysis Report (FSAR) and compliance with the requirements in Section 3/4.11 of the TS and the ODCM.

The inspectors reviewed the licensee's implementation of the RETS and ODCM to verify compliance with sampling and analyses requirements, analytical sensitivities, reporting limits, surveillance requirements, RWEP procedures, offsite dose results from radiological effluents, and functional check and calibration requirements of radiation monitors and equipment associated with the RWEP.

a. Liquid Wastes

The inspectors reviewed selected examples of liquid release permits for the period January through December 1990, and determined that processing, sampling, analyzing, and releasing of the liquid waste effluents were being conducted in accordance with the licensee's procedures. Quantities of radionuclides released in the liquid effluents were within the limits specified in the TS and ODCM.

Offsite doses had been calculated according to the ODCM and were within the TS limits.

b. Gaseous Wastes

The inspectors reviewed selected gaseous waste analyses, including unit vent continuous releases and reactor containment purge releases for the period January through December 1990. The inspectors determined that the gaseous waste releases were being performed according to the licensee's procedures and that the quantities of gaseous and particulate radioactive nuclides released were within the limits specified in the TS and ODCM. Offsite doses had been calculated according to the ODCM and were within the TS limits. The licensee also performed particulate effluent composite sample analyses in accordance with TS requirements.

No violations or deviations were identified.

5. Radioactive Liquid and Gaseous Effluent Dose Calculations (84750)

The inspectors reviewed the licensee's radioactive effluent dose calculations to determine compliance with the requirements in the ODCM and Sections 3/4.11.1 and 3/4.11.2 of the TS.

The inspectors conducted initial confirmatory calculations of the offsite doses from the plant's liquid and gaseous radioactive effluents released to the environment. Radioactive effluent dose calculations were performed by the inspectors for liquids, noble gases, and airborne tritium, iodines, and particulates using the NRC computer code, PC-DOSE, which was developed to verify the dose calculations described in the licensee's ODCM.

The licensee's chemical support staff performed effluent dose calculations using methodologies, assumptions, and equations described in the ODCM and implemented by computer codes supplied by a vendor. The inspectors, in cooperation with the chemical support staff, developed realistic test cases based on typical effluent radionuclide concentrations and release rates for radioactive liquid and gaseous effluents. The inspectors and members of the licensee's chemical support staff performed dose calculations using the same radionuclide concentrations for the liquid effluent test case. The calculated dose results for the radwaste liquid effluents were all in agreement between the licensee and the NRC's dose results for the adult total body and adult critical organs for all radionuclides tested.

In addition to the radioactive liquid effluent test case, a test case for noble gas dose and a test case for airborne tritium, iodines, and particulates dose were run. The licensee's dose results for the total body gamma-air dose and the total body beta-air dose from exposure to radioactive noble gases were in agreement with the NRC's calculated doses. The licensee's dose data from the radioactive airborne tritium, iodines, and particulates agreed exactly for all age groups and the inhalation

pathway. However, dose data for the other ingestion pathways including cow milk, cow meat, and vegetation indicated that the licensee's dose results were greater and conservative when compared to the NRC's dose data. For example, dose data comparisons were made between the licensee and the NRC's dose results for all age groups and critical organs for the ingestion pathways of cow milk, cow meat, and vegetation. The results of these comparisons indicated that the licensee's calculated doses for the bone, liver, kidney, lung, thyroid, and total body were approximately 4 percent greater than the corresponding NRC calculated doses for cow milk and cow meat for all age groups. The vegetation dose results calculated by the licensee for the bone, liver, kidney, lung, thyroid, and total body were approximately 15 percent greater than the corresponding NRC calculated doses. These differences in the dose results between the licensee and the NRC were discussed with the licensee during the inspection and at the exit meeting on December 14, 1990. At this time, the inspectors have been unable to identify the differences. The differences appeared to be a result of differences incorporated into the computer codes used to calculate the radiological doses. These differences are presently being researched by the inspectors with the NRC contractor responsible for developing the NRC's PC-DOSE computer code. This matter is considered an open item pending further review by the inspectors. (498/9039-01; 499/9039-01)

No violations or deviations were identified in this program area.

6. Quality Assurance (QA) Program (84750)

The inspectors reviewed the licensee's QA surveillance and audit programs regarding radwaste effluent activities to determine agreement with commitments in Chapter 17 of the FSAR and compliance with the requirements in Sections 6.5.2.8 and 6.8.1 of the TS.

The inspectors reviewed surveillance and audit reports of QA activities performed during 1990 in the radwaste processing area. The QA surveillances and audit were designed to determine compliance with the TS, STP procedures, regulatory guides, and industry standards. The inspectors reviewed the licensee's surveillance and audit plans, checklists, and findings and confirmed that the identified findings were reviewed by licensee's management and that responses and corrective actions to findings had been tracked, completed, and documented in accordance with QA procedures. The QA surveillances and audit were performed by qualified personnel and the audit team included a technical specialist knowledgeable in radwaste activities at a nuclear power facility. The licensee's surveillances and audit were good quality and provided a comprehensive review of the radioactive waste areas.

No violations or deviations were identified.

7. Air Cleaning Systems (84750)

The inspectors reviewed the licensee's air cleaning ventilation program to determine agreement with the commitments in Chapter 11.3 of the FSAR and compliance with the requirements in Sections 3/4.7.7 and 3/4.7.8 of the TS.

The inspectors reviewed the licensee's procedures, surveillance tests, and selected records and test results for maintenance and testing of the air cleaning systems which contain high efficiency particulate air (HEPA) filters and activated charcoal adsorbers. The inspectors verified that the licensee's procedures and surveillance tests provided for the required periodic functional checking of the ventilation system components, evaluation of the HEPA and activated charcoal adsorbers, and replacement and in-place filter testing of the filter systems. Selected records and test results were reviewed for the period July 1989 through December 1990 for the control room makeup and cleanup filtration system and the fuel handling building exhaust air system in both Units 1 and 2. The in-place filter testing and activated charcoal laboratory tests had been performed in accordance with approved procedures by a contract laboratory and all test results were verified to be within TS limits. The inspectors noted that the TS requirement for testing the various ventilation systems' activated charcoal adsorber material after every 720 hours of operation was being tracked by the respective control rooms.

During the review of the in-place leak test records of the HEPA filters in the control room and the fuel handling building of both units (Surveillance Procedure OPSP11-ZH-0008), the inspectors identified numerous instances in which the differential pressures across the filter banks were measured with installed instruments which were apparently out of calibration, according to the calibration dates recorded on the surveillance documentation. Station Procedure OPGP03-ZM-0016, "Installed Plant Instrumentation Calibration Verification Program," requires that these instruments be calibrated every 78 weeks. After review of the instrument calibration histories in the computer tracking records, the licensee was able to show that the instruments were, in fact, in proper calibration. The inspectors noted that there were no instructions in the surveillance procedure (OPSP11-ZH-0008) to alert the individual performing the surveillance when a problem might exist concerning the calibration interval of such instrumentation. The examples noted by the inspectors indicated that the individuals performing the surveillances evidently paid no heed to the dates. During the review, the licensee identified two instruments which had been inadvertently assigned calibration intervals of 156 weeks rather than 78 weeks and initiated a problem report to address the situation. The inspectors determined that the two instruments' calibration had not exceeded the 78-weeks calibration interval requirement.

No violations or deviations were identified.

8. Reports of Radioactive Effluents (84750)

The inspector reviewed the licensee's reports concerning radioactive waste systems and effluent releases to determine compliance with the requirements of 10 CFR Part 50.36(a)(2) and Sections 6.9.1.4, 6.13, 6.14, and 6.15 of the TS.

The inspectors reviewed the licensee's semiannual effluent release reports for the periods July 1 through December 31, 1989, and January 1 through June 30, 1990. These reports were written in the format described in NRC Regulatory Guide 1.21 and contained the information required by TS. During the period July 1, 1989, through June 30, 1990, the licensee had performed 745 liquid batch releases and 532 gaseous batch releases from both Units 1 and 2. The licensee reported no unplanned releases during the time period reviewed. No changes were made to the ODCM and Process Control Program during the time period reviewed. The inspectors reviewed the licensee's liquid radioactive waste treatment system design modification completed on September 7, 1989, in Unit 1 and completed on June 21, 1990, in Unit 2. The inspectors reviewed the licensee's explanation of the inoperable Condenser Vacuum Pump Wide Range Gas Monitors N1RA-RT-8027 and N2RA-RT-8027 and why they had not been repaired and put back in service within 30 days. The inspectors found the licensee's explanation and schedule for redesign and modification satisfactory and in compliance with TS requirements.

No violations or deviations were identified.

9. Falsification of Records (92701)

The inspectors reviewed the circumstances surrounding a licensee identified problem regarding the falsification of radiation survey records by a HP technician.

As a measure to guard against the spread of radioactive contamination, the licensee instituted a practice of taking smear surveys on stepoff pads at the entrance/exit of each contaminated area. The surveys are part of task schedules assigned rotationally to HP technicians. Licensee representatives stated that they became suspicious that a HP technician was not devoting sufficient time to properly perform some of his assigned duties and initiated an investigation. The licensee reviewed records of similar duties performed by other technicians and reviewed security gate time records and concluded that a HP technician had not properly performed all smear surveys on stepoff pads, as assigned. The individual admitted to the licensee's representatives during an interview that he did not perform all the smear surveys of stepoff pads, but indicated, on the documentation that all surveys had been performed.

The licensee took the following actions:

- a. The licensee reviewed the time sheets and surveys performed by the HP technician for the previous 30 days and determined that there were no other examples of falsification of records.

- b. The technician was terminated.
- c. The HP manager met with the general supervisors and reviewed the details of the occurrence for presentation to their staff.
- d. The HP manager issued a memo to the entire HP staff discussing the incident, emphasizing the seriousness of the HP technician's actions and reaffirming the licensee's position that false or inaccurate documentation will not be tolerated.
- e. The licensee continued a program of selected performance verification utilizing the security badge computer tracking records.

The failure to maintain accurate information required by NRC regulations is a violation of 10 CFR Part 50.9. However, because it is the NRC's policy to encourage the self-identification and correction of problems, the licensee took prompt actions to prevent recurrence, and the incident had little impact on safety, the NRC has elected to use its discretion in accordance with 10 CFR Part 2, Appendix C, Section V.G. and not cite the violation.

No deviations were identified.

10. Exit Meeting (30703)

The inspectors met with the licensee representatives identified in paragraph 1 of this report at the conclusion of the inspection on December 14, 1990. The inspectors summarized the scope and findings of the inspection and discussed the results of the offsite dose calculations performed during the inspection. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during the inspection.