

UNITED STATES NUCLEAR REGULATORY COMMISSION REGION II 101 MARIETTA STREET, N.W. ATLANTA, GEORGIA 30323

MAR 2 4 1993

Report No.: 70-1201/93-01

Licensee: Babcock and Wilcox Fuel Company Commercial Nuclear Fuel Plant Lynchburg, VA 24505

Docket No.: 70-1201

License No.: SNM-1168

Facility Name: Commercial Nuclear Fuel Plant

Inspection Conducted: March 1-5, 1993

Inspector: Dispit B King G. B. Kuzo

Approved by: T. R. Decker, Chief

23 March 1993 Date Signed Radiological Effl ants and Chemistry Section Radiological Protection and Emergency Preparedness Branch Division of Radiation Safety and Safeguards

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SUMMARY

Scope:

This routine, unannounced inspection involved review of licensee radiation protection (RP) programs for waste management, transportation, liquid and airborne effluent control and monitoring, and environmental monitoring; and review of NRC Information Notices (INs), and previously identified issues tracked as NRC inspector followup items (IFis).

Results:

Staffing and training appeared appropriate within the RP program areas reviewed. Audits were conducted appropriately and met 10 CFR Part 71, License Application (Application) and/or procedural requirements. Effluent radionuclide concentrations for 1992 were small fractions of the 10 CFR Part 20 limits and were similar to values reported for previous years. Ventilation system surveillances were conducted properly and area flow parameters maintained in accordance with Application requirements. No concerns were noted regarding storage and disposition of solid low level radioactive waste generated. Program strengths/improvements included purchases of new counting equipment, increased staffing, data trending analyses, and the minimal generation of low level radioactive waste. An environmental monitoring program weakness included lack of interlaboratory quality control (QC) checks for counting room analytical measurements. Identified concerns included lack of attention to detail resulting in the

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failure to complete properly shipping paper requirements for transportation activities; failure to have adequate procedures to meet Certificate of Compliance (COC) requirements for an NRC-approved container used to ship fissile material; and failure to document reviews conducted of environmental measurement results which exceeded action levels.

Within the areas inspected the following non-cited violation (NCV), and cited violations (VIOs) were identified.

- Failure to meet Department of Transportation (DOT) requirements for shipping papers descriptions required for the transport of a hazardous waste as specified in 49 CFR 172.201 and 172.203 (Paragraph 4.c). Violation of 10 CFR 71.5 requirements.
- Failure to have an adequate procedure to meet COC requirements for a NRC-approved shipping container used to ship fissile material (Paragraph 4.d). Violation of License Condition Number (No.) 9.
- Failure to have an adequate procedure requirement for documentation of reviews conducted when environmental monitoring program results exceeded
 procedural action levels (Paragraph 6.b). NCV of License Condition No. 9 with corrective actions initiated during onsite inspection and commitments to complete corrective actions within 30 days.

REPORT DETAILS

1. Persons Contacted

- *J. Anderson, Nuclear Material Accountability
- *C. Carr, Manager, Babcock and Wilcox Commercial Nuclear Fuel Plant (B&W, CNFP)
- *S. Carter, Manager, Production and Inventory Control
- *J. Ford, Manager, Fuel Manufacturing
- *S. Godsey, Superintendent, Pellet Loading
- *D. Gordon, Health Physicist
- *K. Knapp, Manager, Safety and Licensing
- *G. Lindsey, Health Safety Foreman

Licensee Employees

Other licensee employees contacted included engineers, technicians, operators, and office personnel.

*Attended March 5, 1993 Exit Interview

2. Audits (84850, 86740, 88035, 88045)

10 CFR 71.137 requires that the licensee performs a comprehensive system of planned and periodic audits to verify compliance with all aspects of the quality assurance (QA) program and to determine the effectiveness of the program. The audits are to be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results are to be documented and reviewed by management having responsibility in the area audited. Followup action, including re-audits of deficient areas, are to be taken where indicated.

License Condition Number 9 (No. 9) of Special Nuclear Material License No. 1168 (SNM-1168) requires that licensed material be used in accordance with statements, representations, and conditions contained in Sections ⁷ through IV and IX of the License Application (Application), dated Jure 22, 1990, and Supplements thereto.

Part I, Section 2.7 of the Application details, in part, requirements for performing annual Health-Safety personnel inspections of ventilation, containment and air cleaning equipment and independent semi-annual health physics audits.

During the inspection, audits conducted to verify compliance with selected Federal and Application requirements, and to evaluate program effectiveness regarding radioactive effluent and environmental monitoring, waste generation and classification, and transportation activities were reviewed and discussed with cognizant licensee representatives.

Discussions with cognizant licensee individuals indicated that for the program areas reviewed, the most recent independent audits included review of transportation and shipping activities but did not include

reviews of the effluent and environmental monitoring program areas. During discussions of the most recent audit of transportation activities, licensee representatives stated that the audit findings involved administrative issues regarding improved documentation and did not include any findings similar to those identified during the current inspection. Although not included in a independent audit within the past three years, the effluent and environmental monitoring system programs, including equipment status and results, are reviewed as part of the informal daily inspections conducted by Health-Safety personnel. Further, ventilation and containment systems are reviewed as part of the weekly surveillances conducted for each system. The inpsector noted that although the independent HP audits were being conducted in accordance with Application requirements, the lack of independent reviews of both the effluent and environmental program areas was considered a program weakness. Licensee representatives stated that the development of a more detailed list of RP program areas to be included in the independent audits would be evaluated and changes made as to include these additional program areas.

The inspector reviewed in detail Internal Audit No. 92-6, dated September 21, 1992, regarding activities associated with the Radioactive Material Shipping Containers Quality Assurance Program Manual. The inspector noted that the audit was conducted using checklists prepared from the Radioactive Material Shipping Containers Quality Assurance Program Manual, identified actions were addressed in Quality Action Reports (OARs) and corrective actions were scheduled and completed as required. In general, the majority of findings included administrative issues associated with training documentation, procedural updates and requirements, and maintenance of records. The inspector noted that the audit appeared to be thorough, and licensee corrective actions were conducied in a timely manner. However, the inspector noted a potential weakness regarding the scope of corrective actions in that some of responses focused only on the specific issue identified. For example, although the audit identified a procedural inadequacy regarding use of an NRC-approved shipping container, the corrective actions failed to identify a similar inadequacy within the same procedure for another NRCapproved container as identified during the current inspection and documented in Paragraph 4.d of this report. Licensee representatives agreed to evaluate the need to improve the scope of their review for corrective actions to audit findings.

No violations or deviations were identified.

3. Radioactive Waste Management (84850)

During the inspection the inspector reviewed and discussed with licensee representatives those activities associated with storage of potential solid low-level radioactive waste (LLRW), i.e., dry-active waste (DAW), generated from onsite operations. Additionally, the licensee's current programs regarding adherence to the requirements specified in 10 CFR Parts 20.311 and 61.55 were reviewed and discussed in detail.

a. Onsite Radioactive Waste Storage

Section 3.3.5 of the Application requires that waste in the restricted area is to be stored in a manner that provides adequate protection from deterioration and/or the elements.

The licensee maintains two separate storage locations established to receive potentially contaminated LLRW generated during onsite activities. All LLRW is stored temporarily in two separate SeaVan containers, one receiving waste material generated from the Service Equipment Refurbishment Facility No. 3 (SERF-3) area and the other receiving items from both the fuel fabrication and SERF-1 facility areas. Current waste inventory was approximately 2000 cubic feet (ft³) based on the volume of the storage containers. Once filled, the SeaVans are shipped, in a timely manner, for processing of the materials at a vendor facility. During tours of the licensee's facilities, the inspector did not identify any concerns regarding housekeeping and radiological controls, i.e. posting and labeling, associated with each LLRW storage area.

b. Waste Manifests and Part 61 Analyses

Licensee personnel estimated that approximately 1280 and 6400 ft³ of potentially contaminated material was transferred to the vendor waste broker in 1991 and 1992, respectively. The increased volume of material in 1992 was attributable to an increase in SERF-3 activities. Licensee representatives stated that for the material processed by the LLRW broker, the final curie content shipped to the burial site and assigned to the licensee's burial inventory was approximately 5 and 200 millicuries (mCi) for 1991 and 1992, respectively.

From review of records and discussion with cognizant licensee representatives the inspector determined that all potential solid LLRW generated on site was shipped to a licensed waste broker for further processing. During review of transportation records, the inspector noted that for this potential LLRW, neither waste manifests nor required radionuclide analyses as specified in 10 CFR 20.311(b) and 61.55 respectively, were being completed prior to transfer of the material to the licensed broker. The only special surveys conducted, involved gamma-isotopic analyses used in association with exposure rate surveys completed for each shipment to determine the curie content of the materia's shipped. Following discussions during a March 2, 1993 teleconference with cognizant Nuclear Material Safety Safeguard (NMSS), Office of Decommissioning and Regulatory Issues Branch personnel, regarding this practice, the inspector informed licensee representatives that if the pote tial LLRW was transported as a material shipmen. to the broker who subsequently segregates, processes, and reanalyzes the material for the appropriate radionuclides species and quantities, then neither the manifest nor specific

radionuclide analyses required by 10 CFR Parts 20 and 61 were required for the licensee's shipments.

Documentation subsequently provided by the licensee verified that the material in each shipment was treated by the broker as commingled materials, i.e. containing contaminated items which either were decontaminated to meet acceptable release limits, or contaminated items classified as compactible or non-compactible and disposed of at a licensed burial facility. Further, the review of selected broker records of specific radionuclides and associated quantities assigned to the licensee for disposal at the licensed burial site differed from the radionuclide quantities and waste volume reported on the licensee's original estimates. For example, broker records regarding one shipment of licensee's material to the burial site include the radionuclide iron-55 (Fe-55) which was not identified in the original shipments made by the licensee to the broker. The inspector noted that requirements to complete the 10 CFR Part 61 analyses and 10 CFR 20.311 manifest documentation required for shipment to a licensed burial site were the broker's responsibility. No other concerns were identified regarding this issue.

No violations or deviations were identified.

Transportation Activities (86740)

10 CFR 71.5(a) requires each licensee who transports licensed material outside the confines of its plant or other place of use, cr who delivers licensed material to a carrier for transport, to comply with the applicable requirements of the regulations appropriate to the mode of transport of the DOT in 49 CFR Parts 170-189.

During the onsite inspection, transportation activities including procedural guidance, training implementation, record completeness and accuracy, and emergency response information to meet 10 CFR Part 71, 49 CFR Parts 171-178, and Application requirements were reviewed.

a. Procedural Guidance

License: procedure RP-007, Shipment and Receipt of Radioactive Materials, Rev. 1, dated October 30, 1992, details the licensees methods to insure compliance with both shipment and receipt of radioactive materials.

During the onsite inspection the procedural guidance specified for the shipment of radioactive materials was reviewed against the appropriate criteria specified in 49 CFR Parts 171-178. In particular, procedural details were reviewed against requirements established for packaging (49 CFR Part 173), marking and labeling (49 CFR Part 172, subpart D, 172.400 - 172.407 and 172.436 -172.440,), monitoring (49 CFR Part 171, subpart I), and Shipping Papers (49 CFR Part 172, subpart C). The inspector noted that the procedure appeared thorough and specified actions were appropriate to meet the applicable DOT requirements.

No violations or deviations were identified.

b. Training

Part I, Section 2.5 of the Application requires, in part, that personnel assigned to Health-Safety (HS) are trained properly with the extent and dept of training based on the specific job assignments involved. HS monitoring personnel are to receive a combination of formal and "on the job" training such that they can successfully demonstrate proficiency in basic nuclear and radiation physics monitoring and control techniques and regulatory requirements before being allowed to function without direct oversight.

The inspector reviewed training provided to HS personnel who conduct monitoring tasks associated with shipments of radioactive materials from the facility. From discussions with cognizant licensee representatives, the inspector noted that both the HS foreman and one HS monitor had attended a detailed vendor training program regarding transportation activities within the previous two years. Further, the inspector noted that the HS monitors currently were being provided with systematic retraining on procedure RP-007 which provides guidance for transportation activities. The inspector noted either the HS foreman or HS monitor who attended the vendor training course regarding transportation activities, were required to overview all HS monitor activities and documentation completed in association with radioactive material shipments from the facility. From observation of activities in progress and discussion with selected HS monitors conducting shipping activities, including blocking and bracing of containers, radiation surveillances etc., the inspector did not identify any concerns regarding the training provided to HS personnel.

No violations or deviations were identified.

c. Review of Shipping Activities

During the onsite inspection, licensee transportation activities and/or documentation regarding several shipment categories were reviewed in detail. The shipment categories selected for review included contaminated materials (potential LLRW) to a waste broker, low-enriched uranium scrap to a fabrication facility, and Field Services equipment having residual radioactive contamination to selected licensed power reactor facilities. Selected records for the following types of radioactive material shipments were reviewed.

- Four shipments of potential LLRW shipped to vendor processing facility as radioactive material between March 9 through November 11, 1992.
- Five shipments of Field Services group contaminated equipment/materials shipped to licensed power reactor sites between October 16, 1992 and January 4, 1993.
- Three shipments of fissile radioactive scrap material shipped to a fuel fabrication facility between January 19 and March 1, 1993.

The inspector reviewed in detail the following documentation, as applicable, for each shipment.

Bill of Lading

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- DOE/NRC Form 741
- Radioactive Shipment Record
- Intransit Driver Instructions
- Emergency Procedure
 - Quality Assurance Section, Quality Control Requirement Inspection Checklist for Containers
 - Vehicle Inspection Record
 - Vehicle Radiation/Contamination Survey Form
 - Package Contamination Survey including survey results for loaded packages, scrap box, Field Services Equipment containers
 - Vehicle Radiation Survey Sheet
- Waste Shipment Checklist
- Receipt Confirmation Report

As a result of detailed reviews and discussion of specific shipment documentation with cognizant licensee representatives the following issues were identified.

49 CFR 172.201(a)(4) requires that a shipping paper may contain additional information concerning the material provided the information is not inconsistent with the required description.

Shipping papers for a November 19, 1993 consignment of radioactive material being shipped to a LLRW broker had additional information indicating that the material was "fissile exempt." The inspector noted that the origin of the material was entirely from SERF-3 operations which did not involve any fissile material. Licensee representatives confirmed that there was no fissile material within the shipment. The inspector noted that the additional information was inconsistent with the description of the hazardous material contained within the shipment and thus did not meet the requirements of 49 CFR 172.201(a)(4). 49 CFR 172.201(c) requires shipping papers consisting of more than one page to be consecutively numbered and the first page to bear a notation specifying the total number of pages included in the shipping paper.

For transportation records reviewed, the majority of shipments conducted between March 9, 1992 through March 3, 1993, the inspector identified that the licensee used information contained on separate forms to provide descriptions of the hazardous materials required by 49 CFR 172.200. However, for the examples reviewed, the pages were not numbered nor consecutively notated to indicate the total number of pages included in accordance with 49 CFR 172.201(c).

49 CFR 172.203(d)(iii) requires that a shipment of radioactive material must include the activity contained in each package of the shipment in terms of curies, millicuries, or microcuries.

The licensee's method for determination of total activity of packages for selected radioactive material shipments used an industry-accepted method. The method used gamma exposure rate measurement results and licensee-determined percent abundance of gamma-emitting radionuclides to estimate the total radionuclide quantities for each shipment. From review of shipment records associated with Field Services equipment returned from selected power reactor facilities between February through August 1992, the inspector observed that for the majority of shipments, Fe-55 was identified as a significant component of the hazardous materials. Further Fe-55 data ranged up to a maximum of 60 percent of the activity reported. Although, the waste generated from SERF-1 activities was expected to contain the isotope, licensee representatives stated that the activity of Fe-55 was not included in estimates of the total activity for the LLRW shipments. The inspector noted that based on the LLRW generated during equipment refurbishment at the facility. the LLRW potentially could contain significant quantities of Fe-55, i.e. greater than 1 percent abundance of the total activity shipped. Further, selected records of shipments of waste processed by the LLRW broker indicated that one shipment of the licensee's processed waste sent to a burial site contained significant quantities of the Fe-55 radionuclide. The inspector informed licensee representatives that the failure to include Fe-55 activity estimates in the total activity listed on hazardous material descriptions for radioactive material shipments to a LLRW broker from March 9 through November 19, 1992, did not meet the requirements specified in 49 CFR 172.203(d)(iii).

The inspector informed licensee representatives that failure to meet DOT shipping paper requirements as noted above were considered collectively as an apparent violation of 10 CFR 71.5 requirements (70-1201/93-01-01). No other concerns regarding records of transportation activities were identified.

One violation of 10 CFR Part 71.5 requirements for following DOT regulations was identified.

d. Authorized Packages

License Condition No. 9 of SNM-1168 requires the licensee to use licensed material in accordance with the statements, representations, and conditions of Part I of the Application dated June 22, 1990.

Part I, Chapter 3, Section 3.1.4 of the Application dated June 22, 1990, requires the licensee to conduct all licensee activities related to radiation protection in accordance with approved written procedures.

10 CFR 71, Subpart C autorizes the licensee to use specific packages for transporting licensed material and specifies the conditions for using the packages.

49 CFR 173.471 details additional requirements for the shipment of NRC-approved packages.

During the onsite inspection, licensee activities associated with packaging and shipping fissile scrap materials to a fuel fabrication facility were reviewed in detail.

From observation of fissile scrap packaging activities, review of shipping records and discussion with cognizant licensee representatives, the inspector determined that consignments of fissile scrap material to the fuel fabricator used either Model No. DHTF, Certificate of Compliance (COC) No. 9203, Rev. 2, or Model No. BW-2901, COC No. 9251, Rev. 1 packages and associated guidance. The inspector verified that the COCs maintained by the licensee were current. In addition, the drawings and other documents referenced for use and maintenance of the DHTF packaging, and for actions to be taken prior to shipment were noted to be available.

COC No. 9203, Rev. 2, dated January 23, 1991, for Model No. DHT? package requires that the maximum H/U ratio, considering all sources of hydrogenous material within the containment vessel must not exceed 1.3. During the inspection, licensee actions associated with loading Model No. DHTF packages with fissile scrap material for subsequent transport to a fuel fabrication facility were reviewed. No concerns were noted during observation of the loading activities. Workers and QC personnel were knowledgeable of COC specifications for securing the package closures. However, from discussions with licensee representatives, the inspector noted that for fissile scrap material shipments conducted between September 9, 1992 through March 5, 1993, the maximum H/U ratio was not calculated as specified in the applicable COC. Review of procedure NMC 1610, Documentation of Scrap Shipments, Rev. 12, dated September 9, 1992, indicated that neither requirements to calculate the applicable ratio nor to limit either the uranium or hydrogenous material, such that the 1.3 ratio could not be exceeded, were included in the procedure. From direct observation and discussions with licensee representatives, the inspector noted that for full packages the ratio would not exceed 1.3 based on the standard weight of plastic material included in the package and weight of the fissile material. However, on occasion, partially filled boxes of uranium material were placed into a package, and thus the ratio could exceed 1.3. Licensee representatives stated that the requirement to limit the H/U ratio was inadvertently omitted during a September 1992 revision of the applicable procedure. The inspector informed licensee representatives that the failure to have an adequate procedure to meet COC requirements for a NRCapproved package used to ship fissile material was a violation of License Condition No. 9. (70-1201/93-01-02). The inspector reviewed data for selected shipments of fissile scrap materials shipped in DHTF packaging since September 1992, and confirmed that the H/U ratio did not exceed 1.3.

One violation for failure to have adequate procedures to meet COC requirements was identified.

Radioactive Gaseous and Liquid Effluents (88035)

During the onsite inspection, selected RP program activities associated with ventilation systems and with the licensee's liquid and gaseous (airborne) effluents monitoring program were reviewed and discussed with cognizant licensee representatives. The inspector toured and observed facility operations; evaluated selected procedures; and reviewed records associated with ventilation system surveillances, effluent measurement trends and analytical measurement instrument QC activities.

10 CFR 20.201(b) requires the licensee to make or cause to be made such surveys as (1) may be necessary to comply with the regulations in this part, and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present. 10 CFR 20.201(a)

defines survey as an evaluation of radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions.

a. Airborne Filtration Systems (88035)

Section 3.2.2.1 of the Application specifies the requirements for airborne effluent releases to uncontrolled areas. Airborne effluents pass through single stage HEPA filtration before release with the filtration efficiency evaluated in accordance with Regulatory Guide 3.2 upon installation, and following major maintenance. Each system is equipped with differential pressure monitoring device is checked weekly. Section 3.2.2.3 requires air handling systems to be operated to maintain areas of greater contamination at a slight negative pressure with respect to lesser contaminated areas. Section 3.2.2.4 requires face velocities of hoods and similar enclosures to be 100 linear feet per minute (LPM) whenever hood work involving dispersible radioactive particulate material is being performed.

Licensee procedure RP-004, Airborne Radioactivity, Rev. 1, dated November 23, 1991, details instructions necessary for control and evaluation of airborne contaminants to insure personnel exposure is maintained ALARA. The inspector noted from limited review, that the procedure provided guidance for equipment calibrations; and both the frequency and limiting conditions for surveillances associated with the HEPA filter differential pressure, effluent stack sampling representativeness, and 'ood face velocities. No concerns were identified regarding pro _dural adequacy.

During tours of the ventilation system equipment, the inspector verified that the main HEPA filtration systems for the main plant vent, and SERF-1 and SERF-3 facilities were equipped with appropriate differential pressure monitoring devices. From direct observation and review of selected ventilation system surveillance records for July 1992 through February 22, 1993, the inspector verified that differential pressure across the HEPA filters were checked weekly in accordance procedural requirements. No operational concerns were identified from review of the surveillance records. Licensee representatives stated that the use of HEPA pre-filters has minimized the frequency of replacing the HEPA filters with no changeouts having been conducted since March 1991. The inspector also reviewed results of the negative pressure tests verifying the appropriate air flow from areas of lower to higher contamination levels.

During review of June 1 through December 1992 records for surveillances conducted to verify hood face velocity, the inspector noted that from September 18 through October 6, 1992, measured velocities less than 100 lpm were reported for the Fuel Rod Tunnel. Licensee representatives stated that the action limit of 100 lpm related only to hoods, and thus no immediate actions were taken to increase the flow. Following discussions regarding the surveillances conducted, licensee representatives agreed to evaluate the need to establish limits and take corrective actions, as necessary, for surveillances conducted for airflow devices other than hoods.

No violations or deviations were identified.

b.

. Gaseous (Airborne) and Liquid Effluent Releases

Sections 3.2.2, and 5.1.1 of the Application specify the requirements for gaseous effluent controls. Section 5.1.2 details liquid effluent processing and monitoring, if required.

10 CFR 70.59 requires the licensee to submit a report, within 60 days after January 1 and July 1 of each year, specifying the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents during the previous six months operation. Quantities of radioactive materials released during the reporting period significantly above the licensee's design objective previously reviewed as part of the licensing action are to be reviewed specifically.

Licensee representatives stated that no significant changes have occurred regarding the current processing of liquid effluents since previous NRC reviews conducted and detailed in Inspection Reports (IRs) 70-1201/91-04 and 70-1201/92-03, dated November 15, 1991 and May 29, 1992, respectively. Radiologically contaminated water generated by operations continued to be routed to a dedicated evaporation system with effluent releases through gaseous pathways. The retention tanks continue to be sampled for alpha activity as a result of residual radioactive materials within the lines.

The inspector reviewed and discussed with licensee representatives selected effluent data detailed in the Semi-annual Effluent Release Reports issued for releases conducted from July 1, 1991 through December 31, 1992. All reports were submitted as required. The inspector identifed several errors, determined to be either typographical or calculational in nature, involving the relative abundance of the uranium isotopes and/or the calculated percent of the radionuclides relative to the the maximum permissible concentrations as specified in 10 CFR Part 20, Appendix B, Table 2. Licensee representatives stated that trending of the data was being considered to identify and correct any documentation errors through improved review of the subject report.

For the semiannual periods reviewed, total quantities of alpha activity released from the retention tanks ranged from approximately 44 to 71 microcuries (μ Ci). The maximum average concentrations were identified for uranium-234 (U-234) with

reported values ranging from 0.405 to 0.603 percent of the maximum permissible concentration in water (MPCw) specified in 10 CFR Part 20 Appendix B, Table 2, Column 2.

For the semiannual reporting periods from July 1, 1991 through December 31, 1992, total uranium and Cobalt-60 (Co-60) releaser in airborne effluents ranged from 2.05 to 2.63 μ Ci and 11.27 to 22.31 μ Ci, respectively. For uranium isotopes, maximum average release concentrations were reported for U-234 with concentrations ranging from 0.65 to of 2.9 percent of the maximum permissible concentration in air (MPCa) specified in 10 CFR Part 20 Appendix B, Table 2, Column 1. For Co-60, the reported average airborne concentrations ranged from 0.128 to 0.207 percent of the applicable MPCa.

The inspector noted that both airborne and liquid concentration values were less than the listed Application investigation limits and, in addition, were small fractions of allowable releases to offsite areas as specified by 10 CFR Part 20 requirements.

No violations or deviations were identified.

c. Instrumentation

Section 3.2.4.4 of the Application requires that all instrumentation is to be calibrated at least semiannually and functional responses using check sources are to be made prior to use.

Licensee representatives informed the inspector of two new alpha/beta proportional counting instruments recently purchased and installed in the main process area and SERF-3 counting facilities.

The inspector verified that both detectors were calibrated properly using established procedures prior to their use. Further, the inspector reviewed operational records including voltage plateau results, gross background counts, alpha background counts and efficiency calibrations for both alpha and beta emitting radionuclides. The inspector noted that QC measurements including performance and background checks were being conducted for the equipment. However, the inspector noted that although the equipment is utilized to analyze samples from both effluent and environmental gaseous samples, the licensee did not participate in an interlaboratory sample crosscheck program for air particulate samples. Following discussion of this program area weakness, licensee representatives stated that an evaluation of potential participation in an established interlaboratory crosscheck program, e.g., the Environmental Protection Agency (EPA) sponsored program, would be conducted.

No violations or deviations were identified.

6. Environmental Monitoring Program (88045)

Section 5.2 of the Application specifies the requirements for the Environmental Monitoring Program. The Environmental Monitoring Program assesses the effectiveness of the controls on liquid and airborne effluent releases to unrestricted areas. Monitoring is to be in accordance with approved procedures which require the environmental data to be evaluated against internal action levels.

Selected RP environmental monitoring program areas were reviewed and discussed with cognizant licensee representatives. The review included evaluation of procedures, environmental data trends and QC of analytical measurements; and verification of sample equipment operability and observation of sampling location conditions. In particular, the status of licensee actions regarding sampling and/or characterization activities associated with potential contaminated areas located outside of restricted area locations were reviewed and discussed in detail.

a. Environmental Monitoring Sampling Location Tours

The environmental sampling locations were toured to verify operability of air particulate samplers and, in addition, posting and maintenance of the sampling grid associated with the previously contaminated liquid effluent discharge area, i.e., "wet weather stream." Excluding one continuous airborne particulate filter with a filter head assembly not properly setup, the air samplers were verified to be operable and flow meter calibrations were current. Regarding the improperly assembled filter apparatus, discussions with licensee representatives indicated that during an earlier surveillance conducted that day, licensee representatives had identified the noted problem. Corrective actions were initiated and expected to be completed by the end of the day. From direct observation of the wet weather stream contaminated area and its environs, no concerns were identified regarding the posting of the area, and identification of specific sample locations.

No violations or deviations were identified.

b. Environmental Results

Licensee procedure RP-011, Environmental Monitoring, Rev. 1, dated November 11, 1992, provides guidance for conducting and monitoring the environmental monitoring program. The procedure provides the collection frequency and action limits associated with each sample matrix. The sample results are to be reviewed for trends, and data exceeding the specified action limits are to be investigated. Excluding a concern identified below in this Paragraph for documentation of results exceeding procedural action levels, the licensee's guidance appeared appropriate to meet Application conditions.

The inspector reviewed and discussed with licensee representatives selected environmental parameters monitored including ambient radiation by thermoluminescent dosimeter (TLD), air particulates, soils, sediments, vegetation, surface water and fish samples collected during 1991 and 1992. For the selected data reviewed, samples were collected and analyzed in accordance with procedural and Application requirements. An identified licensee program upgrade involved an initiative to use a recently hired staff member to trend the environmental data for each of the sampling matrices. No trends indicating unmonitored or increased radionuclide effluent releases to the environment were noted for alpha or beta gamma radionuclide concentrations in matrices collected from routine sample locations. Samples from the "wet weather stream" indicated that no migration of the contaminated soil was occurring. All values were similar to average concentrations in 1990 and 1991 sample matrices as reported in Part II, Tables 13.1 and 13.2 of the Application.

Excluding select 1991 ambient radiation exposure data and 1992 Jeta-gamma concentrations for a surface water and a vegetation sample collected in 1992, no reported environmental monitoring results exceeded the procedural investigation levels for either the 1991 and 1992 data reviewed. During the second quarter of 1991, ambient radiation levels for all sampler locations slightly exceeded the action level of 35 millirad/quarter. Licensee documentation indicated that the observed elevated data resulted from the lack of appropriate control TLDs used to determine transit doses and system background with the shipment. However, no documentation existed regarding the required investigation for the slightly elevated results for the 1992 third quarter Station L water (54 picocuries per liter) and the second quarter Station A vegetation samples (20 picocuries per gram) which met and exceeded the specified action limits, respectively. Licensee representatives stated that the identified elevated results were reviewed but that the procedure did not require any documentation. The inspector noted that at a subsequent date, if the person originally investigating the data was unavailable, documentation would be required to verify compliance and to specify any actions taken or causes identified. The failure to have adequate procedural guidance requiring documentation of licensee investigations was identified as a violation of License Condition No. 9 (70-1201/93-01-03).

Licensee representatives stated that all future investigations would be documented and the ic itified procedural concern would be corrected within 30 days of the end of the onsite inspection. The inspector informed licensee representatives that as a result of the low safety significance of the issue and timely efforts to correct the concern, the violation met the criteria specified in Section VII.B of the Enforcement Policy and would not be cited.

One NCV for failure to have an adequate procedure requiring documentation of reviews conducted of environmental monitoring program results which exceeded procedural action levels.

7. Followup Items (92701)

The following NRC INs and IFIs were reviewed and discussed with cognizant licensee representatives.

a. INs

The inspector verified that the following INs had been received by the licensee, reviewed for applicability, and distributed to appropriate personnel for action, as appropriate.

- IN 92-62: Emergency Response Information Requirements for Radioactive Material Shipments
- IN 92-72: Employee Training and Shipper Registration Requirements for Transporting Radioactive Materials
- IN 93-03: Recent Revisions to 10 CFR Part 20 and Change of Implementation Date to January 1, 1994.
- IN 93-07: Classification of Transportation Emergencies
- b. IFIs

The following NRC identified issue tracked as an IFI was reviewed and discussed with licensee representatives.

(Closed) IFI 70-1201/90-IN-11: Verify that licensee has received, reviewed, and assessed applicability of NRC Information Notice 92-11 on soil and water contamination at fuel cycle facilities.

During discussions with cognizant licensee representatives, the inspector verified that the licensee had received the subject IN and distributed it to the appropriate personnel for action, as applicable.

8. Exit Interview (84850, 86740, 88035, 88045, 92701)

The inspection scope and results were summarized on March 5, 1993, with those persons indicated in Paragraph 1 above. The general areas inspected and identified program strengths and weaknesses were reviewed and discussed. The inspector noted that pending NRC management review, three specific issues identified during this inspection and listed below would be considered as apparent violations. The licensee was informed that the IFI detailed in Paragraph 7.b would be closed during this inspection. Licensee representatives acknowledged the inspector's comments and no dissenting comments were received.

The inspector informed licensee representatives that although proprietary information was reviewed during this inspection, such material would not be included in the report.

Item Number	Description and Reference
70-1201/93-01-01	V10 - Failure to meet DOT requirements for shipping papers associated with the transport of a hazardous waste as specified in 49 CFR 172.201 and 172.203. Violation of 10 CFR 71.5 requirements (Paragraph 4.c).
70-1201/93-01-02	VIO - Failure to have an adequate procedure to meet COC requirements for a NRC-approved shipping container. Violation of License Condition No. 9 (Paragraph 4.d).
70-1201/93-01-03	NCV - Failure to have an adequate procedure requiring documentation of reviews conducted of environmental monitoring program results which exceeded procedural action levels. NCV of License Condition No. 9 with licensee corrective actions initiated during onsite inspection and commitments to complete procedure revision within 30 days (Paragraph 6.b).