



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

MAY 7 1993

Report Nos.: 50-280/93-10 and 50-281/93-10

Licensee: Virginia Electric and Power Company
 Glen Allen, VA 23060

Docket Nos.: 50-280 and 50-281 License Nos.: DPR-32 and DPR-37

Facility Name: Surry 1 and 2

Inspection Conducted: April 12-16, 1993

Inspector: Thomas R. Decker for 5/5/93
 W. B. Gloersen Date Signed

Approved by: Thomas R. Decker 5/5/93
 T. R. Decker, Chief Date Signed
 Radiological Effluents and Chemistry Section
 Radiological Protection and Emergency Preparedness Branch
 Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of solid radioactive waste management, transportation of radioactive materials, effluent treatment, monitoring, and reporting.

Results:

The licensee's audit in the areas of solid radioactive waste management, Process Control Program, and transportation of radioactive materials was technically sound, thorough, detailed and well documented. The inspection revealed that the licensee effectively processed, packaged, stored, and shipped radioactive solid wastes.

A review of the methodology used by the licensee to quantify and report radioactive effluents released for calendar year 1992 indicated that the licensee had effectively controlled, quantified, and monitored releases of radioactive materials in liquid, gaseous, and particulate forms to the environment.

One non-cited violation was identified for failure to properly requalify and certify a Radwaste Quality Control Inspector to perform radwaste shipment inspections (Paragraph 4).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

W. Benthall, Supervisor, Licensing
R. Bilyeu, Licensing Engineer
*M. Biron, Supervisor, Radiological Engineering
R. Bishop, Radioactive Material Control Specialist
*E. Brennan, Operations Coordinator
*H. Collar, Supervisor, Quality Control
S. Corbin, Radioactive Material Control Technician
*D. Erickson, Superintendent, Radiological Protection
*B. Garber, Supervisor, Health Physics
*D. Hart, Supervisor, Quality Assurance
M. Jones, Instrumentation and Control
*M. Kansler, Station Manager
*J. Kilmer, Licensing Engineer
R. Lasalle, Supervisor, Radiological Analysis
D. Miller, Supervisor, Health Physics Operations
*L. Morris, Superintendent, Radwaste
*J. Price, Assistant Station Manager Nuclear Safety and Licensing
*E. Smith, Manager, Quality Assurance
*G. Topping, Radioactive Material Control Supervisor
*W. Thorton, Corporate, Health Physics and Chemistry

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

Nuclear Regulatory Commission

S. Tingen, Resident Inspector
*J. York, Acting Senior Resident Inspector

*Attended exit meeting on April 16, 1993

2. Audits (86750, 86740)

Technical Specification (TS) 6.1.C.2.h requires that audits of unit activities be performed under the cognizance of the Management Safety Review Committee (MSRC) in the following areas: (1) the conformance of facility operation to provisions contained within the TSs and applicable license conditions at least once per 12 months; (2) the radiological environmental monitoring program at least once per 12 months; (3) the ODCM and implementing procedures at least once per 12 months; and (4) the PROCESS CONTROL PROGRAM (PCP) and implementing procedures for processing and packaging of radioactive wastes at least once per 12 months.

The inspector reviewed the following audit report:

- QA Audit 93-02: Offsite Dose Calculation Manual and Process Control Program, April 6, 1993

The above audit assessed, in part, the adequacy and effectiveness of the ODCM, PCP, preparation and shipment of radioactive material. The audit covered the areas specified in TS 6.1.C.2.h. In general, the audit was thorough, detailed, and well documented. The audit team did not identify any program weaknesses in the areas noted above.

No violations or deviations were identified.

3. Changes (86750, 86740)

The inspector and the licensee discussed any changes since the last inspection in organization, personnel, facilities, equipment, programs, and procedures that may affect solid radioactive waste management and the transportation of radioactive materials.

The inspector reviewed this program area and noted that the only significant organizational change involved the reassignment of an individual to the Radioactive Material Control Supervisor position due to the departure of the previous individual assigned to that position. This reassignment became effective in August 1992. The inspector verified that the newly appointed supervisor received the basic in-house training for Radioactive Material Control Specialists as well as the vendor-sponsored training for radioactive waste packaging, transportation and disposal. Other than minor procedural changes, the inspector did not note any other significant changes to the program.

No violations or deviations were identified.

4. Training and Qualifications of Personnel (86750)

10 CFR 19.12 requires the licensee to instruct all individuals working or frequenting any portions of the restricted areas in the health protection aspects associated with exposure to radioactive material or radiation, in precautions or procedures to minimize exposure, and in the purpose and function of protection devices employed, applicable provisions of the Commission Regulations, individuals responsibilities and the availability of radiation exposure data.

49 CFR 172.700(b) specifies a systematic training program that ensures a hazmat employee has familiarity with the general provisions of the hazardous materials regulations (49 CFR Parts 171-180), is able to recognize and identify hazardous materials, has knowledge of the specific requirements of the hazardous material regulations applicable to the functions performed by the employee, and has knowledge of emergency response information, self protection measures and accident prevention methods and procedures.

49 CFR 172.702 requires that hazmat employers ensure that hazmat employees are trained and tested on the training subjects covered in Section 172.704.

49 CFR 172.704(a) specifies the requirements for general awareness, function-specific, and safety training. Subparagraph 172.704(a)(2) requires that hazmat employees receive training concerning hazardous material regulatory requirements specifically applicable to the functions the employee performs. Paragraph 172.704(c) requires that initial training for each hazmat employee employed before November 15, 1992 be completed prior to April 1, 1993 and that training for hazmat employees employed after November 15, 1992 be completed within 90 days after employment. This paragraph also requires that hazmat employees receive required training at least once every two years.

The inspector reviewed the qualifications, training, and experience of five persons responsible for the processing, storage and shipping of low level radwaste and radioactive materials. It was noted that Radioactive Material Control Technicians received periodic training, in the form of a workshop provided by a waste processing contractor, in DOT/NRC regulations, waste license burial requirements, and operating procedures for the transfer, packaging, and transport of radioactive material. Individuals who had not received this training in the last two years were scheduled to attend the workshop this calendar year. This workshop was a three day training course and required a passing grade of 80 percent on the examination. In addition, radwaste personnel were knowledgeable in the specialized computer software program (RADMAN) in waste classification, characterization, and radioactive materials shipments. In addition, all of the Radioactive Material Control Technicians, Specialists, and Supervisor received training in the area of transportation of hazardous materials in October 1992. This training was organized and conducted by the licensee's Training Department and met the requirements specified in 49 CFR 172 Subpart H noted above. Radioactive Material Control Specialists and Technicians also received annual continuing training in the areas of radioactive material control, radioactive waste control, radioactive material control procedural requirements, and radioactive material and hazardous material control safety. The continuing training program in this area was completed in November-December 1992. The inspector did not note any problem areas with this portion of the licensee's training program.

The inspector also reviewed the licensee's training program for Quality Control (QC) Radwaste Inspectors. The QC Radwaste Inspector training was described in Nuclear Quality Training Program (NQTP) Module Number 50. NQTP-50 training included the conditions and requirements associated with the transport vehicle and radwaste shipping cask inspections, general and specific radwaste, and solidified and dewatered waste shipments. In a Training Bulletin, dated January 15, 1993, it was noted that the frequency of Radwaste Inspector retraining had been changed from three years to two years due to regulatory requirement changes. The inspector reviewed the training records of three out of 11 Radwaste Inspectors. It was noted that two individuals had successfully completed NQTP-50 in September and October 1992, however one individual had not been retrained since September 1989. It was also noted in the records that this individual's certification was valid through April 3, 1994 (which exceed the two year requirement). The inspector discussed

this issue with the Supervisor of Quality Inspection and a memo to the QC Radwaste Inspector was issued on April 15, 1993, notifying the individual that he was no longer certified to perform radwaste inspections until the required retraining had been completed. The licensee had scheduled the individual to be retrained on May 25-27, 1993. To prevent reoccurrence, the licensee will review all Radwaste Inspector training records periodically to ensure that all inspectors are properly qualified and certified.

The inspector discussed the retraining and certification issue with licensee management and indicated that this concern was an apparent violation of the licensee's Quality Assurance Certification Program. 10 CFR 50, Appendix B, Criterion II, as implemented by Operational Quality Assurance Program Topical Report (VEP 1-5A, Section 17.2.2.6) requires, in part, that the certification Quality Assurance Department personnel, including Level I, Level II, and Level III inspectors, be accomplished in accordance with the Quality Assurance Certification Program, which specifies, in part, the qualification and certification requirements for personnel and requires the individual to be certified prior to performing specified inspection or audit functions.

Contrary to the above, from September 1992 to April 15, 1993, the licensee failed to properly requalify and certify a Radwaste Quality Control Inspector, in that, the individual did not attend the triennial Radwaste Training (NQTP-50) in November 1992, which, in effect, expired the individual's qualification to perform radwaste inspections even though the individual's certifications were valid through April 3, 1994. However, this NRC identified violation is not being cited because the criteria specified in Section VII.B of the NRC Enforcement Policy were satisfied (NCV 50-280, 281/93-10-01: Failure to properly requalify and certify a Radwaste QC Inspector).

One NCV was identified.

5. Low-Level Radioactive Waste Storage Facilities (86750, 65051)

The inspector and licensee representatives toured the licensee's temporary low-level radioactive waste storage facility (LLWSF) which was located outside of the protected area, but in a remote location in the owner controlled area. The access to the facility was restricted by a locked fence. The LLWSF was a steel framed structure with a total storage capacity of approximately $1E+05$ cubic feet. The total activity allowed for storage was 280 curies. The facility was designed to store miscellaneous contaminated trash and materials. Although there was no formal schedule on facility activation, it was noted in the licensee's Safety Analysis Report (undated) that the facility would be used for interim storage of radioactive low-level waste (LLW) for a period not to exceed four years after initial placement. Final waste disposition may involve shipment and burial at a commercial LLW burial site, further on-site processing to reduce volumes, or other disposal alternatives

available at the time of removal. Although the licensee was technically not using the facility to store low-level radioactive waste, the LLWSF was being used to store contaminated equipment.

No violations or deviations were identified.

6. Solid Radioactive Waste Management (86750)

10 CFR 20.311 requires a licensee who transfers radioactive waste to a land disposal facility to prepare all waste so that the waste is classified in accordance with 10 CFR 61.55 and meets the waste characteristic requirements of 10 CFR 61.56. It further establishes specific requirements for conducting a quality control program and for maintaining a manifest tracking system for all shipments.

The inspector reviewed the licensee's solid radioactive waste management program for wastes generated from Surry Power Station operations. The review included the following: adequacy of implementing procedures to properly classify and characterize waste, to prepare the manifest, and mark packages; overall performance of the process control and quality assurance programs; and the adequacy of required records, reports, and notifications. In addition, the inspector reviewed the methods used by the licensee to assure that the waste was classified properly, met the waste form and characteristic requirements of 10 CFR 61 and met the disposal site license conditions. In general, the licensee's procedures provided sufficient detail and guidance to allow technicians to properly package and verify radioactive waste package contents, classify the waste, and prepare the waste manifest.

The inspector also reviewed the licensee's program for segregating DAW and clean trash. Basically, all waste was ultimately sorted and bagged. The inspector toured the licensee's Clean Waste Segregation Facility (CWSF). This facility was equipped with a Series 10 Bag/Waste Monitor and an ACM-100 Automatic Contamination Monitor. The ACM-100 consisted of 40 gas flow proportional counters with a surface area of approximately 1000 cm² per detector (channel). The equipment was fully operational and calibrated.

The inspector discussed with the licensee the minimization of radioactive solid waste. The licensee had established a program through information campaigns, management attention, and a radiological waste inventory tracking program to reduce the dry active radwaste (DAW) generated and stored onsite. In addition, the licensee elected to use recyclable cloth protective clothing (PC) for the 1993 Unit 2 outage instead of the disposable paper PCs as used in the 1992 Unit 1 outage. Also, the licensee was minimizing the use of herculite, recycling tent enclosure materials, and not introducing equipment packing material into the containment. As a result of the waste reduction efforts noted above, the Unit 2 outage DAW shipments were approximately one half of the Unit 1 DAW shipments.

During this inspection, the inspector made several tours of the licensee's facility and did not note any excessive radwaste storage in outside areas. DAW that was being temporarily stored was secured and placed in Sea-Land containers. The inspector did not observe any loose bags of contaminated materials or DAW in the yard. In general, the licensee's facility was generally clean and tidy considering that Unit 2 was in an outage.

The inspector briefly reviewed Topical Report No. USE-61-002-P, Stability of Low Level Radioactive Wastes Solidified with High Strength Asphalt. This report described and summarized the results of the stability testing of bitumen-solidified simulated low-level radwaste streams, in an effort to prove that the bitumen-solidified waste forms were stable and met the requirements for near-surface burial. The tests included the following: compressive strength, thermal cycle resistance, radiation resistance, biodegradation resistance, leach resistance, immersion resistance, correlation testing (laboratory model versus full scale model), determination of homogeneity, dimensional stability, free liquids and void spaces. The Office of Nuclear Material Safety and Safeguards (ONMSS) staff concluded that there was reasonable assurance that the low-level waste forms of boric acid wastes produced by the bitumen process would meet the stability requirements of 10 CFR 61 for waste characterization. Because of either limited or incomplete data, an interim, one year approval was granted for these waste forms, and additional verification testing was requested. The interim approval did not approve waste forms created from the solidification of bead resins or powdered resins. The initial interim period ended on July 31, 1992. On July 17, 1992, the NRC had received the report from U.S. Ecology providing additional test data for the solidification of the boric acid waste stream as identified in the Interim Technical Evaluation Report (ITER), issued by the NRC. At that time, the NRC had not completed a detailed review of the data and the NRC indicated that there was no reason to terminate the interim status for the solidification of the boric acid waste stream. In a letter dated July 21, 1992, the NRC indicated that the ITER of July 1991, along with Supplement No. 1 of January 1992 would remain valid until December 31, 1992, extending the July 31, 1992 termination date. In a letter from USNRC to U.S. Ecology (USE), dated January 29, 1993, the NRC stated that its review of the subject topical report, along with the supplemental information requested, had been completed. The NRC concluded that the topical report and supplemental information adequately described the USE's high strength asphalt solidification process and the waste form produced for boric acid concentrates, and, therefore, the report and processes described were acceptable.

No violations or deviations were identified.

7. Shipping of Low-Level Radioactive Wastes for Disposal and Transportation Activities (86750, 86740)

10 CFR 20.311(b) requires each shipment of radioactive waste to a land disposal facility to be accompanied by a shipment manifest that indicates as completely as practicable; a physical description of the waste; the volume; the radionuclide identity and quantity; the total radioactivity; and the principal chemical form.

10 CFR 71.5 requires that licensees who transport licensed material outside the confines of its plant or other place of use, or who delivered licensed material to a carrier for transport, shall comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in 49 CFR Parts 170 through 189.

49 CFR 172.203(d)(i) requires, in part, that a shipping paper contain a 24-hour emergency number, as prescribed in subpart G of Part 172 of this subchapter.

The inspector reviewed selected records of radioactive waste and radioactive materials shipments performed from October 1992 to March 1993. The shipping manifests examined were consistent with the 10 CFR 20.311(b) and 49 CFR requirements. The radiation and contamination survey results were within the limits specified for the mode of transport and shipment classification and the shipping documents were being completed and maintained as required. The inspector did note that disposal facility waste manifest of shipment number B93-1 incorrectly specified the model number of the high integrity container (HIC) as PL8-120FR. Shipment B93-1 was a Class B waste shipment of dewatered resin. The correct HIC model number, as stated on the Bill of Lading, was PL6-80FR. The inspector discussed this concern with Radioactive Material Control representatives, and the problem was corrected immediately and the disposal site was notified of the error on April 15, 1993. This problem appeared to be an isolated case of clerical error. The inspector indicated to the licensee that a review of the licensee's quality control of shipping paper documents would be tracked as an inspector followup item (IFI) (IFI 50-280, 281/93-10-02: Review licensee's quality control program for shipping paper documents).

In addition, the inspector reviewed the shipping records for the same time period indicated above and noted that there were no radioactive material shipments made that required the use of DOT Spec 7A containers. In addition, the inspector verified that for NRC-certified packagings used by the licensee the Certificate of Compliance (COC) for the packages were maintained and up-to-date. The inspector reviewed the procedures, license, and safety analysis reports for the radwaste shipping casks used by the licensee and identified no apparent problems. The inspector verified that for each package used that the licensee was a registered user of the package for shipment of radioactive materials and that the package be shipped in accordance with the provisions of 49 CFR 173.471.

The inspector also reviewed the waste shipment manifests noted above to determine compliance with the 24-hour emergency telephone requirements specified in 49 CFR 172.203(d). Based on a review of selected waste shipment manifests during the time period noted above, the inspector concluded that the licensee satisfied the emergency response requirements. The inspector did note that the emergency response telephone information was handwritten along the top of the radioactive materials shipment manifests which could lead to inadvertent omissions. The licensee indicated that an evaluation of a commercially available radioactive materials shipment manifest program was being performed for possible purchase and acquisition. This new program would allow the user to enter the emergency response information, similar to the waste manifest program (RADMAN), so that the information would consistently appear at the top of the manifest for quick access.

No violations or deviations were identified.

8. Process and Effluent Radiation Monitors (84750)

VPAP-2103, Offsite Dose Calculation Manual, Revision 4, February 11, 1993, Section 6.2.2 specifies the controls and surveillance requirements for radioactive liquid effluent monitoring instrumentation. Attachment 1 of VPAP-2103, specifies the minimum number of channels operable and actions to take during periods of inoperability for radioactive liquid effluent monitoring instrumentation.

The inspector, resident inspector, and a licensee representative toured the embankment along the discharge canal to examine the Units 1 and 2 Circulating Water Discharge Radiation Monitors (CWDRM) (Unit 1: RM-SW-120 and Unit 2: RM-SW-220). These monitors were also referred to as the circulating water discharge tunnel monitors. The CWDRM channel monitored the activity of the circulating water discharge tunnel beyond the last point of radioactivity addition. The discharge tunnel received water from the Service Water System, Liquid Waste System, and Circulating Water System (after it had provided cooling for the condenser). The liquid waste discharge was greatly diluted by other discharge flows. The CWDRM utilized a gamma scintillation detector, which slid into an instrument pipe that was inserted directly into the discharge tunnel. The inspector discussed the relative location of these monitors inside the instrument pipe with a representative from Instrumentation and Control (I&C), which included a review of instrument piping radiation monitoring diagram. The CWDRM was located in a six inch diameter by ten feet long instrument pipe. The instrument pipes were located at the edge of the embankment along the discharge canal. In addition, the radiation monitor location was approximately five feet below grade. At the top of the pipe was a waterproof support assembly that enclosed a check source. Although the entire device was designed to be water resistant, a review of deviation reports during the last five years indicated a couple of cases of water intrusion problems which either affected the electronics or damaged the sodium iodide (NaI) scintillation crystal. These gross gamma radioactivity monitors provided an alarm indicating an increase in radioactivity in the

effluent, but did not provide an automatic termination of the release. Automatic termination of a release was provided by the Liquid Waste System Radiation Monitor (RM-LW-108) and Radwaste Facility Liquid Effluent Line Monitor (RM-RRM-131) which were in-line monitors located on the outlet line to the circulating water discharge tunnel. A high radiation signal from these monitors would shut the discharge valves on the discharge line, terminating the liquid release.

VPAP-2103, Offsite Dose Calculation Manual, Attachment 1 specifies that a minimum of one channel shall be operable for RM-SW-120 and RM-SW-220. If the number of channels is less than required, effluent releases via this pathway may continue provided that, at least once per 12 hours, grab samples are collected and analyzed for principle gamma emitters, as defined in Attachment 8, Surry Radioactive Liquid Waste Sampling and Analysis Program. The inspector reviewed selected Deviation Reports pertaining to operability problems of RM-SW-120 and RM-SW-220 for the last five years. The following problems with the monitors were noted: (1) electronic spiking; (2) water/moisture intrusion; and (3) high radiation alarm setpoint problems. It should be noted that these monitors have not been inoperable for periods greater than 30 days since 1991. No significant problems in this area were noted.

No violations or deviations were identified.

9. Dose Commitments (84750)

VPAP-2103, Offsite Dose Calculation Manual, Revision 4, February 11, 1993, Attachment 28 specifies the method to calculate the annual maximum individual total dose from radioactive effluents and all other nearby uranium fuel cycle sources. Sections 6.2.3 and 6.3.3 specify the quarterly and annual dose limits for liquid effluent and gaseous effluents, respectively. Section 6.4 specifies the total dose limit to the public from uranium fuel cycle sources.

The inspector reviewed the quarterly and yearly dose commitments to a member of the public from radioactive materials in gaseous and liquid effluents released during 1992. The NRC PC-DOSE computer code was not available during this inspection to verify the licensee's calculation for the dose contribution to the maximum exposed individual from the radionuclides in liquid and gaseous effluents released to unrestricted areas. For the gaseous pathway analysis, the licensee used historical meteorological data to determine the annual average X/Q and D/Q values at critical locations around the Station for ventilation vent (ground level) and process vent (mixed mode) releases. The annual average X/Q and D/Q values were used in a dose pathway analysis to determine both the maximum exposed individual at the site boundary and member of the public. Since airborne and liquid releases were calculated on a per site basis, and the ODCM dose limits are on a per unit basis, calculated site doses are initially compared to the per unit limit. If per unit limit is exceeded, then the licensee would reanalyze the release data to determine the per unit doses. The following table includes the annual dose calculations due to gaseous and liquid effluents for 1992:

Cumulative Doses from Effluents - Calendar Year 1992
Surry Power Station

<u>Dose Pathway</u>	<u>Dose</u>	<u>Annual Limit</u>	<u>Percent of Annual Limit</u>
Airborne-Gamma Air Dose	5.65E-3 mrad	10 mrad	< 1 %
Airborne-Beta Air Dose	1.26E-2 mrad	20 mrad	< 1 %
Airborne-Max Organ Dose	1.05E-2 mrem	15 mrem	< 1 %
Liquid-Total Body Dose	6.95E-4 mrem	3 mrem	< 1 %
Liquid-Max Organ Dose	5.60E-4 mrem	10 mrem	< 1 %
Total Dose-Thyroid	no calculation ¹	75 mrem	< 1 %
Total Dose-Total Body Organ other than Thyroid	no calculation ¹	25 mrem	< 1 %

¹NOTE: If the calculated doses from release of radioactive materials in liquid or gaseous effluents exceeds twice the limits specified in the ODCM (see above), then the licensee is required to calculate, including direct radiation contribution from the units and from outside storage tanks, whether the 40 CFR 190 dose limits (25 mrem total body/75 mrem thyroid) have been exceeded.

The radioactive effluents released during the reporting period were below normal for a two unit pressurized water reactor plant with both units operating. The release of radioactive material to the environment from Surry has been a small fraction of the 10 CFR 20, Appendix B and 10 CFR 50, Appendix I limits. As can be seen from the data presented above, the annual dose contributions to the maximum exposed individual from the radionuclides in liquid and gaseous effluent released to unrestricted areas were all less than one per cent of the limits specified in the ODCM. The inspector noted a significant decrease in the 1992 calculated doses to the maximum exposed member of the public when compared to the 1991 calculated doses. The decrease can be attributed to significantly improved fuel integrity and the new Surry Radwaste Facility (SRF) which processes all liquid radwaste. The SRF utilized improved technology for the more efficient treatment and cleanup of radioactive material released in the liquid effluent stream. These data support the conclusion that the licensee's effluent releases were as low as reasonably achievable (ALARA) and that the radwaste systems were both fully utilized and operating within the design criteria.

No violations or deviations were identified.

10. Effluent Release Reports (84750)

TS 6.6.B.3 and ODCM Section 6.6.2 requires that a Semi-Annual Radioactive Effluent Release Report covering the operation of the unit during the previous six months of operation shall be submitted within 60 days after January 1 and July 1 of each year. The ODCM and TS also specify the requirements for the content and format of the report.

The inspector reviewed the second half 1992 Semi-Annual Effluent Release Report dated February 24, 1993. In addition, the inspector reviewed effluent release data from previous years to evaluate trends in liquid and gaseous releases. The effluent data presented in the following table was obtained from previous and current effluent reports:

EFFLUENT RELEASE SUMMARY FOR SURRY UNITS 1 AND 2

Activity Released (curies)	1990	1991	1992
Gaseous Effluents:			
Fission and Activation Products	4.50E+2	3.54E+1	1.60E+1
Iodines	1.33E-3	5.16E-4	4.97E-4
Particulates	1.60E-3	6.68E-4	3.06E-4
Tritium	2.17E+1	2.55E+1	2.36E+1
Fission and Activation Products	4.60E+0	2.85E+0	3.94E-1
Tritium	1.11E+3	9.13E+2	9.74E+2
Gross Alpha	5.97E-5	1.06E-5	0.00E+0
Volume of Liquid Waste Released (liters)	1.74E+8	3.91E+8	1.50E+8
Inoperable Effluent Monitoring Instruments for greater than 30 days	2	1	1 ¹
Unplanned Releases	0	0	1 ²

¹ RM-LW-108 was taken out of service in November 1992. This monitor was no longer used to monitor liquid effluents since liquid waste was permanently re-routed to the SRF. The licensee was evaluating the permanent removal of the monitor.

² This unplanned release was previously discussed in 50-280, -281/92-24.

In general, the trends of the effluents released from the Surry site showed a decrease of fission and activation products in both the liquid and gaseous effluent streams. The significant decrease in radioactive material released in the liquid effluent stream was due to the more efficient treatment and cleanup system in the new SRF which became operational in November 1991 and improved fuel integrity. The decrease in gaseous effluents was also attributable to improved fuel integrity.

No violations or deviations were identified.

11. Exit Meeting

The inspector met with licensee representatives indicated in Paragraph 1 at the conclusion of the inspection on April 16, 1993. The inspector summarized the scope and findings of the inspection, including the non-cited violation. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any proprietary documents or processes during this inspection. Dissenting comments were not received from the licensee.

<u>Item Number</u>	<u>Description and Reference</u>
50-280, 281/93-10-01	NCV - Failure to properly requalify and certify a Radwaste QC Inspector (Paragraph 4).
50-280, 281/93-10-02	IFI - Review licensee's quality control program for shipping paper documents (Paragraph 7).