Semiannual Radioactive Effluent Release

Report

January 1, 1988 - June 30, 1988

Waterford 3 SES

Louisiana Power & Light

IE48

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1.0 SCOPE

This Semiannual Radioactive Effluent Release Report is submitted as required by Louisiana Power and Light's Waterford 3 Technical Specification 6.9.1.8. It covers the period from January 1, 1988 through June 30, 1988. Information in this report is presented in the format outlined in Appendix B of Regulatory Guide 1.21.

The information contained in this report includes:

(1) A summary of the quantities of radioactive liquid and gaseous effluents and solid wastes released from the plant during the reporting period;

(2) Explanation of why certain instrumentation was not restored to operable status within the time specified in the ACTION Statement, as per Waterford 3 SES Technical Specification 3.3.3.10 and 3.3.3.11;

(3) A summary of missed samples required by Waterford 3 SES Technical Specification 4.11.2.1.2; and

(4) A summary and correction of errors identified in previous Semiannual Radioactive Release Reports.

The summary of meteorological data and results from the assessment of radioactive doses due to the release of liquid and gaseous radioactive effluents will be included in the Semiannual Radioactive Effluent Release Report to be submitted within 60 days after January 1, 1989.

2.0 SUPPLEMENTAL INFORMATION

2.1 Regulatory Limits

The Technical Specification Limits applicable to the release of radioactive material in liquid and gaseous effluents are described in the following sections.

2.1.1 Fission and Activation Gases (Noble Gases)

The dose rate due to radioactive noble gases released in gaseous effluents from the site to areas at and beyond the site boundary shall be limited to less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin.

The air dose due to noble gases released in gaseous effluents from the site to areas at or beyond the site boundary shall be limited to the following:

a. During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation and,

b. During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

2.1.2 Iodines; Particulates, Half Lives > 8 Days; and Tritium

The dose rate due to Iodine-131 and 133, tritium, and all radionuclides in particulate form with half lives greater than eight (8) days, released in gaseous effluents from the site to areas at and beyond the site boundary, shall be limited to less than or equal to 1500 mrem/yr to any organ.

The dose to a member of the public from Iodine 131 and 133, tritium, and all radionuclides in particulate form with half lives greater than eight (8) days in gaseous effluents released to areas at and beyond the site boundary shall be limited to the following:

a. During any calendar quarter: Less than or equal to 7.5 mrem to any organ and,

b. During any calendar year: Less than or equal to 15 mrem to any organ.

2.1.3 Liquid Effluents

The concentration of radioactive material released in liquid effluents to unrestricted areas shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2.0E-4 μCi/ml total activity.

The dose or dose commitment to a member of the public from radioactive materials in liquid effluents released to unrestricted areas shall be limited to the following:

a. During any calendar quarter to less than or equal to 1.5 mrem to the total body and less than or equal to 5 mrem to any organ, and

b. During any calendar year to less than or equal to 3 mrem to the whole body and to less than or equal to 10 mrem to any organ.

2.1.4 Uranium Fuel Cycle Sources

The dose or dose commitment to any member of the public due to releases of radioactivity and radiation from uranium fuel cycle sources shall be limited to less than or equal to 25 mrem to the total body or any organ (except the thyroid, which shall be limited to less than or equal to 75 mrem) over 12 consecutive months.

2.2 Maximum Permissible Concentrations

2.2.1 Fission and Activation Gases; Iodines; and Particulates, Half Lives > 8 Days

For gaseous effluents, maximum permissible concentrations are not directly used in release rate calculations since the applicable limits are expressed in terms of dose rate at the site boundary.

2.2.2 Liquid Effluents

The maximum permissible concentration (MPC) values specified in 10 CFR Part 20, Appendix B, Table II, Column 2 are used as the permissible concentrations of liquid radioactive effluents at the unrestricted area boundary. A value of 2.0E-4 μCi/ml is used as the MPC for dissolved and entrained noble gases in liquid effluents.

2.3 Average Energy

This is not applicable to Waterford 3 SES's radiological effluent technical specifications.

2.4 Measurements and Approximations of Total Radioactivity

The quantification of radioactivity in liquid and gaseous effluents was accomplished by performing the sampling and radiological analysis of effluents in accordance with the requirements of Tables 4.11-1 and 4.11-2 of the Waterford 3 SES Plant Technical Specifications.

2.4.1 Fission and Activation Gases (Noble Gases)

For continuous releases, a gas grab sample was analyzed monthly for noble gases. Each week a Gas Ratio (GR) was calculated according to the following equation:

$$GR = \frac{\text{Average Weekly Noble Gas Monitor Reading}}{\text{Monitor Reading During Noble Gas Sampling}}$$

The monthly sample analysis and weekly Gas Ratio were then used to determine noble gases discharged continuously for the previous week. For gas decay tank and containment purge batch releases, a gas grab sample was analyzed prior to release to determine noble gas concentrations in the batch. In all cases the total radioactivity in gaseous effluents was determined from measured concentrations of each radionuclide present and the total volume discharged.

2.4.2 Iodines and Particulates

Iodines and particulates discharged were sampled using a continuous sampler which contained a charcoal cartridge and a particulate filter. Each week the charcoal cartridge and particulate filter were analyzed for gamma emitters using gamma spectroscopy. The determined radionuclide concentrations and effluent volume discharged were used to calculate the previous week's activity released.

The particulate samples were composited and analyzed quarterly for Sr-89 and Sr-90 by a contract laboratory (Teledyne Isotopes). Particulate gross alpha activity was measured weekly using alpha scintillation counting techniques. The determined activities were used to estimate effluent concentrations in subsequent releases until the next scheduled analysis was performed.

Grab samples of continuous and batch releases were analyzed monthly for tritium. The determined concentrations were used to estimate tritium activity in subsequent releases until the next scheduled analysis was performed.

2.4.3 Liquid Effluents

For continuous releases, samples were collected weekly and analyzed using gamma spectroscopy. The measured concentrations were used to determine radionuclide concentrations in the previous week's releases. For batch releases, gamma analysis was performed on the sample prior to release.

For both continuous and batch releases, composite samples were analyzed quarterly by a contract laboratory (Teledyne Isotopes) for Sr-89, Sr-90, and Fe-55. Samples were composited and analyzed monthly for tritium and gross alpha using liquid scintillation and gas flow proportional counting techniques, respectively. For radionuclides measured in the composite samples, the measured concentrations in the composite samples from the previous month or quarter were used to estimate released quantities of these isotopes in liquid effluents during the current month or quarter.

The total radioactivity in liquid effluent releases was determined from the measured and estimated concentrations of each radionuclide present and the total volume of the effluent discharged.

2.5 Batch Releases

The summarization of information for gaseous and liquid batch releases is included in Table 1.

2.6 Abnormal Releases

2.6.1 Abnormal Release on April 3, 1988.

On April 3, 1988, an unplanned, unmonitored and uncontrolled release of radioactivity occurred during removal of the outside door of the containment equipment hatch. At no time were any Technical Specifications dose limits exceeded.

Description of Event:

On the evening of April 2, 1988 the steps necessary to open the equipment hatch commenced. At approximately 0025 on April 3, 1988, leak rate testing on the equipment hatch was completed and removal of the outer door began. Just before 0200, the Personnel Contamination Monitors (PCM-1's) and friskers located outside of the equipment hatch on the Q-Deck began alarming. A noble gas sample obtained at 0200 indicated the presence of Xe-133 in the area just outside of the equipment hatch at a concentration of 1.6E-06 uCi/cc. A subsequent sample pulled at 0311 showed that the Xe-133 concentration had increased to 2.7E-06 uCi/cc. The source of the activity was investigated. It was determined that the activity was originating from the containment annulus. The activity in the annulus came from earlier operation of Containment Atmosphere Removal System (CARS). Therefore, shield building ventilation was resumed at 0340. Q-Deck samples collected at 0357 showed that Xe-133 activity had increased to a maximum of 5.5E-06 uCi/cc. At 0455 a noble gas sample collected just outside the equipment hatch indicated no detectable levels of activity. Opening of the equipment hatch was completed at approximately 0900.

Cause of Event:

The root cause of the release was related to shield building ventilation not being run while the outer hatch was being removed. After the seals on the outer hatch were deflated, activity present in the containment annulus was allowed to escape.

Corrective Actions:

In order to prevent a recurrence of this type of release, procedures are being modified to require shield building ventilation to be run continuously while the seal on the outer door is deflated. If required, shield building ventilation would only be secured long enough to move the door to the open position. Shielding building ventilation would not be required as long as containment purge is operating. Having shield building ventilation operating will help prevent any release of activity from the containment annulus or from leakage past the inner door seal.

Radiological Consequences of the Release:

A total amount of 3800 uCi of Xe-133 were estimated to have been released during this event. The gamma and beta doses in air from this release were calculated to be 5E-07 and 1E-06 mrad, respectively. These doses are 5E-06 and 7E-06 percent of the respective annual gamma and beta dose limits (approximately 1E-05 percent of the gamma and beta quarterly limits) allowed by Technical Specifications. Therefore, the doses resulting from this release were deemed to be insignificant.

Since a release rate from the Q-Deck area or Containment annulus could not be reliably calculated due to low flow rates, the instantaneous dose rates could not be calculated directly. However, calculations indicate that to exceed the instantaneous dose rate limits, an exit velocity of 280 miles per hour would have to be attained. At no time was this exit velocity possible. Therefore, the instantaneous release rate limits could not have been exceeded.

2.6.2 Abnormal Release on May 23, 1988

On May 23, 1988, a small amount of radioactivity (Co-58 and I-131) was released through an abnormal release pathway. This monitored and controlled release occurred during Integrated Leak Rate Testing (ILRT) depressurization. Initial sampling of the containment atmosphere prior to the release indicated that the effluent did not contain radioactive concentrations above the appropriate lower limits of detection (LLD's) (i.e., no activity was detected). However, continuous samples collected during the release and later analyzed indicated the presence of activity. The post-release measured radioactive concentrations of I-131 and Co-58 in the effluent were determined to be at and below the pre-release lower limits of detection (i.e., activity was present at levels lower than could be reliably detected in the pre-release samples). The reason this activity was detected in the release samples and not in the pre-release samples is due to the fact that a much larger sample volume was collected during the release. With this increased sample volume, much lower detection levels were attained and activity was detected. The samples taken prior to release satisfied the appropriate Technical Specification LLD's and although the release occurred through an abnormal pathway, the pathway was monitored and continuous samples were collected. Based on the results of these continuous samples, at no time were any Technical Specification dose limits exceeded.

Description of Event:

During Integrated Leak Rate Testing of containment, the containment is pressurized to a maximum pressure of 44 psig. After obtaining the required measurements, containment must be depressurized by discharging the excess air added during the pressurization phase. Current wording in Table 4.11-2 of the Waterford 3 Technical Specifications does not specifically address sampling requirements associated with ILRT depressurization. While ILRT depressurization is not technically a containment purge (by Definition 1.23 in the Technical Specifications), it was decided that pathway restrictions and sampling requirements associated with purging containment of airborne radioactivity were applicable. Therefore, if the containment atmosphere contained radioactivity, it would be released via the plant stack.

In order to depressurize containment through the plant stack the normal purge pathway could not be used due to the damage that would occur to the duct work from the calculated exit velocities and pressures. Therefore, it would be necessary to depressurize into the Reactor Auxiliary Building. Because of RAB Ventilation System operating limitations, depressurization through the RAB would require thirty-six to forty-eight hours to complete. The possibility of depressurizing directly to atmosphere to reduce this depressurization time was evaluated.

After reviewing the current Waterford 3 Technical Specifications regarding gaseous radioactive effluents with the Licensing Department, it was concluded that if the containment atmosphere sampled prior to release was radioactive, the release could not be made directly to the atmosphere. It would have to be released through the plant stack via the RAB Normal Ventilation System. However, if the atmosphere sampled did not contain any radioactivity, the pathway restrictions in the Technical Specifications did not apply as long as adequate precautions were taken to identify changing conditions during the release (i.e., radioactivity in the release pathway) that would warrant termination of the release.

A safety evaluation was performed on the release pathway to examine the radiological consequences of an accidental release of radioactivity during ILRT depressurization. As a result of the safety evaluation, a portable radiation monitor (with alarming capability) would be used to monitor the release pathway for changing conditions that would warrant (i.e., greater than two times background) termination of the release. The evaluation concluded that plant safety would not be decreased by utilizing this release pathway.

Prior to ILRT depressurization, instructions were issued describing the sampling and monitoring requirements for ILRT depressurization. The instructions specifically stated that the release could not be made directly to the atmosphere if reactor produced radioactivity was detected in the pre-release grab samples. In addition, the instructions specified that the samples collected were to be treated as effluent release samples; that is, the same detection limits and sampling criteria used for routine radioactive effluent samples were applicable. The instructions also specified that the release be immediately terminated in the event that increasing radiation levels (i.e., greater than two times background) were detected by the portable radiation monitor. The radiation monitor selected was also capable of collecting continuous particulate and radioiodine samples from the release stream.

On May 23, two separate sets of gas, iodine, and particulate samples were collected. These samples were analyzed as effluent release samples in accordance with Health Physics Department procedures. In addition, chemistry obtained and analyzed a sample for tritium in accordance with Chemistry Department procedures. All analysis results were below the lower limits of detection. The air to be released was therefore treated as a non-radioactive effluent and discharged directly to the atmosphere. Depressurization to the atmosphere began on May 23 at 09:00 and lasted until 21:39 the same day. After completing depressurization, the continuous iodine and particulate samples collected by the temporary radiation monitor from the depressurization pathway were analyzed. Low levels of I-131 and Co-58 were found in the samples with a calculated average concentration in the discharge stream of 1.5 E-11 uCi/cc I-131 and 3.2 E-13 uCi/cc Co-58. The a posteriori lower limits of detection on the pre-release samples ranged between 1.1 E-11 to 1.9 E-11 uCi/cc for I-131 and 3.2 E-12 to 6.8 E-12 uCi/cc for Co-58. Therefore, the activity detected after the release was on the order of or below the detection limits of the pre-release samples.

Cause of the Release:

The root cause of radioactivity being release through an abnormal pathway was related to the fact that the concentrations of radioactivity in the release stream were at or below the lower limits of detection of the pre-release samples. Technical Specification Table 4.11-2 states that the a priori lower limits of detection for the principle particulate gamma emitters should be 1 E-11 uCi/cc. The a priori limit for weekly I-131 samples should be 1 E-12 uCi/cc with footnote g allowing this limit to be increased by a factor of 10 for daily samples. An evaluation of the a priori lower limit of detection for various radionuclides on each gamma spectroscopy system indicate that the weekly limits can be satisfied with a minimum count time of 2000 seconds and a sample volume of 1 E+07 cc for the weekly samples. The minimum sample volume required to meet the daily limit was calculated to be 8.0 E+05 cc. Based on the sample volumes and count times of the pre-release samples, these daily a priori limits were satisfied. However, as sample volume increases the sensitivity of the analysis increases. The larger the sample volume, the better the sensitivity and subsequently the lower the limit of detection. With respect to the continuous samples collected, the sample volume was almost two orders of magnitude larger than the pre-release sample volume and the analysis sensitivity increased accordingly. Since the level of activity detected in the continuous samples was near or below the lower limit of detection of the pre-release samples, the possibility of detecting activity at these levels would be only by statistical chance.

Consequences of the Release:

Although the release of radioactivity occurred through an abnormal pathway, it was monitored and adequate sampling was performed to assess the radiological impact of the release. The radiological impact resulting from the release was evaluated in accordance with Offsite Dose Calculation Manual methodologies. At no time were any release limits specified in Technical Specifications 3.11.2.1 and 3.11.2.3 exceeded. The total amount of I-131 and Co-58 released were 4.4 and 0.094 uCi, respectively. The instantaneous dose rate to a receptor at the site boundary was calculated to be 0.023 mrem/yr or 0.002 % of the Technical Specification Limit. The total projected maximum organ dose resulting from this release was 0.0034 mrem or 0.023 % of the allowable annual limit (0.046 % of the allowable quarterly limit).

Corrective Actions:

Although the release occurred through an abnormal pathway, it was monitored and adequate provisions for sampling were taken.

3.0 GASEOUS EFFLUENTS

The quantities of radioactive material released in gaseous effluents are summarized in Tables 1A, 1B, and 1C. Note that there were no elevated releases, since all Waterford 3 SES releases are considered to be at ground level.

4.0 LIQUID EFFLUENTS

The quantities of radioactive material released in liquid effluents are summarized in Tables 2A and 2B.

5.0 SOLID WASTES

The summary of radioactive solid wastes shipped offsite for disposal is listed Table 3.

6.0 METEOROLOGICAL DATA

The summary of the hourly meteorological data for this reporting period will be included in the Semiannual Effluent Release Report to be submitted within 60 days after January 1, 1989.

7.0 ASSESSMENT OF DOSES

7.1 The summary of doses due to gaseous and liquid effluents for this reporting period will be included in the Semiannual Effluent Release Report to be submitted within 60 days after January 1, 1989.

8.0 RELATED INFORMATION

8.1 Changes to the Process Control Program

There were no changes to the Process Control Program for the period covered by this report.

8.2 Changes to the Offsite Dose Calculation Manual

There were no changes to the Offsite Dose Calculation Manual for the period this report covers.

8.3 Unavailability of REMP Milk Samples

Due to the unavailability of three milk sampling locations within five kilometers of the plant, Broad Leaf sampling is performed in accordance with Technical Specification Table 3.12-1. Milk is collected, when available, from the control location and three identified sampling locations as indicated in Waterford 3 Offsite Dose Calculation Manual, Table 2 and Table 3.

8.4 Report of Technical Specification Required Instrument Inoperability

Technical Specification, Limiting Condition for Operation (LCO), 3.3.3.10 and 3.3.3.11 requires the reporting in the Semiannual Radioactive Effluent Release Report of why designated inoperable instrumentation was not restored to operability within the time specified in the ACTION Statement. During the reporting period, there were four separate cases when instrumentation was not restored to operability within the time specified. These cases are described in the following sections.

8.4.1 Monitor: Waste Gas Holdup System Hydrogen and Oxygen Monitors

Period of Inoperability: 3/21/85 - 06/30/88
(At end of reporting period monitors were still inoperable)

Time Required by Technical Specifications to Restore Operability: 30 days

Cause of Inoperability:

Due to initial design problems excess amounts of moisture were allowed to leak into both the Beckman O_2 and Delphi H_2 and O_2 analyzer systems. Replacement of the analyzers and modification of the sample system was implemented during this period. While this was being done the system remained out of service.

Reason Operability Not Restored Within Allotted Time:

Extensive hours were spent attempting to restore these analyzers to operable status. Several analyzer cells were replaced, the solenoid and regulator were repaired, and the sample pump was both repaired and replaced. After these efforts failed to return the monitor to service, a station modification was initiated to replace the analyzer cells with less moisture sensitive models and to completely redesign the sample line condensate drain system.

This modification entailed work in several areas of the plant and on four different systems. All existing piping and electronics associated with the Waste Gas Holdup System Hydrogen and Oxygen Monitors was essentially scrapped and redesigned.

Work included re-routing all sample lines in the Laundry Room, modifying the existing drain header, and fabrication of a new drain header to tie into the Vent Gas Collection Header. Re-routing of the Gas Surge Header Sample line and fabrication of its drain was performed in Safeguards Room B. On Gas Decay Tank A a new separator and drain line on the Waste Gas Collection Discharge Header was added to the second low point. Actual work on the Gas Analyzer Panel consisted of (1) adding 12 new solenoid valves in the sample inlets; (2) modifying the panel to accommodate the new exo-sensor units; (3) installing a new pump and its associated tubing; and (4) wiring of all new and relocated components.

While testing the system, the Gas Decay Tank "C" sample line was found to be crossed with the Gas Surge Tank sample line. Due to greater pressure in the Gas Decay Tank than that of the Gas Surge Tank the sampling pump diaphragm was blown. This event also identified other problems with the system which required correction.

Design changes have been made to uncross the lines and install a pressure switch to prevent any subsequert overpressurization. The pump was replaced and new wiring was installed. Additional moisture traps, pressure regulators, valves and pressure indicators have been installed.

A detailed test procedure was prepared and approved. Testing of the system was completed in early December of 1986 and the system was placed "in-service". Operational checks were performed on the system after the plant returned to the operating mode following a refueling outage. The operational checks demonstrated that while the piping and sample tubing changes proved beneficial, the analyzers themselves proved unreliable due to inherent design problems. Therefore, the Waste Gas Hydrogen and Oxygen Monitoring System could not be returned to operable status.

Based on the problems encountered with the analyzers and sample/analyzer system, a new sample/analyzer system has been designed and installed. The improved system was designed with emphasis on sample conditioning, use of proven analyzers for the application and simple design. Initial testing has been completed. Initial operation began on June 29, 1988. As soon as final testing is complete and operating procedures are in place the analyzer system will be returned to service, which should be within two months.

8.4.2 Monitor: Waste Gas Holdup System Noble Gas Activity Monitor

Period of Inoperability: 4/17/88 to 6/28/88

Time Required by Technical Specifications to Restore Operability: 30 days

Cause of Inoperability:

The old Nuclear Measurement Corporation type monitor was replaced with a Sorrento Electronics (formerly known as General Atomics Corporation) type monitor.

Reason Operability Not Restored Within Allotted Time:

Replacement of the Gaseous Waste Management (GWM) system effluent monitor began on April 17, 1988. The process involved removing the old Nuclear Measurement Corporation monitor; forming new skids for the monitor; rerouting sample lines, power lines, and communications lines; and installing the new Sorrento Electronics monitor. A primary calibration was performed. Before the calibration could be accomplished a new calibration procedure had to be written and approved in order to evaluate detector energy response, linearity, and response to actual gaseous sources. Once the procedure was approved and the monitor installed and energized, the calibration was performed using solid and gaseous calibration sources. The primary calibration and functional testing of the monitor was completed on June 28, 1988 at which time the monitor was declared operable and placed back in service.

8.4.3 Monitor: Boron Waste Management System Effluent Monitor

Period of Inoperability: 4/13/88 to 6/7/88

Time Required by Technical Specifications to Restore Operability: 30 days

Cause of Inoperability:

The old Nuclear Measurement Corporation type monitor was replaced with a Sorrento Electronics (formerly known as General Atomics Corporation) type monitor.

Reason Operability Not Restored Within Allotted Time:

Replacement of the Boron Waste Management (BWM) system effluent monitor began by taking the monitor out of service on April 13, 1988. The involved and very time consuming process of removing the old Nuclear Measurement Corporation monitor and installing the new Sorrento Electronics monitor began. A primary calibration was to be performed, but before this could be accomplished a new calibration procedure had to be written and approved in order to evaluate detector energy response and linearity. Once the procedure was approved and the monitor installed and energized, a primary calibration was performed using solid calibration sources.

The primary calibration and functional testing of the monitor was completed on June 7, 1988 at which time the monitor was declared operable and placed back in service.

8.4.4 Monitor: Liquid Waste Management System Effluent Monitor

Period of Inoperability: 4/17/88 to 6/7/88

Time Required by Technical Specifications to Restore Operability: 30 days

Cause of Inoperability:

The old Nuclear Measurement Corporation type monitor was replaced with a Sorrento Electronics (formerly known as General Atomics Corporation) type monitor.

Reason Operability Not Restored Within Allotted Time:

Replacement of the Liquid Waste Management (LWM) system effluent monitor began by taking the monitor out of service on April 17, 1988. The involved and very time consuming process of removing the old Nuclear Measurement Corporation monitor and installing the new Sorrento Electronics monitor began. A primary calibration was to be performed but before this could be accomplished a new calibration procedure had to be written and approved in order to evaluate detector energy response and linearity. Once the procedure was approved and the monitor installed and energized, a primary calibration was performed using solid calibration sources.

The primary calibration and functional testing of the monitor was completed on June 7, 1988 at which time the monitor was declared operable and placed back in service.

8.5 Missed Effluent Samples

On April 13, 1988, it was discovered that a monthly Technical Specification (TS) sampling requirement was missed. TS Surveillance Requirement 4.11.2.1.2 requires a plant stack tritium sample to be taken and analyzed monthly. The surveillance was last performed on March 3, 1988. The tickler card reminding the Chemistry Technician to collect and analyze the tritium sample had not been placed in the 31 day file. The tickler card remained in the April monthly file. The root cause of this event was cognitive personnel error due to not filing the surveillance tickler card. This resulted in the sample not being scheduled. A plant stack tritium sample was taken and analyzed on April 13, 1988. As a result, several Chemistry procedures are being revised to ensure the tickler card file receives supervisory review and to provide clearer instructions for performing plant stack tritium sampling. The plant stack tritium sample is now scheduled by the Station Information Management System (SIMS) computer program.

A complete description of this event and the subsequent corrective actions was reported to the NRC in LER 88-007-00.

8.6 Corrections to Previous Semiannual Radioactive Effluent Release Reports

While reviewing the effluent release data covering the period from July 1, 1986 through December 31, 1986, a typographical error was found on page 28 of that report. The curies of Co-58 in spent resin solidified with cement was incorrectly reported as 1.5E+00. The correct value should have been 1.5E+01 curies. The corrected data is included in Attachment 1 of this report.

9.0 TABLES

1 Batch Release Summary

1A Semiannual Summation of all Releases by Quarter - All Airborne Effluents

1B Semiannual Airborne Continuous Elevated and Ground Level Releases

1C Semiannual Airborne Batch Elevated and Ground Level Releases

2A Semiannual Summation of All Releases by Quarter - All Liquid Effluents

2B Semiannual Liquid Continuous and Batch Releases

3 Solid Waste Shipped Offsite for Disposal

10.0 ATTACHMENTS

1. Corrections to the Semiannual Radioactive Effluent Release Report for the period of July 1 to December 31, 1986

TABLE 1

(1 of 1)

REPORT CATEGORY	: BATCH RELEASE SUMMARY
RELEASE POINT	: ALL
TYPE OF RELEASE	: BATCH LIQUID AND GASEOUS
PERIOD START TIME	: 0:00 HRS = 12:00AM JANUARY 1, 1988
PERIOD END TIME	: 4367:59 HRS = 11:59PM JUNE 30, 1988

LIQUID RELEASES

NUMBER OF RELEASES	:	166	
TOTAL TIME FOR ALL RELEASES	:	44367.0	MINUTES
MAXIMUM TIME FOR A RELEASE	:	487.0	MINUTES
AVERAGE TIME FOR A RELEASE	:	267.3	MINUTES
MINIMUM TIME FOR A RELEASE	:	32.0	MINUTES
AVERAGE STREAM FLOW	:	717522.3	GPM

GASEOUS RELEASES

NUMBER OF RELEASES	:	12	
TOTAL TIME FOR ALL RELEASES	:	2733.0	MINUTES
MAXIMUM TIME FOR A RELEASE	:	600.0	MINUTES
AVERAGE TIME FOR A RELEASE	:	227.8	MINUTES
MINIMUM TIME FOR A RELEASE	:	59.0	MINUTES

TABLE 1A

(1 of 1)

REPORT CATEGORY : SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
TYPE OF ACTIVITY : ALL AIRBORNE EFFLUENTS
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2

TYPE OF EFFLUENT	UNIT	QUARTER 1 HOURS 1-2160	QUARTER 2 HOURS 2161-4344	EST. TOTAL ERROR %
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE	CURIES	2.49E 03	1.91E 03	1.50E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	3.21E 02	2.43E 02	
3. PERCENT OF APPLICABLE LIMIT	%	N/A	N/A	
B. RADIOIODINES				
1. TOTAL IODINE-131	CURIES	8.63E-05	7.73E-04	1.50E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	1.11E-05	9.83E-05	
3. PERCENT OF APPLICABLE LIMIT	%	N/A	N/A	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	3.29E-07	2.62E-04	1.50E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	4.23E-08	3.34E-05	
3. PERCENT OF APPLICABLE LIMIT	%	N/A	N/A	
4. GROSS ALPHA RADIOACTIVITY	CURIES	3.14E-05	6.65E-05	
D. TRITIUM				
1. TOTAL RELEASE	CURIES	4.33E 01	1.73E 01	1.50E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	5.57E 00	2.20E 00	
3. PERCENT OF APPLICABLE LIMIT	%	N/A	N/A	

TABLE 1B

(1 of 1)

REPORT CATEGORY : SEMIANNUAL AIRBORNE CONTINUOUS ELEVATED AND GROUND LEVEL RELEASES, TOTALS FOR EACH NUCLIDE RELEASED.
TYPE OF ACTIVITY : FISSION GASES, IODINES, AND PARTICULATES
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2

		ELEVATED RELEASES		GROUND RELEASES	
	UNIT	QUARTER 1 HOURS	QUARTER 2 HOURS	QUARTER 1 HOURS	QUARTER 2 HOURS
NUCLIDE		1-2160	2161-4344	1-2160	2161-4344
FISSION GASES					
XE-131M	CURIES	0.00E-01	0.00E-01	4.52E 00	0.00E-01
XE-133	CURIES	0.00E-01	0.00E-01	2.40E 03	1.20E 03
XE-135	CURIES	0.00E-01	0.00E-01	9.21E 01	3.58E 01
TOTAL FOR PERIOD	CURIES	0.00E-01	0.00E-01	2.49E 03	1.23E 03
IODINES					
I-131	CURIES	0.00E-01	0.00E-01	8.63E-05	7.73E-04
I-133	CURIES	0.00E-01	0.00E-01	1.43E-06	1.26E-06
TOTAL FOR PERIOD	CURIES	0.00E-01	0.00E-01	8.78E-05	7.74E-04
PARTICULATES					
H-3	CURIES	0.00E-01	0.00E-01	4.33E 01	1.67E 01
CR-51	CURIES	0.00E-01	0.00E-01	0.00E-01	6.47E-05
MN-54	CURIES	0.00E-01	0.00E-01	0.00E-01	6.90E-06
CO-58	CURIES	0.00E-01	0.00E-01	0.00E-01	9.46E-05
CO-60	CURIES	0.00E-01	0.00E-01	0.00E-01	2.42E-05
ZR-95	CURIES	0.00E-01	0.00E-01	0.00E-01	2.33E-05
NB-95	CURIES	0.00E-01	0.00E-01	0.00E-01	4.26E-05
RU-103	CURIES	0.00E-01	0.00E-01	0.00E-01	1.45E-07
RU-106	CURIES	0.00E-01	0.00E-01	0.00E-01	1.99E-06
CS-134	CURIES	0.00E-01	0.00E-01	0.00E-01	2.95E-07
CS-137	CURIES	0.00E-01	0.00E-01	3.29E-07	2.94E-06
G ALPHA	CURIES	0.00E-01	0.00E-01	3.14E-05	6.65E-05
HG-203	CURIES	0.00E-01	0.00E-01	0.00E-01	4.03E-07
TOTAL FOR PERIOD	CURIES	0.00E-01	0.00E-01	4.33E 01	1.67E 01

TABLE 1C

(1 of 1)

REPORT CATEGORY : SEMIANNUAL AIRBORNE BATCH ELEVATED AND GROUND
: LEVEL RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.
TYPE OF ACTIVITY : FISSION GASES, IODINES, AND PARTICULATES
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2

		ELEVATED RELEASES		GROUND RELEASES	
	UNIT	QUARTER 1 HOURS	QUARTER 2 HOURS	QUARTER 1 HOURS	QUARTER 2 HOURS
NUCLIDE		1-2160	2161-4344	1-2160	2161-4344
FISSION GASES					
KR-85M	CURIES	0.00E-01	0.00E-01	0.00E-01	2.34E-01
KR-85	CURIES	0.00E-01	0.00E-01	0.00E-01	1.21E 01
KR-88	CURIES	0.00E-01	0.00E-01	0.00E-01	1.57E-01
XE-131M	CURIES	0.00E-01	0.00E-01	0.00E-01	1.18E 01
XE-133M	CURIES	0.00E-01	0.00E-01	0.00E-01	4.50E 00
XE-133	CURIES	0.00E-01	0.00E-01	0.00E-01	6.43E 02
XE-135	CURIES	0.00E-01	0.00E-01	0.00E-01	4.01E 00
AR-41	CURIES	0.00E-01	0.00E-01	0.00E-01	3.85E-01
TOTAL FOR PERIOD	CURIES	0.00E-01	0.00E-01	0.00E-01	6.76E 02
IODINES					
NONE					
PARTICULATES					
H-3	CURIES	0.00E-01	0.00E-01	0.00E-01	5.59E-01

TABLE 2A

(1 of 1)

REPORT CATEGORY : SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
TYPE OF ACTIVITY : ALL LIQUID EFFLUENTS
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2

TYPE OF EFFLUENT	UNIT	QUARTER 1 HOURS 1-2160	QUARTER 2 HOURS 2161-4344	EST. TOTAL ERROR %
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE(NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	1.76E-01	6.45E-01	1.50E 01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	2.14E-09	1.68E-08	
3. PERCENT OF APPLICABLE LIMIT	%	N/A	N/A	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	1.23E 02	2.24E 01	1.50E 01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	1.49E-06	5.84E-07	
3. PERCENT OF APPLICABLE LIMIT	%	N/A	N/A	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	4.22E 01	5.22E 00	1.50E 01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	5.12E-07	1.36E-07	
3. PERCENT OF APPLICABLE LIMIT	%	N/A	N/A	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	5.29E-06	3.34E-06	1.50E 01
E. WASTE VOL RELEASED(PRE-DILUTION)	GAL	1.45E 06	7.18E 05	1.50E 01
F. VOLUME OF DILUTION WATER USED	GAL	2.18E 10	1.01E 10	1.50E 01

TABLE 2B

(1 of 2)

REPORT CATEGORY : SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES
: TOTALS FOR EACH NUCLIDE RELEASED.
TYPE OF ACTIVITY : ALL RADIONUCLIDES
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2

		CONTINUOUS RELEASES		BATCH RELEASES	
	UNIT	QUARTER 1 HOURS	QUARTER 2 HOURS	QUARTER 1 HOURS	QUARTER 2 HOURS
NUCLIDE		1-2160	2161-4344	1-2160	2161-4344
ALL NUCLIDES					
H-3	CURIES	0.00E-01	0.00E-01	1.23E 02	2.24E 01
NA-24	CURIES	0.00E-01	0.00E-01	2.21E-04	6.77E-04
CR-51	CURIES	0.00E-01	0.00E-01	6.43E-05	3.58E-02
MN-54	CURIES	0.00E-01	0.00E-01	1.61E-04	2.76E-03
FE-55	CURIES	0.00E-01	0.00E-01	2.31E-02	5.55E-02
FE-59	CURIES	0.00E-01	0.00E-01	1.03E-04	2.77E-03
CO-58	CURIES	0.00E-01	0.00E-01	1.06E-02	2.70E-01
CO-60	CURIES	0.00E-01	0.00E-01	1.61E-03	1.36E-02
RB-88	CURIES	0.00E-01	0.00E-01	8.75E-02	0.00E-01
SR-89	CURIES	0.00E-01	0.00E-01	2.89E-04	1.51E-04
SR-92	CURIES	0.00E-01	0.00E-01	0.00E-01	1.43E-04
ZR-95	CURIES	0.00E-01	0.00E-01	4.01E-05	6.55E-03
ZR-97	CURIES	0.00E-01	0.00E-01	0.00E-01	5.62E-05
NB-95	CURIES	0.00E-01	0.00E-01	2.51E-04	1.04E-02
MO-99	CURIES	0.00E-01	0.00E-01	0.00E-01	1.04E-03
TC-99M	CURIES	0.00E-01	0.00E-01	8.39E-06	1.05E-03
RU-103	CURIES	0.00E-01	0.00E-01	0.00E-01	1.13E-03
AG-110M	CURIES	0.00E-01	0.00E-01	3.98E-05	2.21E-03
TE-132	CURIES	0.00E-01	0.00E-01	0.00E-01	8.14E-04
I-131	CURIES	0.00E-01	0.00E-01	9.12E-03	8.69E-02
I-132	CURIES	0.00E-01	0.00E-01	0.00E-01	3.92E-04
I-133	CURIES	0.00E-01	0.00E-01	6.95E-04	3.36E-03
CS-134	CURIES	0.00E-01	0.00E-01	1.33E-02	1.90E-02
CS-136	CURIES	0.00E-01	0.00E-01	4.72E-05	2.92E-04
CS-137	CURIES	0.00E-01	0.00E-01	1.76E-02	2.02E-02
CS-138	CURIES	0.00E-01	0.00E-01	3.12E-03	0.00E-01
BA-139	CURIES	0.00E-01	0.00E-01	4.07E-03	4.59E-04
BA-140	CURIES	0.00E-01	0.00E-01	2.38E-05	0.00E-01

TABLE 2B

(2 of 2)

REPORT CATEGORY : SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES
: TOTALS FOR EACH NUCLIDE RELEASED.
TYPE OF ACTIVITY : ALL RADIONUCLIDES
REPORTING PERIOD : QUARTER # 1 AND QUARTER # 2

		CONTINUOUS RELEASES		BATCH RELEASES	
	UNIT	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
		HOURS	HOURS	HOURS	HOURS
NUCLIDE		1-2160	2161-4344	1-2160	2161-4344
ALL NUCLIDES CONTINUED					
LA-140	CURIES	0.00E-01	0.00E-01	5.10E-04	3.50E-03
CE-141	CURIES	0.00E-01	0.00E-01	0.00E-01	3.04E-04
CE-144	CURIES	0.00E-01	0.00E-01	0.00E-01	4.97E-04
W-187	CURIES	0.00E-01	0.00E-01	0.00E-01	2.00E-04
NP-239	CURIES	0.00E-01	0.00E-01	0.00E-01	4.77E-03
KR-85M	CURIES	0.00E-01	0.00E-01	4.50E-03	1.79E-05
KR-85	CURIES	0.00E-01	0.00E-01	1.37E-01	3.85E-03
KR-87	CURIES	0.00E-01	0.00E-01	8.88E-04	0.00E-01
KR-88	CURIES	0.00E-01	0.00E-01	5.57E-03	0.00E-01
XE-131M	CURIES	0.00E-01	0.00E-01	3.30E-01	4.39E-02
XE-133M	CURIES	0.00E-01	0.00E-01	2.49E-01	3.01E-02
XE-133	CURIES	0.00E-01	0.00E-01	4.13E 01	5.13E 00
XE-135	CURIES	0.00E-01	0.00E-01	1.08E-01	6.73E-03
AR-41	CURIES	0.00E-01	0.00E-01	1.29E-05	0.00E-01
SR-90	CURIES	0.00E-01	0.00E-01	7.86E-06	3.45E-06
G ALPHA	CURIES	0.00E-01	0.00E-01	5.29E-06	3.34E-06
CO-57	CURIES	0.00E-01	0.00E-01	0.00E-01	3.67E-04
SB-124	CURIES	0.00E-01	0.00E-01	4.49E-04	3.27E-02
SN-113	CURIES	0.00E-01	0.00E-01	3.11E-05	4.59E-03
NB-97	CURIES	0.00E-01	0.00E-01	8.16E-05	1.05E-03
SB-122	CURIES	0.00E-01	0.00E-01	5.60E-05	1.66E-02
SB-125	CURIES	0.00E-01	0.00E-01	3.12E-03	3.34E-02
CE-139	CURIES	0.00E-01	0.00E-01	1.38E-05	0.00E-01
SB-127	CURIES	0.00E-01	0.00E-01	0.00E-01	1.10E-03
TOTAL FOR PERIOD	CURIES	0.00E-01	0.00E-01	1.65E 02	2.83E 01

TABLE 3

(1 of 4)

Solid Waste Shipped Offsite for Disposal
During Period 1-1-88 thru 6-30-88

Waste Type	Container Volume Volume (ft^3)	Waste Volume (m^3)	Total Activity (Ci)	% Error (Ci)
Compacted Dry Active Waste	95	142.59	2.57	± 25%
Non Compacted Dry Active Waste	95 182	15.91	2.96	± 25%
Liquid Waste Management Spent Resin Solidified With Cement	182	20.6	23	± 25%
Resin Waste Management & Liquid Waste Management Spent Resin Solidified With Cement	182	5.15	176	± 25%

TABLE 3

(2 of 4)

Estimates of Major Nuclides By Waste Type

	NUCLIDE NAME	PERCENT ABUNDANCE	CURIES
Compacted Dry Active Waste	Cs-137	41.932%	1.08E+00
	Co-58	19.423%	4.99E-01
	Cs-134	18.885%	4.85E-01
	Fe-55	9.860%	2.53E-01
	Co-60	3.745%	9.62E-02
	Ni-63	2.235%	5.74E-02
	Mn-54	2.099%	5.39E-02
	I-131	1.645%	4 23E-02
	C-14	.178%	4.57E-03
	Ni-59	.000%	0.00E+00
	Nb-94	.000%	0.00E+00
	H-3	.000%	0.00E+00
	Sr-90	.000%	0.00E+00
	Tc-99	.000%	0.00E+00
	I-129	.000%	0.00E+00
	Pu-241	.000%	0.00E+00
	Cm-242	.000%	0.00E+00

	NUCLIDE NAME	PERCENT ABUNDANCE	CURIES
Non-Compacted Dry Active Waste	Cs-137	38.820%	1.15E+00
	Co-58	21.364%	6.34E-01
	Cs-134	17.781%	5.28E-01
	Fe-55	9.235%	2.74E-01
	I-131	5.054%	1.50E-01
	Co-60	3.490%	1.04E-01
	Ni-63	2.067%	6.14E-02
	Mn-54	2.024%	6.01E-02
	C-14	.165%	4.89E-03
	Ni-59	.000%	0.00E+00
	Nb-94	.000%	0.00E+00
	H-3	.000%	0.00E+00
	Sr-90	.000%	0.00E+00
	Tc-99	.000%	0.00E+00
	I-129	.000%	0.00E+00
	Pu-241	.000%	0.00E+00
	Cm-242	.000%	0.00E+00

TABLE 3
(3 of 4)

Estimates of Major Nuclides By Waste Type

	NUCLIDE NAME	PERCENT ABUNDANCE	CURIES
Liquid Waste Management System Spent Resin Solidified With Cement	Co-58	44.772%	1.04E+01
	Cs-137	24.087%	5.59E+00
	Cs-134	13.003%	3.02E+00
	Fe-55	8.306%	1.93E+00
	Co-60	3.135%	7.28E-01
	I-131	2.550%	5.92E-01
	Ni-63	1.860%	4.32E-01
	Mn-54	1.666%	3.87E-01
	H-3	.474%	1.10E-01
	C-14	.148%	3.43E-02
	Ni-59	.000%	0.00E+00
	Nb-94	.000%	0.00E+00
	Sr-90	.000%	0.00E+00
	Tc-99	.000%	0.00E+00
	I-129	.000%	0.00E+00
	Pu-241	.000%	0.00E+00
	Cm-242	.000%	0.00E+00

	NUCLIDE NAME	PERCENT ABUNDANCE	CURIES
Resin Waste Management & Liquid Waste Management Spent Resin Solidified with Cement	Cs-137	47.281%	8.29E+01
	Cs-134	24.753%	4.34E+01
	Co-58	11.578%	2.03E+01
	Ni-63	6.160%	1.08E+01
	Co-60	3.867%	6.78E+00
	Mn-54	3.222%	5.65E+00
	Fe-55	3.091%	5.42E+00
	C-14	.029%	5.08E+02
	H-3	.020%	3.47E-02
	Ni-59	.000%	0.00E+00
	Nb-94	.000%	0.00E+00
	Sr-90	.000%	0.00E+00
	Tc-99	.000%	0.00E+00
	I-129	.000%	0.00E+00
	Pu-241	.000%	0.00E+00
	Cm-242	.000%	0.00E+00

TABLE 3
(4 of 4)

Solid Waste Disposition Summary

Number of Shipments	Mode of Transportation	Destination
11	Truck	Beatty

Waste Class	# of Shipments	Type of Shipments	Type of Container	Mode	Destination
A	10	LSA	Strongtight	Truck	Beatty
B	1	LSA	Type A	Truck	Beatty

ATTACHMENT 1

CORRECTIONS TO THE SEMIANNUAL RADIOACTIVE
EFFLUENT RELEASE REPORT FOR THE PERIOD OF
JULY 1 TO DECEMBER 31, 1986

	C-14	.0%	9.1E-04
	Sr-90	.0%	.0E+00
	Tc-99	.0%	.0E+00
	I-129	.0%	.0E+00
	Cs-134	11.8%	7.0E-01
	Cs-137	22.8%	1.4E+00
	Ce-141	1.8%	1.1E-01
	Pu-241	.2%	9.5E-03
	Cm-242	.0%	5.6E-07
LIQUID WASTE MANANGEMENT SYSTEM SPENT RESIN DEWATERED	Mn-54	4.5%	5.5E-02
	Co-58	79.3%	9.6E-01
	Co-60	.9%	1.1E-02
	Ni-59	.0%	.0E+00
	Ni-63	.4%	5.0E-03
	Nb-94	.0%	.0E+00
	Sb-124	3.4%	4.1E-02
	H-3	.2%	2.1E-03
	C-14	.0%	.0E+00
	Sr-90	.0%	.0E+00
	Tc-99	.0%	.0E+00
	Cs-134	2.1%	2.6E-02
	Cs-137	5.7%	6.9E-02
	I-131	2.1%	2.6E-02
	Pu-241	.0%	9.5E-07
	Cm-242	.0%	.0E+00
LIQUID WASTE MANAGEMENT SYSTEM AND RESIN WASTE MANAGEMENT SYSTEM SPENT RESIN SOLIDIFIED WITH CEMENT	Mn-54	4.6%	1.1E+00
	Co-58	59.0%	1.5E+01
	Co-60	4.0%	9.7E-01
	Ni-59	.0%	8.5E-03
	Ni-63	2.2%	5.4E-01
	Nb-94	.0%	.0E+00
	H-3	.1%	1.5E-02
	C-14	.0%	2.2E-03
	Sr-90	.0%	7.6E-03
	Tc-99	.0%	.0E+00
	I-129	.0%	.0E+00
	Cs-134	9.5%	2.3E+00
	Cs-137	16.6%	4.1E+00
	Sr-89	1.8%	4.4E-01
	Pu-241	.0%	3.8E-03
	Cm-242	.0%	4.9E-05

*** SOLID WASTE DISPOSITION SUMMARY ***

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
2	TRUCK	BARNWELL
5	TRUCK	RICHLAND
0	TRUCK	BEATTY
0	TRUCK	OTHER

NUMBER OF	TYPE OF	TYPE	MODE OF

Refer: 10CFR50.36a

LOUISIANA POWER & LIGHT / 317 BARONNE STREET • P. O. BOX 60340
NEW ORLEANS, LOUISIANA 70160 • (504) 595-3100
MIDDLE SOUTH UTILITIES SYSTEM

August 29, 1988

W3P88-1268
A4.05
QA

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Semiannual Radioactive Effluent Release Report

Enclosed is the subject report on effluent releases which covers the period of January 1 through June 30, 1988. This report is submitted per Section 6.9.1.8 in the Waterford 3 Technical Specifications (NUREG-1117) of Appendix A to Facility Operating License No. NPF-38 and 10CFR50.36a(a)(2), pursuant to 10CFR50.4.

Very truly yours,

R.F. Burski
Manager
Nuclear Safety & Regulatory Affairs

RFB:BGM:ssf

Enclosure

cc (w/enclosure): R.D. Martin, NRC Region IV
NRC Resident Inspectors Office

cc (w/o enclosure): J.A. Calvo, NRC-NRR
D.L. Wigginton, NRC-NRR
E.L. Blake
W.M. Stevenson

IE46
1/1