

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/85-47

Construction Permit: CPPR-145

Docket: 50-458

Licensee: Gulf States Utilities (GSU)
P. O. Box 2951
Beaumont, Texas 77704

Facility Name: River Bend Station (RBS)

Inspection At: RBS Site, St. Francisville, Louisiana

Inspection Conducted: June 10-14, 1985

Inspector:

J. Blair Nicholas
J. Blair Nicholas, Radiation Specialist, Facilities
Radiological Protection Section

7/15/85
Date

Approved:

Blaine Murray
Blaine Murray, Chief, Facilities Radiological
Protection Section

7/15/85
Date

J. P. Jardon
J. P. Jardon, Chief, Reactor Project Section A

7/19/85
Date

Inspection Summary

Inspection Conducted June 10-14, 1985 (Report 50-458/85-47)

Areas Inspected: Routine, announced inspection of the licensee's chemistry/radiochemistry program including review of outstanding open items, organization, staffing, staff qualifications, training program, chemistry/radiochemistry program, post accident sampling system (PASS), facilities and equipment, analytical instrumentation, quality assurance (QA) program of chemistry/radiochemistry activities, and administrative and analytical procedures. The inspection involved 36 inspector-hours onsite by one NRC inspector.

Results: Within the areas inspected, no violations or deviations were identified. Two previously identified open items were closed.

DETAILS

1. Persons Contacted

GSU

*J. C. Deddens, Vice President, RBS Nuclear Group
*T. F. Plunkett, Plant Manager
*M. F. Cassada, Supervisor, Radiological Programs
*P. J. Dautel, Licensing Staff Assistant
*S. L. Driscoll, Supervisor, Radiological Engineering
*D. R. Gipson, Assistant Plant Manager - Operations
*R. J. King, Licensing
*G. R. Kimmell, Supervisor, Operations QA
*A. D. Kowatezuk, Assistant Plant Manager - Maintenance
D. L. Latwaitis, Chemistry Foreman
*G. D. Lipham, Plant Chemist
*C. L. Nash, Chemistry Supervisor
*E. R. Oswood, QA Engineer
C. A. Rohrmann, Nuclear Training Coordinator - Technical
*R. J. Shah, QA Engineer
*J. E. Spivey, Jr., QA Engineer
*R. B. Stafford, Director, Quality Services
D. R. Suggs, Instruments & Controls (I&C) Foreman
L. R. Thompson, I&C Supervisor
*P. F. Tomlinson, Director, Operations QA
*F. L. Willis, Lead Chemist
W. K. Woodcox, Chemistry Foreman

Others

M. G. Brown, Chemistry, Consultant, General Electric
*D. D. Chamberlain, NRC Senior Resident Inspector
R. O. Surette, QA Engineer, Stone and Webster

*Denotes those present during the exit briefing on June 14, 1985.

The NRC inspector also interviewed several other RBS employees during the inspection.

2. Licensee Action On Previous Inspection Findings

(Closed) Open Item (458/8422-07): Chemistry/Radiochemistry Analytical Instrumentation Calibration and Quality Control - This item involved the lack of approved operating, calibration, and performance check procedures, verification of operability and calibration of analytical instruments, resolution of hardware and software problems associated with the gamma spectrometer system, and the implementation of an instrument performance check program for all analytical instruments. The NRC inspector reviewed

the licensee's inventory of analytical equipment and supplies to be used in the laboratories and counting room and verified that equipment originally identified by the licensee had been purchased, received, and placed in the laboratories. Instrument operating, calibration, and performance check procedures had been written, tested, and approved. Analytical instrumentation had been tested and calibrated and a performance check program had been implemented and was being maintained on instrumentation in routine use. The NRC inspector reviewed calibration data and performance check data for selected laboratory and counting room analytical instrumentation and found that the records were maintained according to established procedures. The licensee's analytical instrumentation calibration and performance check program appeared to be adequate. This item is considered closed.

(Closed) Open Item (458/8422-08): Quality Assurance Program - This item involved the lack of implementation of a comprehensive audit and surveillance program for chemistry/radiochemistry activities. The NRC inspector reviewed the RBS QA surveillance and audit program and found that the licensee had written and approved procedures, directives, and instructions which would establish a satisfactory QA program. The audit procedures indicated that the licensee will have a technical specialist with expertise in the area of the audit on the audit team. The licensee had completed an audit of the chemistry/radiochemistry program on June 6, 1985. The NRC inspector reviewed the audit checklist and discussed the audit findings with the lead auditor. The audit procedures and checklists provided adequate scope and depth to ensure thoroughness of program evaluation. It was noted that the audit team included a technical specialist trained and knowledgeable in chemistry/radiochemistry activities at a nuclear power facility. This item is considered closed.

3. Chemistry/Radiochemistry Organization

The NRC inspector reviewed the licensee's organization and staffing of the chemistry/radiochemistry section to determine compliance with commitments in Chapter 13, "Conduct of Operations," in the Final Safety Analysis Report (FSAR) and requirements in Section 6.2, "Organization," in the draft Technical Specifications (TS).

The NRC inspector reviewed the RBS chemistry/radiochemistry staff assignments and found the chemistry/radiochemistry organization in agreement with the FSAR and draft TS. At the time of the inspection, all chemistry/radiochemistry section staff positions had been filled.

No violations or deviations were identified.

4. Chemistry/Radiochemistry Personnel Qualifications

The NRC inspector reviewed the qualifications of the chemistry staff to determine compliance with commitments in Chapter 13, "Conduct of Operations," in the FSAR and requirements in Section 6.3, "Unit Staff Qualifications," in the draft TS.

The NRC inspector reviewed the resumes for each chemistry/radiochemistry staff member to determine if the members of the staff met the experience and educational qualifications as committed to in the FSAR. The NRC inspector determined that all supervisory personnel in the chemistry/radiochemistry section met the ANSI/ANS 3.1-1978 qualifications as committed to in the FSAR and the draft TS. Fifteen of sixteen nuclear chemistry technician positions were filled with personnel that satisfied ANSI/ANS 3.1-1978 qualifications. The sixteenth technician will meet the ANSI/ANS 3.1-1978 qualification for experience in October 1985. The licensee was supplementing the permanent plant chemistry/radiochemistry staff with three ANSI/ANS 3.1-1978 qualified contract personnel. The NRC inspector determined that the licensee had a sufficient qualified staff to meet shift staffing requirements.

No violations or deviations were identified.

5. Chemistry/Radiochemistry Training Program

The NRC inspector reviewed the licensee's chemistry/radiochemistry training program to determine compliance with commitments in Chapter 13, "Conduct of Operations," in the FSAR and requirements in Section 6.4, "Training," in the draft TS and 10 CFR 19.12.

The NRC inspector discussed the training program for chemistry/radiochemistry personnel with the nuclear training coordinator - technical and the chemistry supervisor. The licensee had written and approved training department procedures. A formal training program for chemistry/radiochemistry personnel had been developed. The training program is tentatively scheduled to be implemented on or about July 1, 1985, or when the shift rotation schedule is approved and implemented. The NRC inspector reviewed the class schedule and lesson plans for the training program and found them satisfactory.

The NRC inspector reviewed the chemistry/radiochemistry section individual staff training records and determined that those personnel classified as nuclear chemistry technicians had completed the initial interim training matrix as described by the chemistry/radiochemistry section Procedure CSP-003, "Chemistry Personnel Qualifications," Revision 1, March 22, 1985, with the exception of PASS hands-on training, and general RBS systems training which are to be completed prior to exceeding 5 percent power.

Open Item (458/8422-03): Chemistry/Radiochemistry Training Program, will remain open pending implementation of the formal training program for chemistry/radiochemistry personnel.

6. Chemistry/Radiochemistry Program

The NRC inspector reviewed the licensee's chemistry/radiochemistry program to determine compliance with commitments in Chapter 5, "Reactor Coolant System and Connected Systems;" Chapter 9, "Auxiliary Systems;" and Chapter 11, "Radioactive Waste Management;" and requirements in Section 3/4.4.4, "Chemistry," in the draft TS.

The NRC inspector's review of the chemistry/radiochemistry program found that the licensee had completed and approved all identified administrative procedures, surveillance procedures, chemical control procedures, instrument calibration and performance check procedures, and chemistry/radiochemistry analytical procedures. All analytical procedures for the determination of various chemistry and radiochemistry parameters had been tested and verified using known standards. Sixty-seven procedures were currently in the revision review cycle awaiting final approval.

The NRC inspector inspected the various chemistry sampling areas including the reactor plant sample panel, turbine plant sample panel, condensate demineralizer sample panel, makeup water sample panel, and radwaste sample panel. The sample panels were found to be in various stages of installation and testing. Sample lines were connected and process instrumentation was installed. Sample points had been verified and most sample lines had been traced and measured as a basis for determining sample line flush times to provide representative samples. The licensee had tested and revised sampling procedures to operate the various chemistry sample panels; however, the procedure revisions had not yet been approved. The licensee had incorporated into the sampling procedure revisions sample flush times calculated from line measurements to provide representative samples. The licensee had not completed verification of tank volumes for liquid radwaste tanks and had not determined tank recirculation times. The process instrumentation installed in each of the sample panels had not been calibrated by the licensee and was not in a standby condition operable and readily available to support plant operation.

During the exit briefing, the status of the sample panels and process instrumentation was discussed. The licensee agreed to have the reactor water sample panel and makeup water sample panel and installed process instrumentation on these panels tested, calibrated, and operable prior to fuel load. The licensee further agreed to have the turbine plant sample panel, condensate demineralizer sample panel, and radwaste sample panel and installed process instrumentation on these panels tested, calibrated, and operable prior to initial criticality. The NRC inspector also discussed with the licensee which plant tanks required determination of recirculation times to verify representative samples. The licensee agreed to perform testing on the liquid radwaste recovery sample tanks to determine tank recirculation times to produce representative samples prior to initial criticality.

Open Item (458/8422-04): Chemistry/Radiochemistry Program, will remain open pending:

- Approval and acceptance of all chemistry/radiochemistry analytical procedures.
- Installation and complete testing of the sample panels.

- Completion of calibration and testing of sample panel process instrumentation.
- Verification of liquid radwaste recovery sample volume and recirculation time to produce a representative sample.
- Completion of approved and accepted sampling procedures for use of the sampling panels and implementation of detailed sampling procedures for each chemistry system to be sampled.

No violations or deviations were identified.

7. Postaccident Sampling System

The NRC inspector reviewed the licensee's PASS to determine compliance with commitments in Chapter 9, "Auxiliary Systems," in the FSAR and the requirements in NUREG-0737 and in Section 6.8, "Procedures and Programs," in the draft TS.

The NRC inspector inspected the area in the plant where the PASS components were being installed. The PASS sampling equipment and control panel were not yet completely installed. Site acceptance testing had not been performed on the PASS.

The licensee had not completed installation of the PASS sample preparation fume hood in the area adjacent to the radiochemistry laboratory. The fume hood required electrical installation to be operable. Testing of the sample transport device and sample handling methods had not been completed. PASS operating procedures had been written and approved, but had not been tested and accepted. The licensee had completed PASS classroom theory training for the chemistry/radiochemistry technicians; however, the technicians had not completed hands-on operation training on the PASS as part of their shift qualification training. The licensee had performed preliminary PASS representative sample verification testing of PASS reactor coolant sample lines by comparing chemical analyses of samples taken at the inlet to the PASS piping station and at the reactor coolant flow transmitter at the jet pump in the normal reactor coolant sample line. The NRC inspector reviewed the results of the "PASS Representative Sample Verification Test 1SST-042," Revision 0, performed May 16, 1985, and found the preliminary test results of the PASS reactor coolant sample line acceptable. However, the licensee had not performed operability verification testing of PASS by collecting samples of reactor coolant and containment atmosphere using PASS under simulated accident conditions and performing comparative analyses on all required chemistry and radiochemistry parameters between the PASS and the normal routine sample points for reactor coolant and containment atmosphere. The NRC inspector discussed NUREG-0737, which requires that PASS must be tested and operational before the plant exceeds 5 percent power.

Open Item (458/8422-05): Postaccident Sampling System, will remain open pending:

- Installation of proposed system and completion of site acceptance testing.

- Completion of PASS sample preparation area.
- Checkout of system operation by performing trial runs using the sample transport devices and the sample preparation facilities in the radiochemistry laboratory.
- Training of chemistry/radiochemistry technicians.
- Verification of system performance by collecting samples of reactor water and containment atmosphere under simulated accident conditions and performing required comparative analyses.

No violations or deviations were identified.

8. Facilities, Equipment, and Supplies

The NRC inspector inspected the facilities to be used by the chemistry/radiochemistry staff. The following facilities were inspected: cold laboratory, radiochemistry laboratory, radiochemistry counting room, chemistry equipment and chemical storage areas, chemistry sampling panels, PASS sample preparation area, and chemistry/radiochemistry personnel office and study areas. The licensee had completed construction in all the laboratory and office areas inspected. The chemistry sampling areas and sample panels were not completed and the process instrumentation was not tested and calibrated and was not routinely operational. All chemistry related plant systems had not been turned over to GSU from construction. The PASS sample preparation fume hood adjacent to the radiochemistry laboratory was not completed.

During the exit briefing, the status of chemistry sample panels and the PASS sample preparation fume hood was discussed. As outlined in paragraph 6 of this report, the licensee agreed that specific sample panels and associated installed process instrumentation will be tested, calibrated, and operational prior either to fuel load or initial criticality. The licensee also agreed that the PASS sample preparation fume hood will be completely installed and operational prior to the plant exceeding 5 percent power.

Open Item (458/8422-06): Facilities, Equipment, and Supplies, will remain open pending completion of construction, testing, and calibration and the routine use of the chemistry sample panels and associated process instrumentation and all chemistry/radiochemistry work areas.

No violations or deviations were identified.

9. Procedures

The NRC inspector reviewed the licensee's chemistry/radiochemistry section procedures to determine compliance with 10 CFR Part 20 requirements; commitments in Chapter 13, "Conduct of Operations," in the FSAR; and the requirements in Section 6.8, "Procedures and Programs," in the draft TS.

The NRC inspector reviewed the procedures for chemistry/radiochemistry section administration and operation and determined that the licensee had written and approved 213 procedures (96 percent) out of a proposed 221. The NRC inspector noted, that of the 213 procedures which had been approved, 146 procedures had been accepted for use. At the time of the inspection, the licensee had 67 procedures submitted for revision after identifying problems during initial testing. The licensee agreed these revisions will be approved and the procedures accepted for use prior to initial criticality.

Open Item (458/8422-09): Procedures, will remain open pending completion, testing, and acceptance of all proposed chemistry/radiochemistry procedures prior to initial criticality.

No violations or deviations were identified.

10. Status of the Chemistry/Radiochemistry Section

During this inspection the NRC inspector reviewed the licensee's status in the areas of organization, staffing, staff qualifications, training, chemistry/radiochemistry program, PASS, facilities and equipment, analytical instrument calibration and quality control, QA program, and procedures and found the licensee's chemistry/radiochemistry section to be approximately 95 percent complete in resolving NRC inspector identified concerns. Of the nine open items originally identified during the initial preoperational chemistry/radiochemistry inspection conducted in July 1984, four are presently closed leaving five to be resolved and closed. All of the open items must be resolved prior to exceeding 5 percent power.

11. Exit Briefing

The NRC inspector met with the licensee representatives identified in paragraph 1 of this report and the NRC resident inspector at the conclusion of the inspection on June 14, 1985. The NRC inspector summarized the scope and results of the inspection and discussed the closing of two open items. The NRC inspector indicated that the remaining outstanding open items in this area should be resolved prior to the plant exceeding 5 percent power. The licensee committed to the following:

- a. The formal training program for chemistry/radiochemistry personnel to be implemented upon approval and implementation of the 4 shift rotation schedule.
- b. The reactor water sample panel and makeup water sample panel and associated installed process instrumentation on these panels tested, calibrated, and operable prior to fuel load.
- c. The turbine plant sample panel, condensate demineralizer sample panel, and radwaste sample panel and associated installed process

instrumentation on these panels tested, calibrated, and operable prior to initial criticality.

- d. The PASS installed and tested prior to exceeding 5 percent power.
- e. The chemistry/radiochemistry procedures completed, tested, and accepted for use prior to initial criticality.