

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/84-06

Construction Permit: CPPR-145

Docket: 50-458

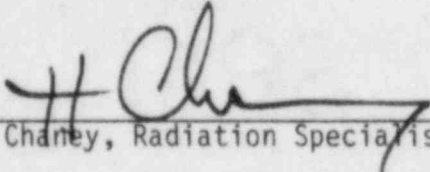
Licensee: Gulf States Utilities (GSU)
P. O. Box 2951
Beaumont, TX 77704

Facility Name: River Bend Station (RBS)

Inspection At: RBS Site, St. Francisville, West Feliciana Parish, LA

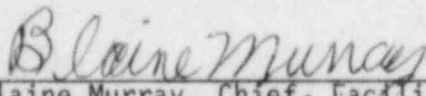
Inspection Conducted: April 30 - May 4, 1984

Inspector:

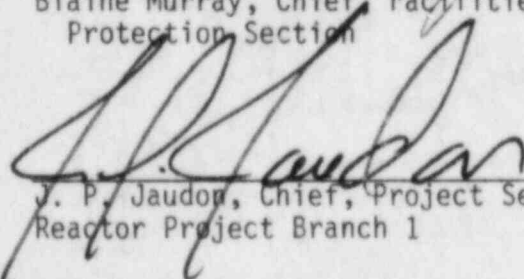

H. D. Chaney, Radiation Specialist

7/12/84
Date

Approved:


Blaine Murray, Chief, Facilities Radiation
Protection Section

7/12/84
Date


J. P. Jaudon, Chief, Project Section A,
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7/18/84
Date

Inspection Summary

Inspection Conducted April 30 - May 4, 1984 (Report 50-458/84-06)

Areas Inspected: Routine, announced inspection of the licensee's radiation protection (RP) program to include organization, management controls, staffing, qualifications, RP training programs, internal and external radiation exposure control programs, respiration protection, radiological posting, survey programs, radiological work control programs, NRC notifications and reports, ALARA programs, RP equipment, expendable supplies, RP program implementing procedures, RP instrument, calibration program, RP facilities, audits, reviews, startup shielding survey, plant ventilation, new fuel receipt, and selected NUREG-0737 action items. The inspection involved 76 inspector-hours onsite by two NRC inspectors.

Results: Within the 24 areas inspected, no violations or deviations were identified (29 open items are identified in paragraph 3).

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DETAILS

1. Persons Contacted

GSU

W. J. Cahill, Sr. Vice President, RBS Nuclear Group
*J. C. Deddens, Vice President, RBS Nuclear Group
*M. F. Cassada, RP and Chemistry Supervisor
*J. W. Cook, Lead Environmental Analyst
*T. C. Crouse, Manager, Quality Assurance (QA)
*P. J. Dantel, Onsite Licensing Representative
D. L. Davenport, Security Supervisor
*S. L. Driscoll, Radiation Specialist
R. G. Easlick, RP Foreman
C. L. Fantacci, RP Supervisor
*P. E. Freehill, Assistant Plant Manager (PM) Operations
*P. D. Graham, Assistant PM Services
*T. O. Gray, Director, Operations QA
*K. C. Hooger, Supervisor, Quality Systems
*G. V. King, Plant Administrative Supervisor
*H. M. McClellan, QA Engineer
*C. L. Mash, Chemistry Supervisor
*W. H. Odell, Director, Nuclear Training
*D. M. Ross, Health Physicist
*D. G. Seymour, QA Engineer
*R. O. Shah, QA Engineer
K. E. Steele, Health Physicist
*P. F. Tomlinson, Operations QA Supervisor
*A. D. Wells, RP Foreman
D. W. Williamson, Reactor Engineer Supervisor

Others

*D. D. Chamberlain, NRC Senior Resident Inspector
J. O. Fuller, Consultant
W. G. McArthur, Consultant
R. B. Coad, Consultant
C. D. Redding, Consultant
C. O. Maxson, Consultant
I. M. McCabe, Consultant
B. T. Dunn, Consultant
T. J. Martin, Consultant

*Denotes those present during the exit interview.

The NRC inspectors also contacted other RBS personnel including administrative, clerical, and engineering personnel.

2. Scope of Inspection

This inspection covered an initial review of the licensee's proposed RP program.

3. Open Items Identified During This Inspection

<u>Open Item</u>	<u>Description</u>	<u>Paragraph</u>
458/8406-01	RP Organization and Management Controls	4
458/8406-02	RP Staff Qualifications	5
458/8406-03	Nuclear Training Department Organization and Administrative Procedures	6
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458/8406-05	Radiation Worker and Respiratory Protection Training	6.b
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458/8406-08	Internal Dosimetry Program	8.a
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458/8406-24	NUREG-0737, Item II.F.1-1	21
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458/8406-27	NUREG-0737, Item III.D.1.1	21
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458/8406-29	RP Program Implementing Procedures	22

4. Radiation Protection Organization and Management Controls

The NRC inspectors examined the organization and staffing of the licensee's RP organization to determine compliance with the Final Safety Analysis Report (FSAR) commitments; recommendations of NRC Regulatory Guides (RGs) 1.33, 1.8, 8.2, 8.8, NUREG-0654, 0731, 0761; and industry standards ANSI/ANS 3.1-1978 and ANSI/ANS 3.2-1982.

The licensee's RP organization was found to be in agreement with Section 13 of the FSAR. The licensee's organization does not include a corporate RP support organization. The RP/Chemistry (RP/C) supervisor is equivalent to the position of RP manager (RPM) referenced in RG 1.8. The RP/C supervisor is also the responsible manager for plant chemistry activities. The RP/C supervisor reports to the PM via the assistant PM-operations. The proposed RP plan provides for direct contact of the PM by the RP/C supervisor for RP matters not resolved at the assistant PM level. The licensee had drafted what appears to be a comprehensive RP plan which will include a section on the RP organization.

The RP organization will be comprised of an RP supervisor, a radiological health supervisor, and six first line supervisors. At the time of the inspection, the licensee had not filled all supervisory and specialist positions in the RP group. The licensee had implemented position

descriptions for all functional assignments. Proposed individual assignments appear to cover the expected spectrum of radiological control activities. However, the NRC inspectors noted that the radiation specialist assigned to implement the ALARA program was also responsible for the coordination of the RP organization's involvement in the RBS emergency response program which would likely impact on his ability to effectively conduct a comprehensive ALARA program.

The NRC inspectors noted that of the approximately 41 permanent positions in the RP organization, approximately 30 percent of the positions are presently occupied by temporary consultants. Permanent GSU employees occupy all filled supervisory positions. Of the 28 planned RP technician positions, 9 had been filled with GSU employees, and 8 with consultants. The RP/C supervisor indicated that a hiring request for 12 more RP technicians had been forwarded to the acting PM. The proposed number of employees appears adequate to effectively implement the RBS RP program during routine operation.

The licensee had not developed a procedure that established the authorities and responsibilities of the RP/C group. The licensee's draft RP plan adequately addresses the stop-work authority of the RP technicians; however, the NRC inspectors noted to the licensee the need to ensure that this subject is discussed during general employee training (GET) and radiation worker training (RWT).

The licensee had not developed a system for identifying, reporting, correcting, and trending radiological infractions; deficient conditions associated with RP activities; or the identification of possible program improvement methods by station employees. The RP/C supervisor holds weekly meetings with the RP organization supervisors and staff specialists to review accomplishments, schedule activities, and discuss problem areas. The proposed RP plan addresses the RP supervisor's responsibility to review work areas and ongoing work activities and conduct unannounced backshift audits. The licensee had not developed a system for documenting these reviews and recording of observations.

The NRC inspectors noted that the draft RP plan contained a section that addressed the responsibilities of supervisors and staff members in the RP organization. The licensee's index of proposed procedures also contains an administrative document on the RP organization's functional area assignments and responsibilities. However, the NRC inspectors noted that there had not been a clear assignment of sole responsibility for the management and conduct of the respiratory protection program as recommended by NUREG-0041. The NRC inspectors noted a need for the licensee to develop and implement administrative control procedures for the RP organization's functional area assignments and conduct of basic programs, such as personnel selection, staff training, records control, respiratory protection, ALARA programs, etc.

This area is considered open (458/8406-01) pending licensee action to:

- ° Develop and implement administrative control procedures for the conduct of RP organization activities, including functional area assignments and defining of responsibilities
- ° Complete staffing of the RP organization
- ° Develop a radiological deficiency reporting and tracking program
- ° Implement an RP plan

5. RP Organization Staff Qualifications

The NRC inspectors examined the qualifications of the licensee's RP organization to determine compliance with commitments in the FSAR, the recommendations of RGs 1.8, 8.2, and 8.8, NUREG-0761, Industry Standards ANSI/ANS 3.1-1978 and ANSI N18.1-1971, and NRC branch technical positions. The licensee had committed in the FSAR to use personnel that satisfy the qualification criteria established in RG 1.8 and ANSI 3.1-1978.

The NRC inspectors reviewed employment history records of the RP organization's personnel to determine whether assigned personnel met applicable ANSI and NRC RG criteria for their job assignments. Based on the above review, the NRC inspectors determined that the RBS RP/C supervisor met the criteria for a RPM as established in RG 1.8, and that a qualified person (RP supervisor) had been identified as the backup for the RP/C supervisor during his absence. All RP organization supervisors and staff specialists met the qualification criteria of ANSI 3.1-1978 (paragraphs 4.3.2 and 4.7.2, respectively). Two RP supervisors are certified by the National Registry of Radiation Protection Technologists and the RP support section health physicist is certified by the American Board of Health Physicists. As noted previously in paragraph 4, the licensee's RP organization is currently comprised of mostly contract personnel in non-supervisory capacities. In general, the contract personnel possess a large amount of commercial operating reactor experience of which the licensee's staff is lacking. The GSU's RP organization possesses approximately 20 man-years of commercial operating reactor experience. However, this experience is only found among three individuals (the RP/C supervisor, the RP supervisor, and a RP foreman). All others possess experience acquired via military nuclear power programs and/or state radiation control organizations. As previously noted in paragraph 4, the licensee had not completed full staffing of all positions with permanent GSU employees. Of the 28 RP technician positions (operations/support) available, the licensee had only filled 9 with permanent employees and only 4 of the 9 appear to meet the qualification criteria of ANSI 3.1-1978 (Section 4.5.2). None of the aforementioned technicians possessed any

significant amount of commercial operating reactor experience. The licensee had employed approximately 14 contract employees that possessed varying degrees of RP experience, including commercial operating reactor experience, to assist in the development of RP program procedures. The NRC inspectors reviewed with the licensee the need to have on shift a sufficient number of RP technicians during startup that possess 2 to 3 years of commercial operating reactor experience.

The NRC inspectors reviewed the licensee's program for evaluating prospective RP contractor personnel. The licensee's evaluation program (RSP-0003) for contract RP technicians did not provide sufficient instructions on methods to be used in determining qualifying experience or detailed information on resumes to be submitted.

This area is considered open (458/8406-02) pending licensee action to:

- ° Increase the number of RP technicians that are ANSI qualified and possess commercial operating reactor plant experience
- ° Provide comprehensive instructions for the evaluation and selection of contract RP technicians

6. Radiation Protection Training

The NRC inspectors reviewed the licensee's programs for general employees, radiation workers, and RP technician training to determine compliance with Section 13 of the FSAR commitments; 10 CFR Parts 19.12 and 20.103 requirements; and the recommendations of industry standards and regulatory references such as ANSI/ANS 3.1-1978, NRC RGs 1.8, 8.8, 8.10, 8.13, 8.15, 8.27, and 8.29, NUREGs 0654, 0731, 0041, 0737, and 0761.

The NRC inspectors determined that the licensee had just recently initiated actions to develop a non-licensed training program. Section 13.2.1.3 of the FSAR provides a description of the training to be provided to the various non-licensed personnel. The Nuclear Training Department (NTD) had not completed development of instructions for the administrative control over training activities such as instructor functional assignment qualification, instructor certification, testing control, procedure development, audits/reviews of RBS's NTD, and site training activities. The NRC inspectors discussed with the licensee representatives the need to establish, via official instructions, the interface between NTD and the RP organization concerning the review and approval of training activities.

This item (458/8406-03) is considered open pending licensee action to:

- ° Complete development of the NTD administrative control procedures
- ° Provide for the RP organization's review of radiological training activities/procedures conducted by NTD
- a. General Employee Training

The NTD is currently developing a training program for the plant staff that will provide for instructions on general plant procedures for unescorted entrance into the plant protected area. The licensee provided the NRC inspectors with a draft procedure. This procedure established:

- ° GET-O (new employee orientation), an indoctrination on the GSU Company, nuclear power generation, and RBS
- ° GET-I (level I), formal classroom training on plant personnel responsibilities and safe work practices for personnel requiring unescorted access into the plant protected area, or for personnel planning on performing safety-related work. This course will be comprised of the following tapes:
 - Plant Organization and Administration
 - Industrial Health and Safety
 - RP
 - QA
 - Plant Security
 - Site Emergency Plan

The NRC inspectors noted that the draft procedure did not reference the same training categories as Section 13.2.1.3.4 of the FSAR. Notably missing were instructions on fire protection.

- ° GET-II (Level II), formal classroom instruction on RP necessary for the safe and unescorted entry into radiologically controlled areas (RCAs). This training is discussed further in paragraph 6.b below.
- ° GET-R (Requalification), provides for an annual review of fundamental subjects important to job safety to requalify personnel to the level of competency established by GET-I.

- ° Site Orientation Training designed for visitors to allow them unescorted entry into the plant protected area. This is a shortened version of GET-I.

The licensee indicated that GET-I would be used to satisfy the training requirements of 10 CFR Part 19.12, and the recommendations of ANSI/ANS 3.1-1978 concerning minimum training requirements for plant employees. The licensee plans on providing the recommended training of RG 8.13 during GET-I.

The licensee stated that GET-I training would be developed and implemented by October 1984.

This item (458/8406-04) is considered open pending licensee action to implement a GET program that satisfies the recommendations of ANSI/ANS 3.1-1978 and RGs 8.13 and 8.27, and the requirements of 10 CFR Part 19.12

b. Radiation Worker Training

The licensee's draft procedure for GET also addressed RWT which is designated as GET Level II (GET-II). The licensee had only addressed in general some of the RP aspects to be covered in GET-II. Respiratory protection training was among the subjects to be taught in GET-II. This training is required for personnel prior to their unescorted entry into a RCA. Part of this training will include the students demonstrating the competency to enter/exit and dress out in contamination protection clothing. The FSAR commits the licensee to providing RWT (and retraining) that complies with RG 8.27 recommendations. The licensee had not completed development of any courses or lesson outlines in this area. The licensee stated that a RWT program would be implemented by October 1984.

This item (458/8406-05) is considered open pending licensee action to:

- ° Implement a RWT program that satisfies the recommendations of RG 8.27
- ° Implement a respiratory protection training program that satisfies the requirements of 10 CFR Part 20.103 and the recommendations of RG 8.15 and NUREG-0041

c. Radiation Protection Technician Training and Qualification Program

The NRC inspectors determined that the licensee had issued Procedure 1-TPP-16 that addressed RPT training. This procedure is being revised by the licensee. Currently, the procedure provides for three levels of RPT qualification (RPT in qualification, junior RPT, and senior RPT) which are based on the experience and education criteria of RG 1.8, which endorses ANSI N18.1-1971, instead of the more restrictive licensee commitment to ANSI/ANS 3.1-1978. The NRC inspectors discussed with licensee representatives the difference in the qualification criteria referenced in RG 1.8 and that of ANSI/ANS 3.1-1978. The licensee had committed to using the ANSI/ANS 3.1 criteria.

The licensee indicated that very little training other than equipment vendor schools had been accomplished. The NRC inspectors noted that Procedure RSP-0003 provided qualification criteria for RP supervisors and staff specialist, but a formalized training program for RP staff members had not been developed. The FSAR indicates that a generic radiological engineering course will be given to RP staff supervisors and specialists.

This item (458/8406-06) is considered open pending licensee action to:

- ° Develop and implement a comprehensive qualification and training program (including requalification) for RP personnel
- ° Establish minimum RP organization training levels for receipt of new fuel and reactor fuel loading
- ° Develop and implement a training program for RP organization supervisors and staff specialists

7. External Radiation Exposure Control

The NRC inspectors reviewed the licensee's external exposure control program to determine compliance with FSAR commitments; the requirements of the proposed RBS Technical Specifications (TS); 10 CFR Parts 19.13, 20.1, 20.101, 20.102, 20.104, 20.105, 20.202, 20.401, and 20.406; and the recommendations of NRC RGs 8.2, 8.4, 8.7, 8.8, 8.10, 8.14, and 8.28; ANSI N13.2-1969, N13.6-1972, N13.11-1983, N13.27-1981, and N319-1976; and NUREGs 0654 and 0761.

The NRC inspectors determined that the licensee's radiation exposure control program had not been fully implemented. Approximately 90 percent of the implementing procedures associated with the program had not been developed at the time of this inspection. The licensee is utilizing a consultant to prepare program procedures. The NRC inspectors noted that the licensee's proposed program appeared to address most areas typically found in a comprehensive program.

The NRC inspectors noted that the proposed type of personnel dosimeter (a TLD) to be used by the licensee appeared not to have been specifically designed as a primary neutron exposure measurement device and unless certain specifics about the purported exposures are known, (e.g., energy spectrum and ratio of gamma to neutron radiation levels) the results can contain significant errors. Since a neutron energy spectrum evaluation of the RBS reactor is not currently scheduled, the licensee needs to evaluate the suitability of their current TLDs for personnel neutron exposure monitoring prior to beginning the startup shielding survey.

The NRC inspectors noted that the licensee had contracted with an offsite vendor to supply official dosimetry services until the RBS TLD system is operational. The licensee intends on having their program meet the standards set forth in ANSI N13.11-1983. The licensee also indicated that they intended to participate in the National Voluntary Laboratory Accreditation Program for processors of personnel radiation dosimeters.

The licensee's proposed TLD calibration program (RHP-0009) does not appear to provide for beta and neutron calibration of TLDs. The licensee indicated that procurement of high activity beta sources and a heavy water moderated californium-252 neutron source was being considered for RP instrument and TLD calibration activities.

The licensee's exposure guidelines for workers, including minors and women, appear to satisfy regulations and industry recommendations. The licensee had not yet developed a personnel exposure control program for extending RBS administrative dose limits.

The licensee stated that the personnel external exposure monitoring and control program would be developed and implemented by September 1984.

This item (458/8406-07) is considered open pending licensee action to:

- ° Complete the personnel exposure control and dosimetry program
- ° Evaluate the suitability of proposed personnel neutron monitoring dosimetry

8. Internal Radiation Exposure Control

a. Internal Dosimetry Program

The NRC inspectors reviewed the licensee's program for control and measurement of internal radiation exposure to determine compliance with FSAR commitments; the requirements of 10 CFR Parts 20.103, 20.201, 20.203, and 20.401; the recommendations of NRC RGs 8.2, 8.7, 8.8, 8.9, 8.15, 8.20, 8.26, and 8.27; and the recommendations of ANSI N13.1-1969, 13.2-1969, 13.6-1972, and N343-1978; and NUREGs 0041, 0761, and 0654.

The licensee had not completed development and implementation of an internal dosimetry program. The licensee had purchased (but not installed) a state-of-the-art gamma scintillation detector and spectrum analyzer system to perform whole body counting (WBC) analysis. However, very few of the proposed operational and calibration procedures have been issued. Based on a review of draft procedure indexes and discussions with the licensee, the proposed internal dosimetry program will be comprised of the following:

- ° A bioassay program that satisfies ANSI N343-1978, RG 8.20, and RG 8.26 criteria
- ° A QC and calibration program that satisfies ANSI N343-1978
- ° Background/initial WBC of all RBS employees (scheduled to start October 1984)
- ° Participation in a cross-check program with an independent laboratory
- ° Provision of instructions on calculating maximum permissible concentration hours of exposure for personnel based on bioassay results

This item (458/8406-08) is considered open pending licensee action to complete implementation of an internal dosimetry program that, as a minimum, satisfies the recommendations of ANSI N343-1978.

b. Respiratory Protection Program

The NRC inspectors reviewed the licensee's respiratory protection program to determine compliance with FSAR commitments; the requirements of 10 CFR Part 20.103; and the recommendations of NRC RG 8.15 and NUREGs 0041 and 0654.

The NRC inspectors noted that the licensee had not issued any specific respiratory protection program procedures other than a procedure for posting radiological areas (RPP-0005). The NRC inspectors discussed with the licensee the proposed respiratory protection program and the apparent lack of a proper medical review program for respiratory protection equipment users, as required by 10 CFR Part 20.103. Also, the licensee was informed of the NRC's position on the issuance of a station respiratory protection use policy from a corporate management position.

The licensee intends on adapting the plant's service air system to an air line breathing system. The licensee had not developed a procedure for verifying breathing air quality or the QA of respiratory protection equipment and support systems. The licensee intends on using lapel air samplers to determine breathing zone concentrations. The licensee had received a small portion (less than 30 percent) of the proposed respiratory protection equipment committed to in Table 12.5-4 of the FSAR and additional equipment needed to support the respiratory protection program. The equipment observed by the NRC inspectors was National Institute Occupational Safety and Health approved. The licensee intends to provide 10 self-contained breathing apparatuses (SCBAs) and 10 to 30 spare air bottles in each emergency response facility (i.e., reactor control room, emergency operations facility, operational support center, and the technical support center). The SCBAs will be supplemented by full face type air purifying respirators fitted with appropriate filters or adsorbent cartridges.

The licensee had not proposed a program for the periodic evaluation of the effectiveness of the respiratory protection program based on periodic bioassays of the plant staff.

The licensee's respiratory protection training is discussed in paragraph 6 of this report.

This item (458/8406-09) is considered open pending licensee action to complete development of a respiratory protection program that satisfies the requirements of 10 CFR Part 20.103 and the recommendations of RG 8.15 and NUREG 0041.

9. Radiological Posting Program

The NRC inspectors reviewed the licensee's program for posting and controlling access to radiologically controlled areas to determine compliance with the commitments in the FSAR; the requirements of the proposed TS, and those of 10 CFR Part 20.203; and the recommendations of NUREG-0761.

The licensee had issued RBS Procedure RPP-0005 that provided definitions for various radiological areas, including very high radiation areas and radiation hot spots. Instructions provide numerical criteria on when to post an area and the signs or labels to be used in defining the perimeter of the area.

The NRC inspectors noted during a tour of the licensee's facility that there is a portion of the fuel transfer tube that is accessible to personnel in the reactor building area (elevation +130'-7") near the drywell personnel air lock that will require special procedures to ensure that there are no inadvertent exposures during used fuel transfers. The NRC inspectors noted that this condition is not discussed in Section 12.5.3.2.1 of the FSAR, "Refueling," as requiring any special concern. The NRC inspectors also discussed the lack of a periodic posting and high radiation area access control review program in Procedure RPP-0005. The licensee stated that they are currently evaluating the necessary controls to be exercised over all high radiation areas, including the fuel transfer tube area. Also, the licensee's proposed posting and access controls for removing control rod drive mechanisms (CRDMs) and transporting them to the CRDM maintenance area needs to be thoroughly addressed in station procedures.

This item (458/8406-10) is considered open pending licensee action to:

- ° Provide for the periodic review of radiological posting, including physical/mechanical access controls for very high radiation areas
- ° Develop and implement a posting and access control program for all accessible areas near the spent fuel transfer tube and areas involved in CRDM removal, transfer, and maintenance

10. Radiological Survey Program

The NRC inspectors reviewed the licensee's radiological survey program to determine compliance with FSAR commitments; the requirements of 10 CFR Parts 20.103, 20.201, 20.205, and 20.401; and the recommendations of NRC RGs 1.97, 1.101, 8.8, and 8.15, NUREGs 0654, 0737, and 0761; and industry standards ANSI N13.1-1969, N13.12-draft, and 13.2-1969.

The licensee had completed development of only two procedures for routine, special, or emergency type survey activities. The licensee intends to have the program developed by November 1984.

Currently, the licensee addresses radiological surveys in RBS Procedures RSP-0205, "Receipt of Radioactive Material," and RPP-003, "Control and Leak Test of Radioactive Sources." These procedures are used for compliance with the NRC Byproduct License 17-21239-01 issued to RBS.

Discussions with the licensee indicated that the radiological survey program would involve the following:

- ° Routine alpha, beta, gamma, and neutron surveys
- ° Specific spot check alpha surveys of routine contamination smears and air samples
- ° The use of radiological area status boards
- ° Surveys will provide cross-reference to activities requiring the survey; e.g., radiological work control permits, maintenance orders, spill, alarm, etc.
- ° The use of breathing zone air samples to provide respiratory protection program data
- ° Surveys for decontamination of personnel

The licensee had purchased a remote area radiation monitoring system that also includes remote airborne radioactivity monitoring units. This system includes individual detection unit readouts in the control room and other specified areas. The licensee's inplant survey program for emergency conditions is still in the development stage.

This item (458/8406-11) is considered open pending licensee action to:

- ° Complete development of a radiological survey program for routine operations
- ° Complete development of a radiological survey program for emergency situations

11. Radiological Work Control Program

The NRC inspectors reviewed the licensee's radiological work control program to determine compliance with FSAR commitments; and the recommendations of NRC RGs 8.8, 8.10, and NUREG-0761.

The licensee had not completed development of the radiological work control program. The licensee expects to have a computerized RWP program completed by July 1984.

This item (458/8406-12) is considered open pending licensee action to complete development of a radiological work control program.

12. ALARA Program

The NRC inspectors reviewed the licensee's ALARA program to determine compliance with FSAR commitments; requirements of 10 CFR Part 20; and the recommendations of NRC RGs 8.8, 8.10, and 8.19, and NUREG-0761.

The NRC inspectors determined that the licensee had not yet completed the development of an operational ALARA program. At the time of the inspection, the licensee had not established an ALARA program as identified in Section 12.1.1 of the FSAR. The NRC inspectors discussed with the licensee, the NRC's concerns that the ALARA coordinator should possess extensive practical experience in commercial reactor plant activities (e.g., routine and outage activities such as refueling, inservice inspection, etc.) preferably in an operating BWR. The licensee had drafted an RP plan and an ALARA program. The NRC inspectors noted that the RP plan provided an ALARA policy to be concurred in by a GSU senior vice president.

The licensee had implemented a comprehensive ALARA design review program for construction activities. This program reviewed systems and work areas for possible improvements to further reduce personnel exposures during operation. The NRC inspectors reviewed selected ALARA design reviews and noted that many had been reviewed by plant management and apparent deficiencies resolved. Several reviews resulted in significant modifications being made to a system or area. Section 12.1.2.5 of the FSAR addresses several areas where ALARA improvements were made.

The NRC inspectors discussed with the licensee the need to assign a full time ALARA coordinator, develop a station ALARA committee charter, complete development of the ALARA program implementing procedures, and establish necessary ALARA training.

This item (458/8406-13) is considered open pending licensee action to:

- ° Complete development of the operational ALARA program
- ° Issue corporate ALARA policy
- ° Designate a full time ALARA coordinator
- ° Establish an ALARA committee

13. NRC Notifications and Reports

The NRC inspectors examined the licensee's planned program for submitting required notifications and reports for compliance with the requirements of the proposed TS; 10 CFR Parts 19.13, 20.402, 20.403, 20.405, 20.407, and 20.408; and the recommendations of NRC RGs 1.16 and 10.1.

Based on a review of the licensee's currently issued procedures (ADM-0010), it does not appear that all of the notification and reporting requirements referenced in 10 CFR Parts 19 and 20 and NRC RG 10.1, that are applicable to radiological control functions, have been adequately addressed. The NRC inspectors noted that several of the notifications referenced in RG 10.1, such as reports required per 10 CFR Parts 19.13, 20.103, and 10 CFR 20.311, were not adequately addressed.

This item (458/8406-14) is considered open pending licensee action to develop an NRC notification and reporting program that addresses all 10 CFR Parts 19 and 20 reporting requirements.

14. Radiation Protection Instrumentation and Equipment Calibration Program

The NRC inspectors reviewed the licensee's RP instrument procurement and calibration program to determine compliance with FSAR commitments; and the recommendations of RGs 8.4, 8.5, 8.6, 8.12, 8.25, 8.28, and NUREG-0761, 0654, and 0737, and industry standards ANSI/ANS 6.8.1-1981, ANSI N13.1-1969, ANSI N13.4-1971, and ANSI N13.27-1981.

The NRC inspector determined that the licensee was in the late stage of procurement of RP instrumentation and the early state of development of operational and calibration procedures. The licensee had only developed and issued approximately 4 procedures out of a planned 54 procedures covering dosimetry, laboratory counting, ARMS, and portable radiation detection and measuring equipment operation and calibration. A review of the licensee's planned instrument procurement and number to be dedicated to emergency response appear to be adequate. However, the licensee's proposed procurement of instruments does not agree with the commitments in Table 12.5-2 of the FSAR as noted below:

- ° GM survey meters 0-50 mR/hr: 12 units listed in FSAR versus a planned procurement of 10 units
- ° Ion chamber survey meter 0-1,000 R/hr: 8 units listed in FSAR versus a planned procurement of 0 units

- ° Ion chamber survey meter 0-20,000 R/hr: 4 units listed in FSAR versus a planned procurement of 3 units
- ° Gamma area monitor 1-1,000 R/hr: 2 units listed in FSAR versus a planned procurement of 0 units

The licensee stated that they will review Table 12.5-2 to ensure that all FSAR commitments are satisfied.

The licensee indicated that initial plans for issuing instrument operating instructions and calibration in one document are being revised to have individual documents for these aspects issued for each RP instrument. A general RP instrument control and calibration procedure (RSP-0209) had been issued. It provided instructions for instrument accountability, history logs, out-of-service tagging, and general instrument calibration instructions.

The procedures completed to date appear to be well written and instructions are in an easy to follow format.

The NRC inspectors' review of the four issued procedures in this area did not reveal any significant deficiencies. The licensee intends on performing most RP instrument maintenance and calibrations in house using RP staff personnel. National Bureau of Standards (NBS) sources, or sources directly traceable to NBS, will be used for RP calibration. The NRC inspectors discussed with the licensee the planned RP instrument preuse instrument response check program and intended methods for calibration of neutron dose rate meters. The licensee indicated that the instrument response check program was being developed and that it would satisfy ANSI N323-1978. Calibration of portable neutron dose rate instruments will be accomplished by an offsite vendor. Licensee procedures require that vendor supplied services meet certain RBS QA requirements and be on an approved listing of suppliers meeting these QA requirements.

The NRC inspectors noted that the licensee had procured high sensitivity portal monitors for personnel monitoring upon leaving radiation control areas.

The licensee stated that full RP instrument procurement and procedure development for the use and calibration of RP instruments would be completed prior to issuance of the facility operating license.

This item (458/8406-15) is considered open pending licensee action to:

- ° Complete procurement of RP instrumentation
- ° Complete development of RP instrumentation/equipment use and calibration procedures
- ° Complete development of an RP instrument preuse response check program

15. Radiation Protection Facilities

The NRC inspectors visited the facilities to be used by the RP organization in carrying out their functions to determine compliance with FSAR commitments. The NRC inspectors toured the licensee's onsite facilities and offsite training facilities to be used by the RP organization. The RP organization is currently located in the service building and will operate from this location, which also is the normal entrance and exit from the power block radiological controlled area. The licensee's space allocations for a RPT work area, external and internal dosimetry, RP instrument storage, instrument maintenance and calibration, and sample/analysis area are spacious and well furnished.

The licensee had not completed development of the radioactive laundry facility. Completion of construction in this area is awaiting a management decision on whether contaminated laundry will be contracted to an offsite vendor or processed onsite. The licensee had provided separate change and shower/toilet facilities for male and female workers and they appear to be adequate. These areas were still under construction.

The licensee is currently evaluating the creation of a satellite RPT operation space in the power block area. This satellite area is considered necessary due to the remoteness of the service building RP facilities from the radiological work areas in the fuel handling, radwaste, and auxiliary buildings.

The NRC inspectors expressed concern over the lack of suitable site facilities for the maintenance, cleaning, issuance, and storage of respiratory protection equipment. The licensee indicated that this area was being evaluated for improvement.

This item (458/8406-16) is considered open pending licensee action to:

- ° Complete construction of RP facilities.
- ° Provide suitable facilities for the storage, issuance, maintenance, and cleaning of respiratory protection equipment

16. Radiation Protection Equipment and Expendable Supplies

The NRC inspectors reviewed the licensee's planned procurement and inventory control program for RP equipment and expendable supplies to determine compliance with FSAR commitments and industry practices. The licensee had committed to procure certain RP equipment, such as protective clothing, filtered exhaust ventilation units, vacuum cleaners, respiratory protection equipment, decontamination supplies, warning signs, etc., listed in Table 12.5-4 of the FSAR. The licensee is currently negotiating contacts for much of the equipment and supplies. Inventory control will be by a computer controlled system. Much of the licensee's proposed equipment is on order. Licensee inventories of RP equipment and supplies will be reviewed further during future NRC inspections.

This item (458/8406-17) is considered open pending licensee action to complete procurement of all required RP equipment and expendable supplies.

17. Radiation Protection Audits and Reviews

The NRC inspectors reviewed the licensee's internal audit/review program regarding RP activities to determine compliance with FSAR commitments; the requirements of 10 CFR Part 50, Appendix B; the recommendations of ANSI/ANS 3.2-1982; and NRC RGs 1.33 and 1.144.

The NRC inspectors determined that the licensee's QA organization had not conducted any audits of the RP organization. A consultant had performed a review of program procedures which included the RP and chemistry programs. Concerns raised during this review are being resolved by the licensee. The licensee had not at the time of this inspection implemented the facility review committee, nuclear review board (NRB), or the independent safety evaluation group (ISEG). The responsibilities and make up of these groups is described in Section 13.4 of the FSAR. The licensee stated that these groups should be operational about 3 to 6 months prior to fuel load.

The NRC inspectors discussed with the licensee the NRC concern that near-term operating license plants should conduct a comprehensive audit of the facility's RP program. This audit should be accomplished at least 12 months prior to fuel load to allow a sufficient enough time for correction of deficient findings. The licensee stated that an audit of the RP program was tentatively scheduled to begin about September 1984.

The licensee stated that audits would involve the use of ANSI qualified auditors, checklists, and personnel experienced in the RP/health physics program would be included as part of the audit team. The licensee stated that QA procedures allow for the use of consultants in audits where special expertise or experience is needed and not available within the licensee's staff.

The licensee indicated that the site QA staff would be also conducting periodic surveillances of RP activities. The licensee had not formalized the frequency and methods to be used in conducting these surveillances or the specific RP activities to be reviewed. The NRC inspectors noted that Section 13 of the draft RP plan establishes a continuous review of RP personnel effectiveness by the RP/C Supervisor and also that the RP supervisor shall conduct, as least once per calendar quarter, an unannounced review and audit of back-shift RPT performance and RP activities.

This item (458/8406-18) is considered open pending licensee action to:

- ° Complete development of an audit and review program for the RP program
- ° Define specific audit and review functions of the NRB and ISEG in regard to the periodic QA review of RP activities
- ° Conduct an audit of the RP program

18. Startup Shielding Survey

The NRC inspectors reviewed the licensee's plans and procedures for conduct of the radiation survey of the reactor biological shield and other plant areas during reactor startup and power ascension testing to determine compliance with FSAR commitments; and the recommendations of NRC RG 1.68, ANSI N18.9-1972, and ANSI/ANS 6.3.1-1980.

The licensee had not yet completed development of procedures for conduct of the shield survey.

This item (458/8406-19) is considered open pending licensee action to develop a startup survey program that satisfies ANSI/ANS 6.3.1-1980.

19. Normal Ventilation System Air Flow Characteristics

The NRC inspector reviewed the licensee's program for acceptance testing and balancing of plant ventilation systems to determine compliance with FSAR commitments; and the recommendations of NRC RG 8.8 and industry standard ERDA 76-21.

The licensee had issued two procedures associated with the plant normal ventilation systems: (1) Generic Test Procedure 1-G-ME-10, "Air Balancing of Ventilation Systems," and (2) Preoperational/Acceptance Test Procedure 1-AT-400-1, "Nonsafety-Related Ventilation Systems Environmental Design Acceptance Test."

The NRC inspectors determined that Procedure 1-G-ME-10 provided for the verification of air volume flows of ducts, fume hoods, and initial balancing of systems per Section 9.4 of the FSAR and/or manufacturers recommendations for a specific application. Procedure 1-AT-400-1 is intended to demonstrate that the design of nonsafety-related ventilation systems will prevent the movement of combustible gases and/or radioactivity into surrounding areas.

The licensee has scheduled the completion of the ventilation system testing for November 1984. Inplace filters and adsorber testing is scheduled to be completed prior to fuel load.

This item (458/8406-20) is considered open pending licensee action to complete normal ventilation systems acceptance testing.

20. New Fuel Receipt, Handling, and Storage

The licensee's RP preparations for new fuel receipt, handling, and storage were not reviewed during this inspection since the licensee had just recently submitted an application for a Special Nuclear Material (SNM) 10 CFR Part 70 License. The licensee's preparations and compliance with the proposed SNM licensing requirements will be reviewed during a future inspection.

The licensee intends to issue detailed procedures for the receipt inspection, handling, and storage of new fuel. The licensee had requested in the SNM license application an exemption from the criticality control requirements of 10 CFR Part 70.24.

This item (458/8406-21) is considered open pending licensee action to complete development of RP procedures to support new fuel receipt inspection, handling, and storage.

21. NUREG-0737 Requirements

Licensee's plans and actions to implement certain NRC requirements set forth in NUREG-0737, "Clarification of TMI Action Plan Requirements," were reviewed.

The NUREG-0737 were items listed below reviewed during this inspection:

- ° Item II.B.2 - Design Review of Plant Shielding and Environmental Qualification of Equipment for Spaces/Systems Which May Be Used In Postaccident Operations
- ° Item II.B.3 - Postaccident Sampling Capability
- ° Item II.F.1, Attachment 1 - Noble Gas Effluent Monitor
- ° Item II.F.1, Attachment 2 - Sampling and Analysis of Plant Effluents
- ° Item II.F.1, Attachment 3 - Containment High-Range Radiation Monitor
- ° Item III.D.1.1 - Integrity of Systems Outside Containment Likely to Contain Radioactive Material For Pressurized-Water Reactors and Boiling-Water Reactors
- ° Item III.D.3.3 - Improved Inplant Iodine Instrumentation Under Accident Conditions

The above items were in various stages of completion. Some of the design data had been forwarded to NRC Office of Nuclear Reactor Regulation for review. Most of the equipment had not be installed nor were operating procedures and personnel training completed.

The above NUREG-0737 items will be reviewed during a future inspection. The following open item numbers will be assigned for tracking of licensee actions.

- 458/8406-22, NUREG-0737, Item II.B.2
- 458/8406-23, NUREG-0737, Item II.B.3
- 458/8406-24, NUREG-0737, Item II.F.1-1
- 458/8406-25, NUREG-0737, Item II.F.1-2
- 458/8406-26, NUREG-0737, Item II.F.1-3
- 458/8406-27, NUREG-0737, Item III.D.1.1
- 458/8406-28, NUREG-0737, Item III.D.3.3

22. Radiation Protection Program Implementation Procedures

The NRC inspectors reviewed the licensee's procedures to be used for the implementation of the RP program for compliance with the recommendations of NRC RG 1.33 and NUREG-0761. Also, the inspectors evaluated the licensee's procedures against the type of procedures normally found at other similar nuclear power plants.

The NRC inspectors noted that even though some RP procedures had been issued (approximately 14 out of an estimated 150 procedures) the licensee had not established an administrative procedure for the development and control of RP procedures. The licensee had contracted with a consultant to prepare RP program implementing procedures. All required procedures are scheduled to be completed and issued by October 1984. The Attachment to this inspection report lists the procedures reviewed during this inspection.

Based on a review of the licensee's RP program proposed implementing procedures, it appears that the following RP areas had not been included in their proposed procedures:

- ° RP shift activities log
- ° Radiological deficiency reporting and tracking
- ° ALARA program
- ° ALARA training
- ° Reactor building entries
- ° Radiologically controlled area entry and exit
- ° Radioactive material spill response
- ° RP instrument preuse response checks
- ° Neutron dose determinations
- ° Beta radiation dose determinations
- ° Beta and neutron calibration of TLDs and RP survey instruments
- ° Extremity monitoring
- ° Respiratory/radiological health screening program
- ° Testing of breathing air systems
- ° Radiological survey of breathing air systems that interface with other plant systems that are potential sources of radioactivity

- Respiratory protection equipment use qualification and training
- QA/Quality Control (QC) for bioassay activities (direct and indirect)
- Bioassay intercomparison program participation
- External dosimetry qualification program
- Startup shield surveys
- QA/QC program for new respiratory protection equipment

This item (458/8406-22) is considered open pending licensee action to complete development and issuance of implementing procedures for the RP program.

23. Exit Interview

The NRC inspectors met with licensee representatives identified in paragraph 1 at the conclusion of the inspection on May 4, 1984. The NRC inspectors expressed their concern regarding the lack of commercial nuclear power plant experience among the licensee's personnel at the RP technician level. The licensee acknowledged the inspector's concerns and stated that a recruitment program was currently underway to hire additional ANSI qualified RP technicians, and an experienced person for the vacant radiological health supervisor position. The licensee was apprised that open items addressed in this report would be used to track areas requiring either further inspection or completion of licensee action. These items will need to be satisfactorily resolved prior to a recommendation that RBS be issued an operating license; however, they are not considered as enforcement actions. The licensee was apprised that a written reply would be required regarding the licensee's plans to increase the number of ANSI qualified RP technicians at RBS prior to fuel load.

ATTACHMENT

Radiation Protection Procedures

Radiation procedures use the following designations:

- RSP - Radiation/Chemistry Section Procedures
- RCP - Radiation/Chemistry Computer Procedures
- RHP - Radiation Health Physics Procedures
- RPP - Radiation Services Procedures

The following radiation protection procedures had been issued:

- RSP-0003, "Personnel Qualification for Radiation Protection/Chemistry Section"
- RSP-0205, "Receipt of Radioactive Material"
- RSP-0208, "Control of Radiation Protection M&TE"
- RSP-0209, "Control and Calibration of Radiation Protection Equipment"
- RPP-0003, "Control and Leak Check of Radioactive Sources"
- RPP-0004, "Operation and Calibration of RAP-1 Type Air Sampler"
- RPP-0005, "Posting of Radiologically Controlled Areas"
- RPP-0009, "Operation of Victoreen Mod. 570 (R-chamber)"
- RPP-0012, "Operation of Portable Survey Equipment"
- RPP-0019, "Decontamination of Areas, Tools, and Equipment"
- RHP-0009, "TLD Calibration Exposure"
- RHP-0010, "Operation of the Shepherd Model 142-10 Panoramic Irradiator"
- RHP-0011, "Cleaning and Inspection of TLD Badges and Holders"
- RHP-0014, "Pocket Dosimeter Calibration and Control"