GULF STATES UTILITIES COMPANY

April 17, 1985
RBG-20739
File No. G9.5

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

River Bend Station - Unit 1
Docket No. 50-458

Enclosed for your review is a revision to the Gulf States Utilities Company (GSU) River Bend Station (RBS) Liquid Radwaste System as described in the Final Safety Analysis Report (FSAR). GSU has contracted with Chem-nuclear, Inc. for a portable filter/demineralizer (and its associated services) when necessary for special applications or temporary replacement of an installed process train. Attachment 1 provides clarification and information on the contracted system including its location, permanent system interface, drains and vents, and shielding while Enclosure 1 provides revised FSAR text which will be included in a future FSAR amendment.

Sincerely,

J. E. Booker

J.E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

JEB/DRG/JWL/pj

Attachment (1)

Enclosure (1)



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ATTACHMENT 1

Chem-nuclear Inc.'s contracted filter/demineralizer (F/D) service details:

1. Location - Contract F/D vessels will be located at elevation 117' in the radwaste building in a spare cubicle originally designated for the now deleted Train "B" charcoal filter.

2. Interface - Valved piping connections will be provided in the cubicle and will bypass the filter only, the demineralizer only, or the entire F/D train.

3. Drains/Vents - A curb is provided around the cubicle to prevent spill out and a floor drain is available which empties into the radwaste building floor drain system.

4. Shelding - The cubicle has walls, floors and ceilings constructed of reinforced concrete two feet thick.

5. Disposal - The F/D's are of the self-contained, disposable type which will be disposed of by Chem-nuclear Inc.

6. Evaporator Bottoms - Since the evaporators have been defered. there are no evaporator bottoms to process.

7. Regulatory Guide 1.143 - The aforementioned arrangement meets the intent of RG 1.143.

11.2.2.2 Waste and Floor Drain Collector Subsystem | 11

Relatively low conductivity (less than 50 umho/cm) and variable activity level wastes are stored in the waste collector tanks. The tank influents include low conductivity drains from piping and equipment that cannot be returned directly to the condenser hotwell, wastes from the reactor coolant, condensate and feedwater systems, and other associated auxiliaries. Influents to the tanks also include decanted liquids from the phase separator tanks, condensate demineralizers resin rinse water, and ultrasonic resin cleaner wastes. | 11 | 11

Radioactive materials are removed from the input wastes by filtration (insolubles and organic removal) and ion exchange (soluble and colloidal removal). Demineralizer effluent is then routed to the recovery sample tanks for recycle to a condensate storage tank or for discharge. Prior to discharge into the cooling tower blowdown line, this waste is checked for activity by a radiation monitor. Liquids with radioactivity levels exceeding specified limits are recycled for further processing. The radwaste deep bed filter is provided for removal of insolubles. However, should maintenance requirements dictate, the deep bed filter influent can be diverted to ~~either of the spent fuel pool filters for removal of insolubles~~. | 13 | 11

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The radwaste demineralizer train includes a cation, anion, and mixed bed unit in series. All resins are of the nonregenerable bead type. Depleted resins are flushed out of the demineralizer vessel with water and directed, via the phase separator/backwash tank subsystem (Section 11.2.2.5), to the radioactive solid waste system (Section 11.4). Four waste collector tanks are provided with a total capacity of 86,400 gallons. This volume is significantly in excess of that required to accommodate 1 day's influent to the waste and floor drain collector subsystem. However, should operational requirements dictate, the influent can be diverted to the floor drain collector tanks. | 13 | 11 | 13

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The waste collector stream is normally processed at a rate of 100 gpm. | 11

Potentially high conductivity liquid wastes (50 umho/cm and greater) from the radwaste building sumps, reactor building floor drain sumps, condensate storage tanks overflow, auxiliary building floor drain sump, fuel building floor drain sumps, turbine building floor drain sumps, and shop floor drain sumps are collected in the floor drain collector tanks. Influent to the tanks also includes the waste | 11

Insert 1 for Page 11.2-7

the other filter (i.e. the "B" train) for removal of insolubles.

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Mobile, portable filter/demineralizers may be used whenever necessary for special applications or temporary replacement of an installed process train. These portable filter/demineralizers will be located in a spare cubicle, on elevation 117' of the radwaste building, provided with curbs, floor drains and two foot thick concrete walls. Valved piping connections will be provided in the cubicle for bypassing the filter only, the demineralizer only or the entire filter/demineralizer train. This arrangement meets the intent of Regulatory Guide 1.143.

11 The phase separator tank sludge is sent directly to the radioactive solid waste system.

The backwash tank has level switches similar to those provided for the phase separator tank, i.e., for the two decant connections and the tank outlet connection. Similarly, the pump suction flush valves are interlocked with the pumps. Two pumps are provided for the backwash tank with the operating pump shut down automatically by tank level.

An offline turbidity analyzer is located in the pump common recirculation line. This analyzer is provided to ensure
11 that the turbidity of the water from the backwash tank, if decanted, is acceptable for transfer to the floor drain collector tanks. If unacceptable, an alarm warns the operator to either terminate the transfer or divert to another flow path.

The backwash tank sludge is handled in a manner similar to that for the phase separator. Normally, however, the entire contents of the backwash tank are transferred directly to
11 the radioactive solid waste system.

11.2.2.5.3 Power Sources

Instruments are powered from the 100 psig instrument air system and a 120-V ac instrument bus.

Motors and control circuits are powered from normal 480-V ac supplies.

11 11.2.2.6 Operating Procedures

The operating procedures used for all liquid radwaste equipment are based on batch processing through the radwaste systems. This type of operation allows a time to sample and check the feed and effluent streams before and after each process step to prevent the inadvertent discharge of waste having a radioactivity level above the control limit. It also allows for maximum reuse of water that has been processed through the radwaste system.

11 The filter in the waste and floor drain collection subsystem is operated at 100 gpm. When the pressure drop across the filter reaches a preselected level, the flow is discontinued. The filter is then backwashed to the backwash tank. During filter maintenance, the ~~spent fuel pool~~ TRAIN "B" filter
11 can be used.

The radwaste demineralizers are NORMALLY operated at 100 gpm. There are three demineralizers in series composed of a cation, an anion, and a mixed bed unit. The feed is the effluent from the radwaste filter. Each demineralizer is monitored for pressure drop across the bed, conductivity of the effluent, and sodium in the anion bed effluent. When conductivity breakthrough occurs in either the cation or anion unit, flow is stopped. The cation and anion resin must then be replaced before processing can continue. When breakthrough of the mixed bed unit occurs, flow is stopped and the mixed bed resin is replaced before processing is continued. 11

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Normally, all purified liquid from the waste collector tanks is sampled IN THE RECOVERY SAMPLE TANK and returned to the condensate system via the condensate storage tank. 11

No waste is discharged to the environment from the recovery sample tanks until it meets predetermined particulate, activity, pH, total dissolved solids, oil and grease, and conductivity levels. This ensures that only water of acceptable quality is discharged from the plant. 13

Liquid radwaste streams are combined to make the most effective use of the processing equipment available and to minimize the number of processing cycles received by an individual waste batch prior to final disposition. It is intended that recycling of treated water within the system is minimized. Wet vacuuming techniques and administrative programs to decrease floor drainage are necessary to restrict the excessive development of washdown or overflow drainage. Direct packaging of decontamination solutions, where possible, frees equipment from excessive flushing which makes subsequent recovery of influent water difficult. Condensate is used as flushing agent when required; the use of demineralized makeup water is held to a minimum and closely controlled.

The procedural approach to monitor and control liquid waste effluents is contained in Section 11.5. Liquid waste is released into the cooling tower blowdown line from the recovery sample tanks on a batch basis. Each batch is analyzed prior to release for gross beta/gamma activity, and the resulting specific activity used to determine the discharge flow rate. The integrated total activity discharged to the river is recorded as are the flow rate and temperature. Complete isotopic analyses of composites or retained samples are done in accordance with the procedures outlined in Section 11.5. Detailed administrative records are maintained of all radioactive liquid releases to the

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A discussion of the use of a portable filter/demineralizer system when necessary for special applications or temporary replacement of an installed process train is contained in Section 11.2.2.2.