REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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ACCESSION NBR:8310120105 DOC.DATE: 83/10/06 NOTARIZED: NO DOCKET #
FACIL:50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
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CURTIS,N.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards revised FSAR Section 10.4 re regeneration sys.Revs clarify strengh of acid & add ultrasonic resin cleaner added to sys.Revs will be incorporated in next FSAR amend.

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Director of Nuclear Reactor Regulation
Attention: Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
FSAR SECTION 10.4
ER 100508 FILE 841-1
PLA-1863

Docket No. 50-388

Dear Mr. Schwencer:

In order to support obtaining an operating license for Susquehanna SES Unit 2, enclosed is revised Section 10.4 of the Susquehanna SES FSAR. The revisions to this section are as follows:

10.4.6.2.2 - This section has been revised to state that an ultrasonic resin cleaner is being added to the regeneration system.

10.4.6.2.3 - This section has been revised to clarify the strength of the acid and caustic used in the regeneration process.

These revisions will be incorporated in the next amendment to the FSAR.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

cc: R. L. Perch NRC

Enclosure

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The resin beds are transferred from the ion exchangers to the external regeneration system for cleaning and chemical regeneration. A spare charge of resins is held in the external regeneration system for immediate replacement of an exhausted bed in an ion exchanger so that the exchanger may be made available promptly for replacement of another exhausted exchanger.

10.4.6.2.2 External Regeneration System

The system provided for cleaning and chemical regeneration of the resins used in the condensate demineralizer is shown in Figure 10.4-3. It consists essentially of three vessels: a cation, an anion, and a resin storage tank. The cation tank also serves as a resin receiving, resin cleaning, and resin separation tank, through which exhausted resins are transferred from the ion exchanger to the regeneration system. Interlocks are provided so that an off-line demineralizer cannot detect condensate pressure unless it is isolated from the external regeneration system. In addition, if high pressure occurs in the resin transfer line, an isolation valve in the line will automatically close and a relief valve will open to protect the system. The regeneration system is designed for 75 psig and 150°F.

The removal of crud accumulation on the resins is accomplished by a cycle of draining, air backwashing, and rinsing in the cation tank. The regeneration system is designed for use with an ultrasonic resin cleaner. An ultrasonic resin cleaner is being added to reduce the volume of chemical radwastes and to improve the removal of crud which accumulates on the resin. The cleaned resins are transferred back to a condensate demineralizer vessel for further ion exchange.

Resins in need of complete regeneration are transferred to the cation regeneration tank and cleaned as described in the preceding paragraph. The anion and cation resins are then separated by backwashing before the anions are transferred to the anion regeneration tank. At the end of regeneration the resins are mixed and stored in the resin storage tank.

10.4.6.2.3 Acid and Caustic Dilution Systems

Solutions of acid and caustic required for regeneration of cation and anion resins are prepared by in-line dilution of 66 degree Baume' sulfuric acid and 50 percent sodium hydroxide pumped from bulk storage tanks below the regeneration equipment.

Approximatey 5-1/2 percent concentration of acid solution is required to regenerate the cation resins. The concentrated acid

is mixed in a mixing tee with clean condensate as needed. Water is supplied at a constant rate by condensate transfer pumps through a pressure control valve.

Approximately 5-1/2 percent concentration of caustic at 120°F is required to regenerate the anion resins. Concentrated caustic is mixed with dilution water at 120°F in a mixing tee as needed. Dilution water is produced by blending 180°F water from the caustic dilution hot water tank with cool water.

10.4.6.2.4 Waste System

Three types of wastes are segregated from the regeneration waste discharge. These are: high conductivity, low conductivity and low solids content, and low conductivity and high solids content.

High conductivity wastewater (conductivity above 100 micromhos) is channeled to the chemical waste neutralizer tanks where it is neutralized and pumped to the radwaste evaporators for distillation. Low conductivity condensate from this process is returned to the condensate storage tank.

Low conductivity, low solids wastewater is channeled to the turbine buildings outer area sump where it is pumped to the liquid radwaste collection tanks.

Low conductivity, high solids waste water (greater than 3 JTU) is channeled to the regeneration waste surge tanks. The tanks are designed with cone bottoms. From there the wastewater is pumped at 35 gpm to the waste sludge phase separator.

See Section 11.2 for the effect of the Condensate Cleanup System on the radwaste system.

10.4.6.3 Safety Evaluation

The equipment and controls in the condensate demineralizer system are of the same design and operational integrity as those in the radwaste system.

Spare capacity is provided in the system to negate the possibility of difficulties in handling radioactive waste when the system is operating. If the radwaste handling system approaches design capacity, such as when condenser tube leaks require maximum rates of regeneration of ion exchangers, the unit load is reduced to eliminate the possibility of exceeding operational limits.