

# SIEMENS

April 14, 1994

U.S. Nuclear Regulatory Commission  
Attn: Mr. Robert C. Pierson, Chief  
Licensing Branch  
Division of Fuel Cycle Safety and Safeguards, NMSS  
Washington, D.C. 20555

License No. SNM-1227  
Docket No. 70-1257

Dear Mr. Pierson:

Per my recent conversation with Mary Adams and Mike Lamastra of your staff, Siemens Power Corporation (SPC), in accordance with 10CFR 20.2301, requests an exemption from 10 CFR 20.2003 (a)(1). As you know this regulation states;

- "(a) A licensee may discharge licensed material into sanitary sewerage if each of the following conditions is satisfied:
- (1) The material is readily soluble (or is readily dispersible biological material) in water; and
  - (2) The quantity of licensed or other radioactive material that the licensee releases to the sewer in 1 month divided by the average monthly volume of water released into the sewer by the licensee does not exceed the concentration listed in table 3 of appendix B to 20.1001-20.2401; and ..."

In regard to the second criterion, for 1993 SPC's average uranium concentration in its combined sewer discharge was  $0.16 \times 10^{-6}$   $\mu\text{Ci/ml}$ , or approximately 5% of the limit of  $3 \times 10^{-6}$   $\mu\text{Ci/ml}$  given in appendix B of 10CFR20.

With respect to the first criterion, the regulation itself provides no operational definition of solubility. The recently published NRC information Notice 94-07 recognized this problem and suggested two general approaches for determining solubility: namely, use of published solubility data or determination of soluble fraction via laboratory testing of the effluent. Reliance on laboratory testing is necessitated when "knowledge of the chemical form of all materials contained in the liquid effluent at the point of release is incomplete." This is true for most of the uranium-bearing effluent streams at SPC. The laboratory testing methods involve filtration to determine whether the effluent contains suspended particulates that will not pass a

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0.45 micron filter. Suspended material passing through a 0.45 micron is defined as soluble; material caught on the filter is considered insoluble.

In evaluating its liquid effluents, SPC has determined that the sewer discharge from the retention tanks, which receive the bulk of their input from the contaminated clothing laundry, contains small amounts of insoluble uranium. Based 1993 discharge data from retention tanks:

- The average U concentration in the effluent was 0.24 ppm.
- The liquid discharge volume was approximately 4000 gallons/day
- Total U to the sewer was 1.47 kg, or 0.0026 Ci.
- Insoluble uranium fraction measured by filtration is approximately 59% of the total discharged U, or 0.0015 Ci.

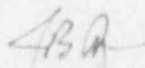
The effluent from lagoon 5A is the only other uranium-bearing discharge stream from SPC to the sewer. Since 1992, when a final polishing ion exchange column was put in place to further reduce the uranium concentration of lagoon 5A effluent prior to its discharge to the city sewer, the uranium concentration in the sludge from the City of Richland sewer treatment plant has decreased from approximately 17 pCi/gm to approximately 10pCi/gm. These data indicate that reconcentration of uranium is minimal, is decreasing, and is below a level which results in any undue hazard to public life or property. The sludge is periodically trucked to a landfill for disposal.

If SPC were required to add a filtration system to the retention tank discharge to remove uranium of greater than 0.45 micron size, the capital cost is estimated to be \$23,000 and the annual costs (labor, filter replacement, and waste filter disposal) are estimated to be \$536,000. Therefore the cost to SPC to remove 0.87 kg of greater than 0.45 micron sized uranium particulate (59% of 1.47 kgU) would be approximately \$616,000 per kgU. In addition we estimate 115 extra drums of low level waste (spent filters) would be generated annually. SPC feels these significant costs and added generation of containerized waste are not reasonable for the results (risk reduction) achieved.

Based on the arguments presented above SPC contends that its uranium releases to the city sewer continue to be in accordance with ALARA principles, that they are consistent with the intent of the applicable regulations, and that they pose no undue adverse effect on the public interest.

If you have questions or require further information, please call me at 509-375-8663.

Very truly yours,



James B. Edgar  
Staff Engineer, Licensing

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cc: C. A. Hooker  
Region IV, Walnut Creek