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STATE OF WASHINGTON  
DEPARTMENT OF HEALTH  
DIVISION OF RADIATION PROTECTION  
*Airustrial Center, Bldg. 5 • P.O. Box 47827 • Olympia, Washington 98504-7827*

December 27, 1999

Mr. Paul Lain, Project Manager  
Licensing and International Safeguards Branch  
Division of Fuel Cycle Safety and Safeguards  
Nuclear Materials Safety Section  
U.S. Nuclear Regulatory Commission  
MS T8H7  
Washington D.C. 20555

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**SUBJECT: WASHINGTON STATE DEPARTMENT OF HEALTH REVIEW OF  
THE DECEMBER 3, 1999, DRAFT ENVIRONMENTAL  
ASSESSMENT FOR SIEMENS POWER CORPORATION TO SELL  
AMMONIUM NITRATE/AMMONIUM HYDROXIDE SOLUTION**

Dear Mr. Lain:

The Washington State Department of Health (DOH) staff has reviewed the draft Environmental Assessment for Siemens Power Corporation's proposal to sell an ammonium nitrate/ammonium hydroxide solution containing uranium as fertilizer. Our comments are summarized below. Based on the number of significant regulatory and technical problems we have identified, both with the proposal for unrestricted commercial release of quantities of this solution and with the proposal process, we can not support this draft assessment or Siemens' proposed action.

Comments:

A. National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) regulations are not met.

While an environmental assessment was done in accordance with 10 CFR Part 51 (NEPA), no assessment was done in accordance with the SEPA regulations in Washington Administrative Code (WAC) chapter 197-11, which also apply<sup>1</sup>. In addition, the NEPA assessment lacked key elements and information:

- 1) What is the isotopic makeup of the uranium solution Siemens is proposing to

<sup>1</sup> See also Revised Code of Washington (RCW) Chapter 43.21C, *State Environmental Policy*.

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free release? Siemens' documentation indicates that feed solutions to the Ammonium Recovery Facility (ARF) process, the step Siemens is proposing to eliminate, contain up to 5% by weight uranium-235.<sup>2</sup> What other radionuclides are present as well? For example, technetium-99, which is present in the process water due to the reprocessed uranium used in Siemens enrichment processes, could also be released into the environment.<sup>3</sup> How would the contents of the solution first be identified and then monitored and controlled?

- 2) This document assumes 1 ppm is equivalent to 3 pCi/mL for the uranium in the process solutions. What is the basis for that assumption?
- 3) Some of the elements of an environmental assessment were combined with some of the elements of a finding of no significant impact (FONSI). Neither type of evaluation is complete in this document. However, Section 7.0 states that a decision has already been made by the USNRC to issue a FONSI in the Federal Register. This decision is premature when the following issues concerning this assessment are considered:
  - The need for the proposed action (Section 1.4) is unclear. The proposal gives reasons justifying the actions, then presents another action, i.e., installation of new wastewater treatment equipment, which appears to be an alternative to the proposed action. In addition, the alternatives presented in Section 1.5 are not alternatives to the proposed action, but the USNRC alternatives of approving or rejecting the proposal. What viable alternatives exist for wastewater disposition, other than free release and likely use by farmers on fields where crops are grown?
  - The "affected environment", as described in Section 2.0, is at and near the Siemens Power Corporation site. But Siemens is submitting this proposal so that they can sell the Ammonium Diuranate (ADU) process effluent solution as fertilizer for use by members of the public. The affected environment then is wherever the solution is used. Where does Siemens expect this solution to be used? Would it be applied near surface water where uranium might then accumulate? How will the solution impact the groundwater or surface water over time?
  - Since the affected environment for this proposal is presumably not the Siemens site itself, the information presented in Sections 2.1-2.4 of the assessment is irrelevant.
  - 10 CFR 51.30 requires a list of agencies and persons contacted about the proposal. Though the assessment states that DOH staff members were

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<sup>2</sup> Siemens Power Corporation, *Application For Renewal of Special Material License No. SNM-1227*, November, 1996.

<sup>3</sup> Maas, L.J., Letter dated October 28, 1992, to C.A. Hooker, U.S. Nuclear Regulatory Commission.

contacted, Siemens' proposal was not discussed with DOH staff members prior to the receipt of the December 3, 1999, letter transmitting this draft.

- 10 CFR 51.32 requires that the reasons why the proposed action will not have a significant effect on the quality of the human environment be included in the FONSI. This document only states that the proposed actions will have no significant impact on human health and safety or the environment. Justification for the finding of no significance is not clearly stated for the proposed conditions under which the solution would be released.
- Source and related environmental documents should be included in both an environmental assessment and a FONSI. Important relevant documents, such as the FONSI for the release of ARF-treated effluents as fertilizer, are not listed.
- The radiation dose to a member of the public from use of the free-released solution as fertilizer is likely to be low. However, justification for that conclusion should not rest on a comparison of the calculated soil concentrations with actual environmental data, as this assessment attempts to do in Section 4.1, unless all the factors impacting both the calculations and the measurements are known. For example, are both sets of results for dry or wet weight? Were the calculations done for the same soil depths from which samples were taken? In addition, the validity of averaging Battelle Pacific Northwest National Laboratory (PNNL) mean results for uranium-234, uranium-235 and uranium-238 and comparing that average to a concentration calculated for generic "uranium" is questionable.
- A public comment period is provided in both the NEPA and SEPA regulations. When was or will a public comment period be determined for this proposal?

B. The 10 CFR 20.2002 (WAC 246-221-180) method for obtaining approval of proposed licensed material disposal procedures has not been met. That method requires a "description of the waste containing licensed material to be disposed of, including the physical and chemical properties important for risk evaluation." It also requires "an analysis and evaluation of pertinent information on the nature of the environment" potentially impacted, "the nature and location of other potentially affected licensed and unlicensed facilities" and "analyses and procedures to ensure that doses are maintained as low as reasonably achievable (ALARA)."

C. WAC Chapter 246-247 Air Emissions Regulations have not been met.

- 1) Per WAC 246-247-010, state air emissions regulations apply to this proposal because Siemens is a facility licensed by DOH or by the USNRC and the

proposed action involves the creation of nonpoint sources (i.e., contaminated ground) from which radioactive air emissions can originate (WAC 246-247-030). This is especially likely given the dust storms and dry conditions in the semiarid environment of the region around the Siemens site.

- 2) In accordance with WAC 246-247-040, all new construction of air emission units, i.e., nonpoint sources, shall utilize the best available radionuclide control technology (BARCT) to limit and control radioactive emissions to the maximum degree achievable for the particular proposed action. For each field where the fertilizer would be applied, Siemens would technically have to do a full application for approval (WAC 246-247-060) and a BARCT assessment (WAC 246-247-120).

D. The draft assessment inappropriately applies sanitary sewer disposal regulations and limits to the disposal of untreated ADU effluent water. The proposed action by Siemens constitutes free release of the solution to unrestricted areas and to members of the public, so limits for disposal to sewerage do not apply.

- Siemens proposes a release limit of “1 ppm uranium which is equivalent to 3 pCi/mL”, or 3 E-6 microcurie/mL activity, the release limit for uranium given in 10 CFR Part 20 and WAC 246-221-290. This is the Table III value for release to the sewer, which is not the disposal method for this solution.
- The Table II values for effluent concentrations are specifically applicable to the release of radioactive effluents to unrestricted areas. But the appropriate Table II value for uranium-234, uranium-235 and uranium-238 is 3 E-7 microcurie/mL, or 0.3 pCi/mL, which is a factor of 10 less than the 3 pCi/mL release concentration Siemens proposes.

E. This proposed method of disposing of radioactive material does not meet the regulations in WAC-246-221-170.

F. This proposal also “pushes the limits” of 10 CFR Part 40, which has not received significant revision in more than thirty years. We understand there is considerable interest on the part of the Agreement States, as well as the USNRC, in updating Part 40. This proposal should be consistent with current thinking on the regulatory bases of the rules. It should, therefore, be analyzed to ensure its consistency with potential future changes to Part 40.

### Conclusions:

After review of this assessment of the Siemens proposal to sell an ammonium nitrate/ammonium hydroxide solution containing uranium as fertilizer, the DOH staff concludes that the draft assessment/FONSI regarding the proposed action does not meet NEPA and SEPA assessment regulations. Concerning the proposed action itself, the potential dose to members of the public from the fertilizer would likely be low and within

applicable limits. However, Siemens' proposal does not meet state or federal requirements for free release of effluent water to unrestricted areas, nor does it demonstrate compliance to air emission standards. In addition, it is inconsistent with sound principles of maintaining radiation doses to the public ALARA<sup>4</sup> and protecting the environment from detrimental, or potentially detrimental, impact.

We appreciated the opportunity to review this draft assessment/FONSI. We look forward to receiving your response to the above issues. While we do not agree with the draft conclusions of the assessment, we value this opportunity to work with you and with Siemens to address these issues. If you have any questions concerning our comments, please call me at 360-236-3210.

Sincerely,



John Erickson, Director  
Division of Radiation Protection

JE:EK

cc: ~~Brenda~~ Becker-Khaleel, Washington State Department of Ecology  
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<sup>4</sup> Siemens Power Corporation, *Safety Evaluation Report for the Renewal of Special Nuclear Material License SNM-1227 for the Siemens Corporation*, Section 2.5.1.3 ALARA Commitment, November 1996.