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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

MAR 24 1980

Docket Nos.: 50-327/328

Mr. H. G. Parris  
Manager of Power  
Tennessee Valley Authority  
500A Chestnut Street, Tower II  
Chattanooga, Tennessee 37401

Dear Mr. Parris:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON PROCESS CONTROL PROGRAM  
FOR SEQUOYAH

Enclosed is a list of requests for more information on the Process Control Program. This additional information is needed in order to complete our review.

Your responses are requested by April 17, 1980 to keep on schedule.

Sincerely,

L. S. Rubenstein, Acting Chief  
Light Water Reactors, Branch No. 4  
Division of Project Management

Enclosure:  
As Stated

cc: See Next Page

8004020093

Tennessee Valley Authority

ccs:

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Resident Inspector/Sequoyah NPS  
c/o U.S. Nuclear Regulatory Commission  
P. O. Box 699  
Hixson, Tennessee 37343

## ENCLOSURE

- 1) Provide a list of interfaces between the plant and the trailer mounted equipment. What plant services are required for waste input, transfer liquid return, flush water, overflow, drainage, compressed air, ventilation air, phone and electric power? What special features are involved in connecting the trailer equipment to the plant, such as line size, connectors, hose fittings, and controls. Is lifting equipment necessary? If the container is filled on a truck bed, how are spills contained?
- 2) Indicate the location for the trailer at the plant. Show any permanent or temporary shielding for the trailer mounted equipment to assure radiation protection. Show curbs and drains or other provisions that return spills to the plant.
- 3) Where will the onsite bulk storage tank for the A-SET solidification agent be located? The catalyst acid? What climate and temperature controls are to be established for A-SET and catalyst chemical storage? What is the expected storage life of these chemicals?
- 4) The PCP does not provide the pretreatment specifications or require that adjustments be recorded. For example, if the waste pH must be between 3 and 7 for waste to be acceptable to the trailer equipment, how do you determine how much caustic (liquid or solid) shall be added at what point in the system, how is the waste rechecked and the results recorded? If the pH is over 7, what acid is used, where is it added, how is the waste rechecked and the results recorded? Describe the pretreatment limits and adjustments for high oil content, waste

temperature, antifoaming agent, specific gravity, sulfate and boron. How will the waste radioactive concentration and nuclides be determined and recorded?

- 5) Include a set of acceptable specifications for the testing of the A-SET and catalyst. Define the limits for specific gravity, pH and color beyond which the chemicals should not be used. Are tests run daily for 30 days or each 30 days on stored A-SET?
- 6) The batch size, the container size and the expected annual volume of each type of waste from the Sequoyah Nuclear Station will be compared to the trailer mounted equipment. Provide the capacity for each type of waste to be solidified by the trailer mounted equipment for this comparison.
- 7) What initial tests have been completed using the trailer mounted equipment to assure that the starting ratios could result in solidification of each type of waste? What catalyst ratio is recommended to be used with each UF/waste ratio? Will the acid ratio require adjustment for waste pH when the pH is adjusted in the pretreatment stages?
- 8) The PCP assures solidification only through test specimen solidification, although TV observation is included as a final check for complete solidification. Provide information which supports that the test specimen method using a procedure different from the actual process is representative of that which occurs during actual operation. Why are the test specimens mixed by a magnetic stirrer for 10 minutes when the actual process does not depend on mixing?

Why is the pH adjustment critical to the test specimens, but the actual operation does not monitor pH continuously during container filling? How have the initial tests been factored in to the pretreatment specifications and the chemical specifications? What initial tests show that residual liquids are compatible with the liner and/or container materials? How will these liquids be made neutral in the future?

- 9) Describe the accuracy of delivery of the waste flow, A-SET flow and catalyst flow, and give the dependency of the solidification process on the accurate delivery of these fluids.
- 10) Describe how spent demineralizer resins will be moved from the catch tank to the waste loader. What will prevent further drying of the resin and eventual clumping, which may lead to non-uniform feed rates into the mixing manifold. Provide a sketch or drawing of the catch tank screw feeder.
- 11) Is the equipment to be flushed after use? If the flush water is added to the liner, will the flush water addition have any effect on the solidification process? Explain "wick" action and describe A-SET foam uptake of water in Section 2.6. What initial tests support this wick action of how much water?
- 12) The acceptance criteria must include the acceptance requirements at the burial site. The staff's position has been that the amount of free standing liquid should be essentially zero when leaving the plant site in order to assure that the burial site free standing liquid (or trace quantities) requirements are

satisfied. If visible or drainable free standing liquids are present when waste leaves the plant, additional data must be provided to assure liquids are not generated or separated during storage and shipment. What initial tests have been performed to assure that vibration, heat, freezing and storage will not release liquid from the solidified mass prior to arrival at the burial site? What steps are to be taken to implement acceptance criteria related to 0.5% or one gallon per container (whichever is less) as trace quantities in future requirements by January 1, 1981?

- 13) Provide a copy of the form SQNP-PCP for review with the revised PCP. The final PCP should have PORC review, approvals, date and method of indicating revisions to agree with the Technical Specifications 3/4.11.3 and 6.13. How will actual mixture ratios within the approved range be transmitted to the operator of the trailer mounted equipment. How will he be informed if the batch test or the test specimen fails to meet the acceptance criteria and new parameters are approved? Does the form provide for a plant management approval step prior to changing the conditions of the PCP?