

DEC 02 1985

Project M-32

Dr. William H. Hannum, Director  
West Valley Project Office  
Department of Energy - Idaho Operations Office  
P.O. Box 191  
West Valley, New York 14171

Dear Dr. Hannum:

We have reviewed the information provided in Volumes I (Project Overview and General Information) and IV (Cement Solidification System) and supporting documentation of your Safety Analysis Report for the West Valley Demonstration Project. We also have reviewed some preliminary information related to the supernatural treatment system.

Sincerely,

Original Signed By

A. Thomas Clark, Jr.  
Advanced Fuel and Spent Fuel  
Licensing Branch  
Division of Fuel Cycle and  
Material Safety

cc: T. MacIntosh, DOE:HQ

DISTRIBUTION:

Return original concurrence  
to FBrown. SS-396

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NMSS R/F                JRoth, Reg. I  
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PDR                     KGreenaugh  
Local PDRs             NDavison  
RECunningham          ATClark  
RBoyle, WMRP          FBrown (LA File)  
TJohnson, WMEG  
RPerson, WMEG

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NAME :ATC	:	:	:	:	:	:
NAME :ATClark:kd	:	:	:	:	:	:
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REQUEST FOR ADDITIONAL INFORMATION  
RELATED TO THE REVIEW OF VOLUMES I AND IV  
OF THE SAR AND THE SUPERNATANT TREATMENT SYSTEM  
FOR THE WEST VALLEY DEMONSTRATION PROJECT

STS QUESTIONS

1. How will leaks in the space above the existing 8D-1 vault be detected and managed (Reference Drawing SJS 65285). How good are the seals between the old vault and the new upper vault?
2. How are leaks detected and managed in either the valve aisle or the pipe trench behind the valve aisle? How good is the seal between the pipe trench and the new vault area above 8D-1?
3. What are the feed specifications for the STS? Is there a document(s) which presents the current flowsheet and its basis? How tightly will the feed be controlled?
4. At what radionuclide level is treated supernate judged unacceptable and therefore must be reworked? What is the basis for it being recycled back to 8D-2 rather than D001?
5. There do not appear to be any Cs-137 monitors on the effluent from the ion exchange columns. Is this true? If there are none, please explain why.
6. The P&ID indicate that the sand from the column effluent filter will be dumped to 8D-1. What is the basis, experimental or analytical, for concluding that sand can be slurried and removed from the tank?
7. Please explain the operation of bringing the lead column off-line for dumping. What happens to raw supernate in the column and its associated piping?
8. What is the expected column effluent temperature and how sensitive is overall Cs removal efficiency to cooling system operation?
9. How will leaks into or out of the cooling system be detected?
10. What chemical will be used for pH control and how will the control system operate?
11. What is the future farm ventilation system for 8D-2 and 8-D3 indicated on drawing 903-D-015A?

12. What impact does the exhaust from the supernate air driven pump have on the ventilation of 8D-2? Have any accident conditions been postulated which result in an increased source term from the tank?
13. Has there been any accidents analyzed for construction activities around 8D-3 and 4?
14. Please forward any design criteria documents for the supernatant treatment system if they would be useful to our complete understanding of the system.

GENERAL QUESTIONS

1. What are the minimum education and experience requirements for the management personnel who play a key role in protecting public health and safety?
2. What are the education and experience requirements for membership on the Radiation and Safety Committee? Are there guidelines with respect to the kinds of disciplines and experience that WVNS is trying to maintain on the Radiation and Safety Committee? Does the committee examine and approve operation procedures?, operating philosophy?, designs?, design approaches? What does the committee do if there is a dissenting member or two? How are the decisions of the cognizant manager audited?
3. How are operational safety requirements defined, developed, implemented? What independent check of compliance is performed?
4. How are the contents of the training program developed for specific operations? How is the training program audited?
5. What independent check is there on the content of procedures and of operational compliance with procedures?
6. What procedures are there for analyzing environmental monitoring data for consistency with stack release data?
7. Is the Safety Committee discussed in Technical and Administrative Approach for the West Valley Demonstration Project Safety Program the same as the Radiation Safety Committee mentioned in Steve Brown's August 26, 1985 letter to R. R. Borisch or the same as the WVNS Radiation and Safety Committee discussed in WVNS procedure WV-906, revision 3, dated 5-14-84?
8. If available, we request a computer tape which has a copy of the upgraded hourly meteorological observations of wind speed, wind direction and atmospheric stability and temperature at 10 m and 60 m heights of the on-site tower.
9. What procedure(s) define the methods used by WVNS to assure that sufficient health physics personnel, fire brigade personnel, and trained system operators are present to support operations during regular work hours, evenings, and weekends?
10. Define the fire protection system including the system philosophy, the requirements for fire brigade membership, and the interface arrangements with offsite fire departments.
11. Who is responsible for systematically reviewing, integrating and maintaining WVNS technical specifications?

CSS QUESTIONS VOLUME IV

1. What specific waste recipes will be used in the CSS? What limits or controls will be associated with these recipes? How will new recipes be developed if needed?
2. Will the preoperational testing using synthetic waste recipes (p.80 of the SAR) be performed for all waste recipes or just a few?
3. Cement Waste Form

Comments on supporting document "Low-Level Waste Cement Encapsulation for West Valley-Final Report"

- a. Page 1-1, Section 1, Paragraph 1

West Valley Nuclear Services Company (WVNSC) states that "the lower activity wastes (Class A) do not require stabilization, but should be solidified or absorbed to meet the free liquid requirements (i.e., no more than 1.0 percent of the waste volume as free liquid). For disposal at a commercial burial site, Class A solidified wastes should be free standing monoliths and have no more than 0.5 percent free liquid (see the final Technical Position on Waste Form, page 4, section C 1(a)).

- b. Page 5-23, Section 5.7, (Biological Stability Screening)

The detection of biological growth on the cement samples should have been followed by an extraction to determine if the growth is surficial. WVNSC should consider either performing this extraction or determining the rate of biological growth by using the Barther Pramer test specified in the Technical Position on Waste form.

- c. WVNSC should consider specifying the waste streams (identified in table G.8.2-1) which are to be stabilized in the West Valley Cement Solidification System and shipped as low-level waste.
- d. WVNSC should consider providing leach test results for Cs, Sr, and Cd for the waste streams to be stabilized in the cement solidification system. The results should be reported in the ANS 16.1 format as presented for uranyl nitrate solutions (report entitled Cement Encapsulation and Waste Qualification Testing of Uranyl Nitrate Waste Streams. The summary of leach indices presented in Table 5.12 ("Leachability Index of Cement Encapsulated Waste") should be supplemented with these data.
- e. WVNSC should institute a process control plan (PCP) to assure that waste chemistries and radionuclide concentrations will be within the range of projections indicated in simulated waste preparation.



- f. WVNSC should provide information on the decontamination reagents which will be used in the processes that will generate waste potentially exceptable for shallow land burial. This should also include the quantities of chelating agents as well as a detailed description of the waste formulations which were tested to assure 10 CFR Part 61 stability and results of these tests.

4. Waste Classification of Products from Tank 8D-2

a. General

Before the low-level portion of these waste are accepted for shallow land burial, NRC recommends that a performance assessment be completed to determine the effect of the disposal of these wastes in a commercial burial ground. This is necessary due to the unevaluated source term (The Final Environmental Statement for 10 CFR Part 61 did not consider these wastes which will contribute unknown impacts to the disposal site.

b. General

West Valley Nuclear Service Center (WVNSC) should provide the basis for their belief that the waste dispensing vessels will contain homogeneous supernatant from Tank, 8D-2 (will sludge be present). What provisions are available for limited radiochemical sampling to assure that the WVCSS will be processing supernatant with the same normalized radiological compositions (reported in Table G.8.2-2) after transfer of waste from 8D-2?

c. General

Indirect determination of radionuclide concentrations in waste drums by exposure rate (mR/hr) does not provide reasonable assurance of correlations with actual radionuclide concentrations in the waste. How does WVNSC plan to provide this correlation particularly since all other radionuclide concentrations (including TRU) are based on normalized Cs-137 determinations? Will gamma spectroscopy data and correlations be available? Will corrections be made for attenuation?