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Docket Nos.: 50-528, 50-529
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Mr. E. E. Van Brunt, Jr.
Vice President - Nuclear Projects
Arizona Public Service Company
Post Office Box 21666
Phoenix, Arizona 85036

Dear Mr. Van Brunt:

Subject: Request for Additional Information - Palo Verde, Units 1, 2 and 3
Solid Waste Process Control Program

We are currently reviewing your Solid Waste Process Control Program as described in Procedure No. 75 PR-9ZZ02, Revision 0. This program will utilize the Hittman Cement Solidification System for solidifying the "wet" solid wastes that will be generated during station operation.

Based on our review of the above procedure, the Palo Verde FSAR and the topical report on the Hittman Cement Solidification System (March 1978), we have determined the need for additional information in order to complete our evaluation of the Process Control Program for Palo Verde.

Enclosure 1 lists the staff's utility-related questions pertaining to the Hittman Cement Solidification System. Enclosure 2 lists the staff's comments on Procedure No. 75 PR-9ZZ02, Revision 0. Enclosure 3 is the staff's evaluation of the Hittman Topical Report which is referenced in Enclosure 2.

We request that you respond to the questions and comments in Enclosure 1 and 2 and that you revise Procedure 75 PR-9ZZ02 accordingly.

Please advise us as to when you plan to respond to this request. If you have any questions regarding the request, you should contact Manny Licitra, the Licensing Project Manager.

Sincerely,

Original signed by:
George W. Knighton

George W. Knighton, Chief
Licensing Branch No. 3
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Enclosures:
As stated

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Palo Verde

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METB QUESTIONS ON PROCESS CONTROL PROGRAM FOR
THE HITTMAN CEMENT SOLIDIFICATION PROGRAM

1. Describe how you propose to comply with the interface requirements spelled out in the Hittman topical report HN-R-1109, Rev. 4, for their Cement Solidification System.
2. Provide tables showing how the utility equipment, components, structures and services that interface with the Hittman cement system comply with the applicable criteria of Regulatory Guide 1.143, Rev. 1, October 1979, "Design Guidance for Radioactive Waste Management Systems, Structures and Components Installed in Light-Water-Cooled Nuclear Power Plants", and Branch Technical Position ETSB 11-3, Rev. 2, July 1981, "Design Guidance for Solid Radioactive Waste Management Systems Installed in Light-Water-Cooled Nuclear Power Plants".
3. Describe how the plant design, as it relates to the Cement Solidification System, reflects consideration of the following design features intended to maintain occupational radiation exposures ALARA:
 - a) Minimizing the length of piping runs
 - b) Avoiding low points and dead legs in piping
 - c) Using larger diameter piping to minimize plugging
4. Clarify whether heat tracing has been incorporated for tanks that contain evaporator concentrates that are likely to solidify at ambient temperatures.
5. Describe the equipment, components or structures and services you provide for containing radioactive spills that may occur in the portable system.

6. If within the utilities scope of supply, describe the plant inspection program to ensure that cement and/or conditioning chemicals are maintained at proper quality during the time they are stored.
7. Describe how the curie content and identification of radionuclides in each container are determined prior to shipment.
8. Revise the writeup of the PCP for Palo Verde, Unit Nos. 1-3, addressing the comments given in Enclosure 2.

COMMENTS ON PROCESS CONTROL PROGRAM FOR
PALO VERDE, UNIT NOS. 1, 2, AND 3

References

1. Hittman Radwaste Solidification System (Cement) Topical Report HN-R1109-NP, Revision 4, April 1977.
2. Hittman Operation and Maintenance Manual for Cement Solidification System, Volume 1.
3. NRC Staff's Evaluation of Topical Report HN-R1109-NP, Revision 4, "Radwaste Solidification System (Cement)," TAC No. 4657, March 1978 (Copy is attached as Enclosure 3).
4. Palo Verde Nuclear Generating Station Manual, Solid Radwaste Process Control Program, Procedure No. 75 PR-9ZZ02, Revision 0, November 1982.
5. Final Safety Analysis Report for Palo Verde Nuclear Generating Station, Unit Nos. 1, 2, and 3.
6. Arizona Public Service Company (applicant) responses to METB questions on PCP for Palo Verde utilizing the Hittman Cement Solidification System (yet to be provided).

Comments

Based on a review of the information contained in References 1, 3, 4, and 5, the staff makes the following comments:

1. The PCP for Palo Verde, Unit Nos. 1, 2, and 3, should be consistent with Reference 1 which has been referred to in Reference 5. If, however, the PCP for Palo Verde is based on Reference 2, then it should be spelled out, i.e., the document number of Reference 2 should be identified and a copy of Reference 2 should be provided as an additional enclosure.

2. The following wording is suggested for Section 1.0, "Purpose."

"1.1 Purpose

The purpose of the Process Control Program (PCP) for Palo Verde, Unit Nos. 1, 2, and 3, is to establish a set of process parameters which provide reasonable assurance of complete solidification of various liquid radioactive "wet wastes" including resin slurries, evaporator bottoms, and filter sludges, in accordance with applicable Department of Transportation (DOT) and Arizona State regulations, and Nuclear Regulatory Commission (NRC) and licensed burial facilities acceptance criteria for solidification, packaging and shipment to an approved offsite burial site. Towards this purpose, the PCP ensures that the solidified substance is a monolith having no free standing liquid and is within the limits, as set forth in the above mentioned regulations and acceptance criteria.

1.2 Applicability

The Process Control Program shall be used by all personnel operating the Hittman Cement Solidification System."

3. Under Section 2.0, "References" of your PCP, include the following additional entries:

- a) applicable chapters of the FSAR for Palo Verde, Unit Nos. 1, 2, and 3. (spell out the chapter and section numbers);
- b) Arizona Public Service Company's ALARA plan for Palo Verde, Unit Nos. 1, 2, and 3;
- c) Palo Verde Quality Assurance Program applicable to PCP.

- d) Standard Review Plan 11.4, Revision 2, July 1981, "Solid Waste Management Systems."
 - e) Branch Technical Position ETSB 11-3, Rev. 2, July 1981, "Design Guidance for Solid Radioactive Waste Management Systems Installed in Light-Water-Cooled Nuclear Power Plants;"
 - f) NRC Regulatory Guide 1.143, Rev. 1, October 1979, "Design Guidance for Radioactive Waste Management Systems, Structures and Components Installed in Light-Water-Cooled Nuclear Power Plants;"
 - g) Hittman Operating Procedures for Cement Solidification Units (spell out the document number);
 - h) Hittman Operation and Maintenance Manual for Cement Solidification System, Volume 1 (spell out the document number);
 - i) Arizona Public Service Company's responses to METB questions on PCP for Palo Verde - XXX (yet to be provided - spell out the document number);
and
 - j) 10 CFR 61, "Licensing Requirements for Land Disposal of Radioactive Waste."
4. Provide commitment in the body of the writeup of your PCP that you will implement the applicable interface requirements identified in References 1 and 3.
5. Integrate the information that you will be providing as responses to staff questions on solidification of "wet wastes" in the body of the PCP writeup.

Note: For items 4 and 5, referencing to the responses you will be providing in Reference 6 will be adequate.

6. State explicitly that the PCP will comply with applicable DOT and Arizona State regulations, NRC and burial facilities' acceptance criteria, and 10 CFR Part 61 for solidification, packaging and shipment to an approved offsite burial site. Also, make it clear that the implementation of the PCP for solidification of the "wet wastes" will be in accordance with applicable portions of a) 10 CFR Part 50, Appendix I, b) Palo Verde Quality Assurance Program, and c) Arizona Public Service Company's ALARA Plan for Palo Verde, Unit Nos. 1, 2, and 3. For those items mentioned above for which compliance with applicable acceptance criteria and/or regulations has already been stated in the FSAR for Palo Verde, a reference to the FSAR in this regard will be adequate.
7. Your program description given under Item 5 of your current writeup should include the following additional information:
 - a) the crud tank wastes and residues resulting from dry cleaning operations in Item 5.1;
 - b) discussion of the process or steps you would follow for dewatering the resins, if applicable (spent resin tank and/or waste feed tank);
 - c) list of the candidate tanks, the contents of which will be solidified using the Hittman Cement Solidification System;
 - d) the process parameters for solidification of the various types of "wet wastes" - if these happen to be the same as those given in Reference 1 and/or Reference 2, reference to these references, in this regard, will be adequate;

- e) i) operation, ii) mixer speed, and iii) waste to cement ratio for the various types of wastes;
- f) elaboration on Item 5.2.3 of your current writeup that deals with waste recirculation (e.g., you should state how many times you propose to recirculate prior to drawing a representative sample for testing);
- g) elaboration on Section 5.3, "Verification of Solidification" (e.g., you should state that i) you will not add additional waste into the applicable tank after recirculation has commenced, ii) you will secure recirculation while drawing a sample for verification, and iii) you will not shift from a recirculation mode to a transfer mode until recirculation mode is fully complete);
- h) reference to the document number that gives the pre-operational solidification tests performed by Hittman for their solidification under Subsection 5.3.1;
- i) the following wording is suggested under Subsection 5.3.1:
"For waste types containing concentrations of chemicals that do not lie within the bounds of chemical concentrations, for which pre-operational solidification tests have been performed by Hittman Nuclear and Development Corporation, acceptable base data for test solidifications shall be developed and utilized appropriately."; and
- j) deletion of the note given under Subsection 5.3.2 of your current writeup of the PCP.

8. Describe the radiological precautions you will undertake in the implementation of your PCP. For this purpose, the staff suggests that you have a separate subsection in your PCP.
9. Provide a table listing the equipment you would require for testing samples. Note that this list should be consistent with the equipment listed for the above purpose in Reference 1 and/or Reference 2, as appropriate.
10. Provide the format for the following:
 - a) for all waste types you will be solidifying, provide information sheets for sample and full scale solidification;
 - b) process summary worksheets for all waste types you will be solidifying; and
 - c) record on dewatering completion if applicable.

Note: If any of these are the same as those provided in Reference 1 and or Reference 2, reference to these references, with regard to the applicable information, will be adequate.

11. Provide information on liner and cask utilized for solidification. This information should include such items as identification, height, diameter, volume; usable volume, weight, payload, ft^3/inch , etc.
12. Provide the layouts and location of the system. If this has already been provided in your FSAR, reference in this regard will be adequate.