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ACCESSION NBR:8206070699 DOC.DATE: 82/06/03 NOTARIZED: NO DOCKET #
 FACIL:50-361 San Onofre Nuclear Station, Unit 2, Southern Californ 05000361
 50-362 San Onofre Nuclear Station, Unit 3, Southern Californ 05000362
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SUBJECT: Forwards responses to Effluent Treatment Sys Branch
 questions on process control program for Chem Nuclear cement
 solidification sys.

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K. P. BASKIN

MANAGER OF NUCLEAR ENGINEERING,
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June 3, 1982

TELEPHONE
(213) 572-1401

Director, Office of Nuclear Reactor Regulation
Attention: Mr. Frank Miraglia, Branch Chief
Licensing Branch No. 3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
San Onofre Nuclear Generating Station
Units 2 & 3

Southern California Edison Company (SCE) submitted to the NRC on November 10, 1981 a description of the Process Control Program for the Chem-Nuclear Systems Incorporated (CNSI) radwaste solidification system. Subsequent to this submittal, on January 29, 1982 SCE supplied to the NRC, Topical Report, CNSI CEMENT SOLIDIFICATION SYSTEM, Document No. 4313-01354-01-NP. Following a review by NRC staff, questions regarding the Process Control Program were presented to SCE by letter dated May 26, 1982 from F. J. Miraglia (NRC) to K. P. Baskin (SCE).

Accordingly, enclosed are seven (7) copies (Mail Code B028) of SCE's responses to the NRC questions regarding the Process Control Program.

If you have any questions or need additional information, please contact me.

Very truly yours,

KP Baskin

Enclosure

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- (7) A restricted area will be established around the processing area including the cement storage trailer.
- (8) SCE personnel have designated an area in the truck bay to be used for test solidifications.
- (9) SCE will provide crane services, torque wrenches and other necessary materials for loading the liners and preparing the solidified waste for shipment.
- (10) SCE will have available a forklift capable of 4000 pounds at 6 foot moment arm to unload the removable skids and place them in position for full-scale solidification. In fact, the skids have already been placed in the truck bay.

References

- o F. J. Miraglia to K. P. Baskin letter dated May 26, 1982
- o Topical Report, CNSI Cement Solidification System, Document No. 4313-01354-01-NP
- o Process Control Program, Appendix A of Document No. 4313-01354-01-NP

Question 2

Provide tables showing how the utility equipment, components, structures and services that interface with the mobile cement system comply with the applicable criteria of Reg. 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".

Response

The equipment, components and structures that interface with the mobile cement system comply with the applicable criteria of Regulatory Guide 1.143, Revision 1 and Branch Technical position ETSB 11-3, Revision 2 as shown in the enclosed Tables A and B.

References

- o F. J. Miraglia to K. P. Baskin letter dated May 26, 1982
- o Topical Report, CNSI Cement Solidification System, Document No. 4313-01354-01-NP
- o Process Control Program, Appendix A of Document No. 4313-01354-01-NP
- o Reg. Guide 1.143, Rev. 1, October 1979
- o Branch Technical Position ETSB 11-3, Rev 2, July 1981

TABLE A

Compliance with Reg. Guide 1.143

<u>Section</u>	<u>Compliance</u>	<u>Comments</u>
3.1.1 Codes & Standards	Yes	Piping designed and fabricated in accordance with ANSI B31.1.
3.1.2 Materials of Construction	Yes	Materials of construction in accordance with Section II of ASME Boiler and Pressure Vessel Code. Basic material of construction ASME SA376 Gr. TP304.
3.1.3 Foundations and Structures	Yes	Foundations and walls part of radwaste building. Building is a Seismic Category I structure.
4.1 ALARA	Yes	ALARA conformance of radwaste solidification system discussed in Section 11.4 of FSAR. Basic ALARA criteria achieved by providing remotely actuated system flushing and equipment layout permitting shielding of components containing radioactivity.
4.2 Quality Assurance	Yes	Quality assurance in accordance with Appendix B of 10 CFR part 50. A complete description is given in Chapter 17 of the FSAR.
4.3 Piping Design	Yes	Piping designed in accordance with class LLU 150# stainless steel piping material classification. All welded construction used to the maximum practicable extent. Process lines not less than 3/4" nominal pipe size. Pipe welds are of the butt-joint type for lines 2-1/2 inches and greater. All welding done in accordance with ASME Boiler and Pressure Vessel Code IX.
4.4 Hydro Testing	Yes	Piping is hydrotested in accordance with ANSI B31.1.

TABLE B

Compliance with ETSB 11-3, Rev. 2

<u>Section IV</u>	<u>Compliance</u>	<u>Comments</u>
1. Tanks	Yes	Wet waste storage tanks are part of in-plant system.
2. Flexible Piping	Yes	Flexible piping is not used in Bechtel supplied interface piping.
3. Drains and Vents	Yes	Mobile system located in truck bay on concrete floor or loading dock. Berms and walls will be used to contain spills. Floor drain connects to the plant radwaste system. Mobile system vent connects to plant vent system via a HEPA filter

<u>Section V</u>	<u>Compliance</u>	<u>Comments</u>
1. Heat Tracing	Yes	Heat tracing is provided on the evaporator concentrate piping. The storage tanks have heaters and insulation.
2. Flushing Connections	Yes	Flushing and drainage connections are provided.
3. Storage of Agents	Yes	Agents are stored in areas less than 2.5 mr/hr.
4. Vent System	Yes	Mobile solidification system vent connected to plant ventilation system via a HEPA filter. The HEPA filter will be part of the mobile system.

Question 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

Response

Provisions for use of a mobile radwaste solidification system were included in the initial radwaste system design to supplement the primary in-plant solidification system. Because the initial design was intended to allow for use of a portable system (as already identified in FSAR Section 11), waste/resin transfer capability, as well as other support services, were provided as part of the original plant design. As such, no internal plant modifications were required to the radwaste system described in the Final Safety Analysis Report (FSAR) to allow for use of the mobile solidification system. The ALARA features of the waste management systems are discussed in FSAR section 11. Major features incorporated into the radwaste system design to meet ALARA guidelines include remotely actuated system flushing and an equipment layout which permits shielding of components containing radioactive material. The integrated piping design includes the avoidance of long piping runs, dead legs and low points and use of the largest pipe sizes consistent with providing sufficient velocity to prevent settling.

References

- o F. J. Miraglia to K. P. Baskin letter dated May 26, 1982
- o Topical Report, CNSI Cement Solidification System, Document No. 4313-01354-01-NP
- o Process Control Program, Appendix A of Document No. 4313-01354-01-NP
- o San Onofre Nuclear Generating Station Unit 2 & 3 FSAR Section 11

Question 4

Clarify whether heat tracing has been incorporated for tanks that contain evaporator concentrates that are likely to solidify at ambient temperatures.

Response

As indicated in FSAR Figure 11.2-3 (sheet 2 of 4), the concentrate miscellaneous waste storage tanks, T061 and T062, (which receive waste from the waste evaporater) contain heaters and insulation to prevent solidification.

References

- o F. J. Miraglia to K. P. Baskin letter dated May 26, 1982
- o Topical Report, CNSI Cement Solidification System, Document No. 4313-01354-01-NP
- o Process Control Program, Appendix A of Document No. 4313-01354-01-NP

Question 5

Describe the equipment, components or structures and services you provide for containing radioactive spills that may occur in the portable system.

Response

The portable system is located in the truck bay of the radwaste building at elevation 33'-0". The floor drain for this area is connected to the plant radwaste system. The area is walled-in on three sides and berms will be provided to contain any potential resin/waste spills within the radwaste building truck bay.

References

- o F. J. Miraglia to K. P. Baskin letter dated May 26, 1982
- o Topical Report, CNSI Cement Solidification System, Document No. 4313-01354-01-NP
- o Process Control Program, Appendix A of Document No. 4313-01354-01-NP

Question 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.

Response

While not within SCE's scope of supply, the following response is provided for completeness.

In order to safely contain the waste material, quality cement and cement additives from reputable suppliers are obtained. In addition, it is stated in the Process Control Program that the CNSI operator perform a successful laboratory waste solidification using representative, sealed samples of cement and additives actually on hand for the full-scale solidification. This procedure guards against using inappropriate materials and allows potential problems to be identified, investigated and resolved prior to solidification.

References

- o F. J. Miraglia to K. P. Baskin letter dated May 26, 1982
- o Topical Report, CNSI Cement Solidification System, Document No. 4313-01354-01-NP
- o Process Control Program, Appendix A of Document No. 4313-01354-01-NP

Question 7

Describe how the curie content and identification of radionuclides in each container are determined prior to shipment.

Response

The curie content in each container will be determined by use of standard calculations based upon known volumes and specific activities of waste batches transferred to the containers.

Identification of radionuclides and their specific activities will be determined through spectroscopic analysis of waste transfer stream "grab" samples obtained during liner filling operations. These "grab" samples will be representative of the waste due to requirements imposed upon system operation as described within the CNSI Process Control Program.

References

- o F. J. Miraglia to K. P. Baskin letter dated May 26, 1982
- o Topical Report, CNSI Cement Solidification System, Document No. 4313-01354-01-NP
- o Process Control Program, Appendix A of Document No. 4313-01354-01-NP

HRPemberton:4257

NRC QUESTIONS AND RESPONSES

Question 1

Describe how you propose to comply with the interface requirements spelled out in the CNSI topical report for their Cement Solidification System.

Response

The following services are provided which satisfy the interface requirements for the mobile radwaste solidification system:

(1) General Requirements:

- o 480 V AC (3 Phase 150 Amps)
- o 120 V AC ("House Current")
- o Resin Dewater Return - 1 1/2" Pipe Size, Connection 150 # R.F. Flange, Material 304 Stainless Steel
- o Service Water - 3/4" Pipe Size, Connection 150 # R.F. Flange, Material 304 Stainless Steel
- o Plant Off Gas - 3" Pipe Size, Connection 150 # R.F. Flange, Material 304 Stainless Steel
- o Plant Waste - 2 1/2" Pipe Size, Connection 150 # R.F. Flange, Material 304 Stainless Steel
- o Spent Resin - 1 1/2" Pipe Size, Connection Pipe Thread, Material 304 Stainless Steel
- o Service Air - 1" Pipe Size, Quick Disconnect, Carbon Steel

- (2) Appropriate communication systems will be provided between the plant operator and the CNSI mobile unit operator.
- (3) Prior arrangements for the shipping of the solidified material will be made by SCE. CNSI will provide the shipping casks.
- (4) SCE is prepared to accept cement shipments prior to the arrival of the unit on site. Cement for solidification has already arrived and is stored for use in the cement storage trailer.
- (5) A Radiation Exposure Permit (REP) will be issued to the CNSI operator before any radwaste solidification operation begins. Procedures are available to ensure this requirement is met.
- (6) SCE shall provide to the CNSI operator, in the same manner as available for plant personnel, any clothing or equipment necessary for radiation protection.

ENCLOSURE

Responses to Effluent Treatment Systems Branch Questions On
Process Control Program For the CNSI Cement Solidification System

San Onofre Nuclear Generating Station
Units 2&3
Docket Numbers 50-361 and 50-362