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MIRAGLIA,F. Licensing Branch 3

SUBJECT: Forwards responses to Open Item 47 & Question 260.1,per NRC 810122 memo & telcons during wk of 810209.Updated Q-list in FSAR TAble 3.2-1 will be provided in Amend 24.Direct distribution will be made as part of Amend 24 distribution.

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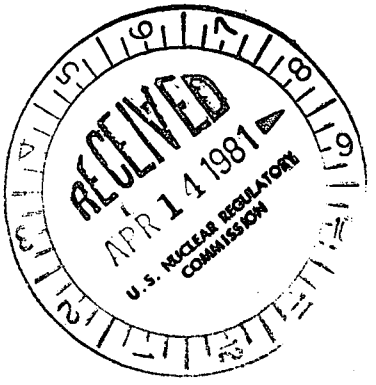
April 10, 1981



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 and 3

Enclosed are sixty-three (63) copies of responses to NRC Open Item 47 and Question 260.1 identified in the NRC memorandum dated January 22, 1981, and telephone conversations with the NRC staff during the week of February 9, 1981. The updated Q-list in Table 3.2-1 of the FSAR will be provided in Amendment 24.

Direct distribution of these responses will be made as part of the Amendment 24 distribution and will be in accordance with the service list provided by SCE's letter of October 29, 1979. An affidavit attesting to the fact that distribution has been completed will be provided within ten (10) days of docketing of Amendment 24.

Please let me know if you have any questions or need any additional information.

Very truly yours,

K P Baskin

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1/63

Enclosures

8104140 467 A

Question 260.1

Section 17.1.2.2 of the standard format (Regulatory Guide 1.70) requires the identification of safety-related structures, systems, and components (Q-list) controlled by the QA program. You are requested to supplement and clarify the Q-list in Table 3.2-1 of the FSAR in accordance with the following:

a. The following items do not appear on the Q-list (FSAR Table 3.2-1). Add these items or justify not doing so.

1) Biological shielding within containment, auxiliary building, fuel handling building, and safety equipment building.

2) Missile barriers within containment, auxiliary building, fuel handling, safety equipment building, tank enclosure structure, diesel generator building, intake structure, and around air intakes, vent stacks, and other outside structures as applicable.

3) Core support structure.

4) CVCS letdown heat exchanger (shell side).

5) Electrical tunnels, duct banks, and manholes.

6) Safety-related masonry walls (Ref. IE Bulletin 80-11).

7) Seawall.

8) Expendable and consumable items necessary for the functional performance of critical structures, systems, and components (i.e., weld rod, fuel oil, boric acid, snubber oil, etc.).

9) Measuring and test equipment.

10) Radiation monitoring (fixed and portable).

11) Radioactivity monitoring (fixed and portable).

12) Radioactivity sampling (air, surfaces, liquids).

13) Radioactive contamination measurement and analysis.

14) Personnel monitoring - internal (e.g., whole body counter) and external (e.g., TLD system).

15) Instrument storage, calibration, and maintenance.

16) Decontamination (facilities, personnel, and equipment).

17) Respiratory protection, including testing.

18) Contamination control.

19) Leak detection system. (The leak detection system discussed in Section 5.2 of the FSAR should be explicitly identified, or all of its constituent parts should each be explicitly included as subsystems or components of other entries in the Q-list.)

20) Shutdown cooling system (residual heat removal system).

21) Reactor coolant gas vent system.

22) Containment sump, sump screen, and vortex suppression devices.

23) PORVs, block valves, and their actuators.

24) Meteorological data collection program.

b. The following items from the Q-list (FSAR Table 3.2-1) need expansion and/or clarification as noted. Revise the list as indicated or justify not doing so.

3.8.4	Other Seismic Category I Structures	Clarify that the Intake structure includes the intake portion of the box conduit structure.
5.4.11	Pressurizer Relief Discharge System	Make valves (excluding pressurizer safety valve) Seismic Category I and Quality Class I or II.
7.0	Instrumentation and Control Systems	Identify the safety related systems and components to the same scope and level of detail provided in Chapter 7 of the SAR.
8.3	Onsite Power Systems AC Power Systems:	a) Include 120 v AC Vital Bus Distribution Equipment. b) Include Associated Power Systems I&C. c) Clarify that "Cables" include splices, connectors, and terminal blocks. d) Include cable penetrations (fire stops). e) Make conduit, cable trays, and related supports Seismic Category I and Quality Class I or II.

DC Power Supply:
Class IE Equipment

a) Include Associated Power Systems I&C.

b) Include Battery Racks.

c) Make conduit, cable trays, and related supports Seismic Category I and Quality Class I or II.

Valve operators - Clarify that motor operators for Q-listed valves are Q-listed.

c. Enclosure 2 of NUREG-0737, "Clarification of TMI Action Plan Requirements" (November 1980) identified numerous items that are safety-related and appropriate for OL application and therefore should be on the Q-list and/or indicate where on the Q-list they can be found. Otherwise justify not doing so.

		NUREG-0737 (Enclosure 2) Clarification Item
1)	Plant-safety-parameter display console.	I.D.2
2)	Reactor coolant system vents.	II.B.1
3)	Plant shielding.	II.B.2
4)	Post accident sampling.	II.B.3
5)	Valve position indication.	II.D.3
6)	Auxiliary feedwater system.	II.E.1.1
7)	Auxiliary feedwater system initiation and flow.	II.E.1.2
8)	Emergency power for pressurizer heaters.	II.E.3.1
9)	Dedicated hydrogen penetrations.	II.E.4.1
10)	Containment isolation dependability.	II.E.4.2
11)	Accident monitoring instrumentation.	II.F.1
12)	Instrumentation for detection of inadequate core-cooling.	II.F.2

		NUREG-0737 (Enclosure 2) Clarification Item
13)	Power supplies for pressurizer relief valves, blocks valves, and level indicators.	II.G.1
14)	Automatic PORV isolation.	II.K.3(1)
15)	Automatic trip of reactor coolant pumps.	II.K.3(5)
16)	Power on pump seals.	II.K.3(25)
17)	Emergency plans.	III.A.1.1/III.A.2
18)	Emergency support facilities.	III.A.1.2
19)	Inplant I_2 radiation monitoring.	III.D.3.3
20)	Control-room habitability.	III.D.3.4

Response

The Project Q-list is a master control document which identifies safety-related structures, systems, and components to which the Quality Assurance Program developed in accordance with 10CFR50 Appendix B applies.

Regulatory Guides 1.26 and 1.29 provide guidance on the classification of safety-related structures, systems, and components as those which are necessary to assure:

a. The integrity of the reactor coolant pressure boundary,

b. The capability to shutdown the reactor and maintain it in a safe shutdown condition,

c. The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the guideline values of 10 CFR 100.

When a safety-related item is identified pertinent requirements of 10 CFR Appendix B are applied to all related activities including design, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspection testing, operating, maintaining, repairing,

refueling, and modifying. In addition, certain items designated as non-safety related are controlled in accordance with selected portions of the quality assurance program as indicated below:

a. Seismic Category II and III items whose failure during a Design Basis Earthquake could reduce the functioning of any safety-related item are designed and constructed as described in FSAR Appendix 3A, paragraph 3A.1.29.

b. Fire protection program systems and equipment are designed, constructed, inspected and tested as described in the Fire Hazards Analysis Table III-1 Section C, and FSAR Subsection 17.2.3.

c. Items "important to safety" as defined by Regulatory Guide 1.68 which are not designated as safety-related are tested as described in FSAR Chapter 14.

d. Items defined by the Technical Specifications are operated, controlled, inspected, and tested in accordance with written procedures and instructions by qualified personnel as required by Regulatory Guide 1.33. Independent quality assurance audits, surveillance, and inspections are provided to assure conformance with Technical Specification requirements.

Table 3.2-1 classifies each of the major components, systems, and structures based on their importance to safety. For identification of system and subsystem boundaries, table 3.2-1 is supplemented by piping and instrumentation diagrams and other project documents which have been marked to clearly show the limits of the various seismic category and quality group classifications on a system. Classification of instrumentation, piping and valves, ductwork and dampers, and associated supports, hangers, and restraints is not delineated in table 3.2-1 because of the extensive listing required. Their classification, however, is consistent with the boundaries shown on the piping and instrumentation drawings and other project documents. Therefore, several of the items not explicitly identified on the Q-list are implicitly included as noted below. Additional descriptive information is presented in the FSAR section referenced for each item in table 3.2-1.

a. General Items

a.1 Biological shielding is not a safety-related function and is not Q-listed. However, all structural walls and floors which comprise each of the safety-related buildings meet the classifications stated in table 3.2-1 for subsections 3.8.3 and 3.8.4. These walls and floors also serve to attenuate radiation sources. See also the response to item c.7. Adequacy of the shielding is continuously verified by periodic station radiation surveys. This is done in accordance with the station radiation protection program which is audited by the SCE Quality Assurance Organization as described in FSAR Section 17.2.

a.2 Missile barriers and pipe whip restraints which are required within the plant, based on the hazards evaluation performed, are safety-related and have been added to the Q-list. Refer to revised FSAR table 3.2-1.

a.3 The core support structure is an integral part of the reactor vessel and therefore is Q-listed. No change to table 3.2-1 is required.

a.4 The CVCS letdown heat exchanger (shell side) is shown in section 9.3.4 of table 3.2-1.

a.5 The safety-related electrical tunnels, duct banks and manholes are Q-listed and have been added to table 3.2-1 section 3.8.4. These items are described in paragraph 3.8.4.1.8.

a.6 There are no safety-related masonry walls within the plant.

a.7 The seawall is described in paragraphs 1.2.1.1 and 2.4.5.5 and is not considered safety-related. Additional information regarding the structural design of the seawall is provided in the response to NRC Question 131.34. The QA program controls applied to the design and construction of the seawall and the QA program that will apply during the operational phase are described in the response to NRC Question 421.3. Table 3.2-1 has been updated.

a.8 Expendable and consumable items associated with a safety-related item inherently fall under the appropriate quality assurance program based on the classification of the item or system that it is associated with. For example, lubrication oil for a component will be the same or equivalent to the oil qualified and supplied with the component, and falls under the station quality assurance program which is similar to the one that was used to procure the original component. Similar quality assurance programs would be used for weld rod control, diesel fuel oil, etc.

a.9 Measuring and testing equipment do not perform any safety-related function and are not Q-listed. For the operating phase, use of such devices falls under the appropriate plant procedures which are developed and controlled under the SCE Quality Assurance Program for the operating phase as described in FSAR Section 17.2. Proper calibration of the devices is dictated to assure accurate results.

a.10, 11, & 12 Safety-related portions of inplant radiation, radioactivity monitoring, and radioactivity sampling are discussed in sections 11.5, 12.3, and 9.3.2, and are covered by the same sections in table 3.2-1. The appropriate P&IDs delineate the boundary between safety-related and non safety-related portions. See previous discussion for operating phase procedures.

a.13, 14, 16, 17, & 18 Contamination detection and control, and personnel monitoring and respiratory protection are not Q-listed and do not serve to accomplish any safety-related function. Administrative control of these activities, will fall under the appropriate plant procedures which are audited by the SCE Quality Assurance Organization as described in FSAR Section 17.2.

a.15 The storage, calibration, and maintenance of safety-related instruments is dictated by the quality assurance program that was used to procure the original component. The Q-list and derivative documents (i.e., P&ID) identifies the safety-related instruments. See the previous discussion for operating phase procedures.

a.19 The various subsystems comprising the RCPB leakage detection system are delineated in section 5.2.5. Each of these subsystems is discussed in more detail in another more appropriate section. For example, the containment air particulate monitors are discussed in section 11.5, are shown on P&ID figure 9.4-2 (sheet 1), and are listed in Table 3.2-1 (under section 11.5). Section 5.2.5 will be updated to provide a reference to the appropriate section and P&ID. No change to Table 3.2-1 is required.

a.20 The shutdown cooling system is not specifically identified in table 3.2-1 as the system is a subsystem of the low pressure safety injection system which is safety-related and is identified in table 3.2-1. The shutdown cooling heat exchangers are also used during the recirculation mode of system operation following a LOCA for containment spray purposes. There is no need to redundantly list the shutdown cooling system components as the major components are already Q-listed with subsections 6.2.2 and 6.3.3 in table 3.2-1. The classification of all shutdown cooling system components is clearly shown on P&ID figures 6.2-33 and 6.3-1.

a.21 The reactor coolant system vents are safety-related and are properly shown on P&ID figure 5.1-9. No change is required to table 3.2-1.

a.22 The sump, sump screen and vortex suppression devices (trash rack and grating cage) are safety-related and have been clarified in section 6.3 of table 3.2-1.

a.23 No PORVs or PORV block valves are incorporated in the San Onofre 2&3 Units.

a.24 The meteorological data collection program is controlled within the SCE Quality Assurance Program as described in FSAR Section 17.2. It does not appear in Table 3.2-1 since the table is a listing of structures systems, and components.

b. Clarification or Expansion of Q-list

b.1 (3.8.4) FSAR subsection 3.8.4 provides the clarification requested. The intake portion of the box conduit structure will be added to table 3.2-1.

b.2 (5.4.11) There are no valves in the pressurizer relief discharge downstream of the safety valves to the quench tanks. The valves noted in table 3.2-1, section 5.4.11 are other valves associated with the quench tank. The table has been clarified.

b.3 (7.0) Section 7.0 of table 3.2-1 provides the degree of detail necessary by indicating the classification at the system level. The write-up in FSAR chapter 7 and the piping and instrumentation diagrams provide the additional delineation requested.

b.4 (8.3) Onsite power systems. The requested changes will be made to table 3.2-1. Please note that the classification quality class and seismic category for conduit and cable tray and associated supports will remain as shown since the procurement of material was based on commercial practices for similar types of items. Structural integrity and quality is assured in the design and field installation as described in FSAR Appendix 3A paragraph 3.A.1.29. Section 8.3 of table 3.2-1 has been footnoted for clarification. Firestops are not Q-listed. The QA program for fire stops is presented in the Fire Hazards Analysis Table III-1, Section C and FSAR Section 17.2.3.

b.5 Valve operators on safety-related valves may be active or passive based on its safety-related function of the system. Active operators which perform a safety-related function hence are Q-listed, are discussed in FSAR paragraph 3.9.3.2.2. All active valve operators are powered from a Class IE source and are so identified on the appropriate P&IDs. No change to the Q-list is required.

c. NUREG 0737, Clarification of TMI Action Plan Requirements

c.1 The safety parameter display system (SPDS) function and design criteria requirements are defined in NUREG 0696, issue date February 1981. The final SPDS instrumentation for SONGS 2 and 3 utilizes the capabilities of the critical function monitoring system (CFMS) described in SCE's response to the TMI Action Plan, NUREG 0660/0737, Item III.A.1.2 and other instrumentation currently under development. The CFMS is a computer-based alarm and display system which monitors plant process parameters and displays the parameters in a "human-engineered" format in the control room, technical support center, and emergency support facilities. The CFMS has been added to table 3.2-1 (section 7.6). The other items comprising the final SPDS instrumentation will be added at the completion of the development program.

c.2 The reactor coolant system vents are safety-related (Quality Class I/II, Seismic Category I) and are properly shown on FSAR figure 5.1-9 and on figure II.B of SCE's response to NUREG 0660/0737. No change is required in table 3.2-1 (see a.21 above).

c.3 Biological shielding is not a safety-related function as discussed in response a.1 above. It is thus not "Q-listed."

c.4 The post-accident sampling system (PASS) to the outer-containment isolation valves is safety-related as shown in figure II.B.3-1 of SCE's response to NUREG 0660/0737.

Portions of the PASS which are common to the process sampling system, i.e., sample piping within the containment, are shown in section 9.3.2 of table 3.2-1. The balance of the PASS is listed in new section 9.3.6 of table 3.2-1.

c.5 San Onofre Units 2&3 do not use power-operated relief valves but do use safety valves on the pressurizer. The pressurizer safety valve discharge lines will be monitored by an acoustic monitoring system to indicate valve position. The system will be safety grade (Quality Class II, Seismic Category I) and has been added to the Q-list.

c.6 As discussed in the Response to Item II.E.1.1 of NUREG 0660/0737, a third 100% capacity auxiliary feedwater system motor-driven pump has been added. These pumps are QC-II, SC-I and are listed in sections 7.3 and 10.4.9 of table 3.2-1.

c.7 The auxiliary feedwater system initiation and flow instrumentation systems are Quality Class II, Seismic Category I items and are listed in sections 7.3 and 7.4 of table 3.2-1.

c.8 The pressurizer heaters consist of two banks of proportional heaters and six banks of back-up heaters. Two of the six banks of backup heaters are powered from separate, Class IE emergency power buses. Class IE Power Systems are listed in section 8.3 of table 3.2-1.

c.9 Dedicated hydrogen penetrations are not applicable because external recombiners are not used.

c.10 Containment isolation instruments and controls are safety-related items and are listed in section 7.3 of table 3.2-1.

c.11 Certain equipment used for post-accident monitoring instrumentation (PAMI) may be safety-related and is listed in section 7.5 of table 3.2-1.

c.12 Instrumentation for the detection of inadequate core cooling is discussed in SCE's Response to Item II.F.2 of NUREG 0660/0737. The instrumentation consists of the sub-cooled margin monitor (SMM), hot leg resistance temperature detectors (RTD) reactor vessel water level indication and other instrumentation currently under development. This instrumentation is safety-related and will be of a quality class and seismic category appropriate to its safety function. The SMM has been added to section 7.5 of table 3.2-1. The other items will be added at the completion of the development program.

c.13 SONGS 2&3 does not use power operated relief valves, or block valves on the pressurizer. Redundant, Class IE level indicators on the pressurizer are safety-related and are part of PAM instrumentation and are included in the PAMI in section 7.5 of table 3.2-1.

c.14 SONGS 2&3 does not use power-operated relief valves (PORV).

c.15 The SONGS 2&3 Units currently do not automatically trip reactor coolant pumps (RCP) in case of a small break LOCA. The applicant has revised the appropriate emergency procedures to reflect the requirement for a manual trip of the RCPs following a depressurization to the SIAS setpoint. No change in the Q-list is required.

c.16 Power On Pump Seals

The reactor coolant pumps have been operationally tested to demonstrate satisfactory seal performance with seal cooling water shut off for 30 minutes with the pump operating. Based on the results the RCP seals were judged to be able to withstand a loss of power two hours in duration without losing function. The RC Pumps are Q-listed, hence the test procedures and results fall under the quality assurance program.

c.17 Emergency Plans

The Emergency Plan is a policy and planning document and does not set forth detailed procedures which are either administratively or operationally important to safety. As such, it does not belong on the Q-list. Per Technical Specification 6.8.1(e), written procedures shall be established, implemented and maintained covering the Emergency Plan implementation. The Emergency Plan, its implementing procedures, training, readiness testing and equipment are audited by the SCE Quality Assurance Organization as described in FSAR Section 17.2.

c.18 Emergency Support Facilities

The Emergency Support Facilities serve to locate support personnel who advise the plant operators and/or coordinate offsite emergency response activities. The equipment located in these facilities is limited to communications and data display components which support the functions described above. As such, these facilities do not serve to prevent or mitigate the consequences of accidents. Therefore, unless there is safety related equipment contained therein, these facilities are not properly placed under the QA program. The Emergency Support Facilities are controlled by Plant Procedure which are audited by the SCE Quality Assurance Organization as described in FSAR Section 17.2.

C.19 Existing airborne radiation monitoring instrumentation is being modified to meet post-accident I_2 monitoring requirements. This instrumentation is discussed in FSAR subsection 12.3.4 and is listed in sections 11.5 and 12.3 of table 3.2-1. Additional portable instruments to be procured by the applicant will be appropriately calibrated but need not be added to the Q-list.

c.20 Control room habitability is discussed in FSAR section 6.4 and is ensured by the auxiliary building ventilation system which is described in FSAR subsection 9.4.2. Components of the auxiliary building ventilation system are Q-listed in section 9.4.2.2 of table 3.2-1. No changes are required.

References

See revised FSAR table 3.2-1 and section 5.2.5.