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ACCESSION NBR:8303080192 DOC.DATE: 83/03/04 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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DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Clarifies & supols 830224 request for amends to OLs providing addl time to make post-accident sampling sys operable & implement post-accident sampling program per NUREG-0737.

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TITLE: Licensing Submittal: PSAR/FSAR Amdts & Related Correspondence

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March 4, 1983

Mr. H. R. Denton
Director
Office of Nuclear Reactor Regulation
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

Reference: Letter from SCE (K. P. Baskin) to
NRC (H. R. Denton), dated February 24, 1983

The purpose of this letter is to provide additional information to the Nuclear Regulatory Commission (NRC) to clarify and supplement the request of Southern California Edison Company (SCE) for amendments to the facility operating licenses for San Onofre Nuclear Generating Station, Units 2 and 3 (SONGS 2 and 3). SCE's amendment applications were submitted by the referenced letter and were discussed at meetings with NRC Staff in Bethesda, Maryland, on February 25, and March 2, 1983. The amendment applications request additional time to make the Post-Accident Sampling System (PASS) operable and to implement the Post-Accident Sampling Program.

Based on the February 25 and March 2 discussions with NRC staff, SCE is constrained from operating SONGS 2 in operating Modes 1 and 2 until such time as NRC grants licensing relief or the current license conditions are satisfied. SONGS 2 is scheduled to be ready to enter Mode 2 operation on March 8, 1983 pending resolution of this matter. For the reasons discussed in this letter, NRC approval of the subject license amendment applications is urgently needed.

By way of review, when SCE met with the NRC Staff in September, 1982 and requested additional time to make the PASS operable, a large number of problems had been identified, many of which required design changes to the PASS. These changes were prioritized as Category One or Two as follows:

A001

CATEGORY ONE: Those system deficiencies which preclude obtaining required samples to the desired accuracy in accordance with NRC requirements.

CATEGORY TWO: Those changes which enhance the operability and maintainability of the system.

It was also noted in September that the SONGS 2 & 3 PASS is a prototype system still in the development stages. Prior to September, SCE had spent over 100,000 man-hours and more than $7 million to design and install PASS. From September 9, until December 9 SCE spent an additional 15,000 man-hours and over $1 million to complete the Category One changes identified during the September meeting. Category Two changes were not considered essential for PASS operability and completion of those changes were to be completed over a longer time frame to enhance the operability and maintainability of the PASS. Costs associated with those changes are still being incurred.

The above information is a reflection of SCE's commitment to install a PASS that meets all the requirements of NUREG-0737 and can be reliably operated when called upon. However, as with any developmental system, this task has not been achieved without solving a number of problems as they have been encountered.

At this time, the system has been improved and upgraded so that all identified problems encountered in startup testing have been resolved with the exception of the Category Two changes. The cause of each problem previously encountered was reviewed. As a result of this review, SCE concluded that the problems do not indicate any consistent recurrence that requires a design change for resolution.

While it is apparent that the SONGS 2 and 3 PASS is designed to meet the requirements of NUREG-0737, the history of maintenance problems to date indicates that additional problems may yet be expected to be encountered as more hours of operation are placed on the PASS. System reliability has not been demonstrated to date.

SCE has already identified a number of changes (Category Two changes) that need to be completed to enhance the operability and maintainability of PASS. It may take a significant amount of PASS operation to identify other potential problems which may affect system reliability. Based on past experience, some of these problems may require design changes that could take weeks or months to fully resolve. It is precisely for this reason that SCE has requested the amendments to the SONGS 2 and 3 operating licenses. During the period between now and achievement of PASS reliability, SCE will continue to pursue resolution of PASS system problems with the same diligence that has been applied in the past. SCE will maintain a record, in auditable form, of problems encountered and the schedule for their resolution. SCE believes that this continued effort to make the system more reliable should in no way constrain the continued power operation of SONGS 2 and 3.

SCE's submittals dated September 14 and 15, 1982 provided supplementary information to support the requested license amendment No. 12 for SONGS 2 submitted by letter dated September 11, 1982. In these submittals SCE described the partial capability of the PASS and alternate methods that were available at that time for performing each of the PASS functions in the interim until the PASS would be operable. Enclosure 1 to this letter provides an update of the present capabilities of PASS and presently available alternate methods for performing PASS functions. However, it should be noted that procedures encompassing all the alternate methods of analysis are not in place.

The implementation of a Post-Accident Sampling Program has paralleled the activities to get PASS operable. Initial operating procedures and a training program for operating personnel were in place in December, 1982. As a result of design changes and continuing operating difficulties the PASS procedures have required continuing revisions. The current status of procedure development is indicated in Enclosure 2 to this letter.

SCE expects to have these procedures prepared, issued and verified as indicated in Enclosure 2. The indicated dates are necessarily dependent on availability of the units so that verification of the procedures on the functioning equipment can be performed. Additional procedures addressing the offsite shipment of a chloride sample may be necessary at the time of cask licensing.

The target dates listed in Enclosure 2 assume changes to procedures are not required as a result of additional PASS testing. This assumption is extremely unlikely. Therefore, it is impractical to expect official (fully signed-off, processed, etc.) procedures to be completed until PASS system reliability has been demonstrated. The target dates listed above will therefore probably not be met. We will maintain, however, in a marked-up status, procedures that allow the best operation of the system given the current status.

As mentioned in previous correspondence and discussions, training of SCE personnel to operate the PASS has been hampered by unit outages and PASS component failures. To conduct the "hands-on" training on the system the plant must be in Mode 3 or higher for a sustained period of time.

Currently, Combustion Engineering is under contract to train eight people for SCE. The training is being done in two groups of four because of space limitations in the PASS lab and to provide sufficient "hands-on" training experience. All classroom training for both groups was completed in 1982.

Group 1 consists of two SCE training instructors and two chemical technicians. Group 2 consists of four chemical technicians. Five days of "hands-on" training of Group 1 is scheduled to commence again on March 7, providing unit mode will support PASS operation. This would be immediately followed by a like training program for Group 2. The training will, however, suffer the same problems as discussed above for procedure development, namely, the changing status of the system. The two qualified training instructors

will initiate a training program within SCE's Nuclear Training Division to train additional chemical technicians to operate PASS and provide annual retraining.

Upon completion of the above training, six SCE chemical technicians will be available to operate the PASS. In addition, three knowledgeable SCE engineers and two SCE training instructors are available as backup. SCE does not consider it necessary to have someone who is capable of operating PASS on shift at all times, since there are an adequate number of qualified SCE personnel to assure that at least two could be called to report in a timely manner to the plant.

In conclusion, the primary purposes of the PASS are to (1) assess the core conditions, and (2) assess containment hydrogen level following occurrence of a significant accident. As discussed in Enclosure 1, the stated purposes can be satisfied by a combination of the current capabilities of the PASS and/or alternate methods for performing the PASS functions, without compromising the health and safety of the public.

Throughout the development process for PASS, SCE has demonstrated a continued willingness and determination to do all that is necessary to achieve a reliable PASS that will perform its intended function when called upon. This process is not yet complete. Therefore, SCE considers it most appropriate to issue the license amendments requested in the referenced letter. Pending issuance of such amendments SCE requests concurrence to continue with the startup test program without mode restriction.

If you have any questions on this matter, please call me.

Very truly yours,

cc: R. H. Engelken, Regional Administrator, Region V
H. Rood (To be opened by addressee only)

Enclosure 1

ALTERNATIVE POST ACCIDENT SAMPLING CAPABILITY

PASS FUNCTION	PASS STATUS	ALTERNATIVE CAPABILITY INDEPENDENT OF PASS
I. Containment Atmosphere		
A. Hydrogen	Available	Hydrogen will be detected and measured by means of the Seismic I, Quality Class II, NUREG-0588 qualified IE powered containment hydrogen monitors. These instruments provide redundant, channelized continuous readout of hydrogen in containment in concentrations from 0 to 10%. One channel is recorded. Presence of hydrogen in the containment atmosphere will be indicative of core degradation, thus providing a measure of hydrogen production of a degraded core resulting from core voiding and metal-water reaction.
B. Radionuclide	Should be available 03/05/83 Maintenance in progress	The normal sampling system would be utilized during most of the FSAR Chapter 15 postulated spectrum of accidents because radiation levels would not preclude these samples being processed in the sample lab. In addition the dose rates at the high range in containment area radiation monitors have been correlated to reactor coolant activity levels as shown in FSAR Figures 432.42-1 and 432.42-2. Curves of dose rate versus time are provided for the following conditions: RCS Average - 100% of core average activity from FSAR Table 11.1-3 released to containment. RCS Maximum - 100% of core average activity from FSAR Table 11.1-2 released to containment.

PASS FUNCTION	PASS STATUS	ALTERNATIVE CAPABILITY INDEPENDENT OF PASS
		1% Failed Fuel - Assumes that 1% of total core activity is available for release and of that 1%, 100% of the noble gases, 50% of the halogens and 1% of the other isotopes are released. 10% Failed Fuel - 10 times the 1% case. Gap Activity - Utilizes Regulatory Guide 1.25 assumptions with 10% of the core Xenon and Krypton, 30% of the Krypton 85 and 10% of the Iodines released. LOCA - Utilizes Regulatory Guide 1.4 assumptions with 100% of the noble gases, 50% of the halogens and 1% of the other isotopes released. Extrapolation between these curves will provide an indication of degraded core conditions.
C. Diluted samples	Available	Normal sampling is available as discussed for Radionuclides in I.B above for most of the spectrum of Chapter 15 accidents. However, for accidents with TMI type source terms there is no backup capability.
II. RCS Analysis		
A. Gas		
1. Hydrogen	Available	Use post-LOCA hydrogen monitor. See discussion in I.A above.
2. Oxygen	Available	Oxygen gas measurements are not a requirement of NUREG-0737.

PASS FUNCTION	PASS STATUS	ALTERNATIVE CAPABILITY INDEPENDENT OF PASS
3. Radionuclide	Should be available 03/05/83 Maintenance in progress	Use the high-range incontainment monitors. See the discussion of I.B above.
4. Total Dissolved Gas	Available	The Seismic I, quality Class II, IE, NUREG-0588 qualified subcooled margin monitor and the interim core exit thermocouple system for detection of ICC will provide temperature and pressure parameters necessary to determine the amount of dissolved gas which reactor coolant can retain.
5. Diluted Grab Sample (Backup to inline instrumentation)	Available	In that this capability is a backup, no further backup capabilities are required.
B. Liquid		
1. Boron, pH, Radionuclide	Available	Boron concentration may be calculated by correcting the initial reactor coolant concentration prior to the accident by the amount of spray and safety injection water added during the accident. The amount of water injected and the RCS inventory can be determined from safety grade refueling water storage tank and Safety Injection Tank level indications. pH is an indication of the potential for long term corrosion. The potential for corrosion would be assessed through pH analysis of that sample which is obtained and stored in the shielded grab sample facility. Diluted grab samples taken from the PASS can be analyzed for radionuclide concentration.

PASS FUNCTION	PASS STATUS	ALTERNATIVE CAPABILITY INDEPENDENT OF PASS
2. Chloride	Not Available (until cask is licensed for offsite shipment)	Chlorides are monitored in response to the long term concern for stress corrosion. An undiluted RCS sample can be collected in an existing shielded grab sample cask and retained for chloride analysis for 30 days consistent with ALARA. The cask has been tested, delivered, and requires NRR approval for offsite shipment. In addition, a diluted grab sample can be obtained from the PASS and analyzed for chlorides and the dissolved hydrogen residual can be measured to assess the presence of oxygen as a contribution to stress corrosion.
3. Diluted grab sample (backup to inline instrumentation)	Available	In that this capability is a backup, no further backup capabilities are required.
III. Containment Sump	Available	The analysis of containment sump liquids may be correlated with the RCS sample, corrected by the amount of spray and safety injection water. The amount of water injected and the RCS inventory are available from safety grade Refueling Water Storage Tank and Safety Injection Tank level indications. The activity of the RCS coolant is known from the PASS RCS liquid sample.

Enclosure 2

PASS Procedure Development

TYPE	NUMBER	STATUS	TARGET DATE
Chemistry	3	Procedures for operation of the PASS skid are available.	Complete
Chemistry	1	Chemistry PASS Program procedure definition is in place and in the process of being revised to enhance program definition.	04/01/83
Chemistry	1	Operating procedure for the multi-channel analyzer is available.	Complete
Chemistry	1	Surveillance procedure is still being developed to include compensatory measures.	04/15/83
Chemistry	1	Access to PASS laboratory during accident conditions.	Complete
Chemistry or Health Physics	1	Radioiodine and particulate samples, under evaluation; a new method and procedure may be required.	04/15/83
Chemistry	1	Calibration procedure (Chemical)	Complete
I & C	1	Calibration procedure (Electronic).	Complete
Maintenance	-	Procedures will be required for preventive maintenance.	04/15/83
Chemistry	1	Procedure for conducting alternate methods of sampling and analyzing when portions of the PASS are inoperable is being developed.	05/01/83
Not Determined	1	Procedure for core damage assessment is being developed.	Not Determined
Station Order	1	A Station Order addressing overall PASS Program definition is being developed.	05/01/83