UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103 License to Acquire, Possess, and Use a Utilization Facility as Part of Unit 2 of the San Onofre Nuclear Generating Station	))))))	Docket No. 50-361 Amendment Application No. 119

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 119.

This amendment application consists of Proposed License Change No. NPF-10-397 to Facility Operating License No. NPF-10. Proposed License Change No. NPF-10-397 is a request to revise License Condition 2.C.(19)i, "Post Accident Sampling System (NUREG-0737 Item II.B.3)." The proposed License Condition change will allow the removal of parts of the license condition already complied with and will replace four Post Accident Sample System requirements with new requirements to provide needed information by different methods.

Subscribed on this 2nd day of October, 1992

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: Harold B. Ray
Harold B. Ray
Senior Vice President

State of California
County of Orange
On 10/2/92 before me, Mariane Sanchez,
personally appeared Harold B Ray, personally known to me ~~(or proved to me on the basis of satisfactory evidence)~~ to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature Mariane Sanchez

OFFICIAL SEAL
MARIANE SANCHEZ
Notary Public-California
ORANGE COUNTY
My Commission Expires
October 14, 1994

James A. Beoletto
Attorney for Southern
California Edison Company

By: James A. Beoletto
James A. Beoletto

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103 License to Acquire, Possess, and Use a Utilization Facility as Part of Unit 3 of the San Onofre Nuclear Generating Station	))))))	Docket No. 50-362 Amendment Application No. 103

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 103

This amendment application consists of Proposed License Change No. NPF-15-397 to Facility Operating License No. NPF-15. Proposed License Change No. NPF-15-397 is a request to revise License Condition 2.C.(17)d, "Post Accident Sampling System (NUREG-0737 Item II.B.3)." The proposed License Condition change will allow the removal of parts of the license condition already complied with and will replace four Post Accident Sample System requirements with new requirements to provide needed information by different methods.

Subscribed on this 2nd day of October, 1992

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: Harold B. Ray
Harold B. Ray
Senior Vice President

State of California
County of Orange
On 10/2/92 before me, Mariane Sanchez,
personally appeared Harold B. Ray, personally known
to me ~~(or proved to me on the basis of satisfactory evidence)~~ to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature Mariane Sanchez

OFFICIAL SEAL
MARIANE SANCHEZ
Notary Public-California
ORANGE COUNTY
My Commission Expires
October 14, 1994

James A. Beoletto
Attorney for Southern
California Edison Company

By: James A. Beoletto
James A. Beoletto

DESCRIPTION AND SAFETY ANALYSIS OF PROPOSED CHANGE NPF-10/15-397

This is a request to Revise License Condition 2.C.(19)i for Unit 2 and License Condition 2.C.(17)d for Unit 3, "Post Accident Sampling System (NUREG-0737 Item II.B.3)."

Existing License Conditions

License Conditions 2.C.(19)i for Unit 2 and 2.C.(17)d for Unit 3 state:

Post-Accident Sampling System (NUREG-0737 Item II.B.3)

1. By June 1 1983, SCE shall substantially complete all of the PASS procedures identified in Enclosure 3 of the SCE letter of April 14, 1983.

2. Prior to September 1, 1983, SCE shall maintain in effect all compensatory measures other than the PASS that are identified in the SCE letter of April 14, 1983, that are not already covered by Technical Specification surveillance requirements.

3. By September 1, 1983, the PASS shall be operable and the post accident sampling program shall be implemented.

4. Until September 1, 1983, SCE shall provide monthly progress reports on PASS testing, surveillance, maintenance and modifications, and operator training.

Proposed License Conditions

License Conditions 2.C.(19)i for Unit 2 and 2.C.(17)d for Unit 3 are proposed to state:

Post-Accident Sampling System (NUREG-0737 Item II.B.3)

The PASS shall be operable and the post-accident sampling program shall be implemented as described in the SCE letter of April 14, 1983 and revised by SCE letter of October 2, 1992.

DESCRIPTION SUMMARY

License Conditions 2.C.(19)i for Unit 2 and 2.C.(17)d for Unit 3, "Post-Accident Sampling System (NUREG-0737, "Clarification of TMI Action Plan Requirements," Item II.B.3)," require Southern California Edison (SCE) to install and operate a Post-Accident Sampling System (PASS) in accordance with the guidelines of NUREG-0737 and our commitment letter of April 14, 1983 (Reference 1).

This proposed change revises the License Conditions to delete those requirements already complied with (items 1, 2, and 4 of the existing PASS License Conditions) and to revise the following four PASS requirements which are documented in reference 1:

A) Analyze dissolved total gas in the reactor coolant

B) Maintain a cask for shipping an undiluted reactor coolant sample to an offsite analysis facility

C) Collect an undiluted grab sample of reactor coolant

D) Maintain a PASS containment atmosphere hydrogen analyzer

These four PASS requirements will be revised to indicate that information will be provided by different methods than previously used.

The requirements for the existing PASS design were documented in an SCE letter to the NRC dated April 14, 1983 (Reference 1). Since that time numerous improvements in technology and knowledge gained in the operation of PASS have resulted in the need to modify the system to improve its reliability. The proposed modifications, which retain the intent of NUREG-0737, include revising the following four SCE PASS design requirements:

A) Analyze dissolved total gas in the reactor coolant

The present PASS design, as documented in Reference 1, provides for measuring both total dissolved gases and hydrogen in the reactor coolant. These analyses have been provided by a gas separation apparatus which, because of its complexity, has proven to be less reliable than required.

The PASS now has a new, operating, inline, reliable monitor to measure dissolved hydrogen as a replacement for the gas separation apparatus which will be retired, but not removed, from the PASS skid. Total dissolved gasses will no longer be measured in the reactor coolant. As NUREG-0737 requires either total gas or hydrogen measurement, the intent of the requirement will continue to be met. Additionally, the new dissolved hydrogen monitor complies with the guidance found in Regulatory Guide 1.97 Rev. 2, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," with respect to monitoring range and accuracy.

B) Maintain a cask for shipping an undiluted reactor coolant sample to an offsite analysis facility.

The PASS design, as documented in Reference 1, has an undiluted grab sample facility used to provide a reactor coolant sample which is then transported to an offsite facility for chloride analysis. This process requires handling highly radioactive materials both on and off site and additionally relies on an offsite laboratory whose future license status has become uncertain.

The new PASS design provides for a chloride analyzer able to operate at the required accuracy from dilute RCS samples taken within the PASS. It is no longer necessary to ship highly radioactive undiluted RCS samples to a facility which can perform a chloride analysis on the undiluted liquid. As chloride analysis is available as soon as a diluted sample is prepared, the intent of the requirements in NUREG-0737 and Regulatory Guide 1.97 Rev. 2 for a backup chloride analysis to be available will continue to be met.

C) Collect an undiluted grab sample of reactor coolant

The PASS design, as documented in Reference 1, provides for collecting an undiluted sample of reactor coolant and transporting it, using a licensed shipping cask, to an off site laboratory where it is analyzed for chlorides. This analysis has been considered to be the definitive chloride analysis to ascertain the corrosion potential of the reactor coolant in a post accident environment.

The PASS design now includes a chloride analyzer which, by virtue of its accuracy, eliminates the need for a supplemental analysis from a backup sample. The system can measure the reactor coolant chloride level as low as 0.5 ppm and meets the existing criteria for chloride analysis in Reference 2. The intent of the NUREG-0737 requirement to analyze for stress corrosion potential in the post accident containment environment will continue to be met without the need to obtain or ship highly radioactive undiluted reactor coolant.

D) Maintain a PASS containment atmosphere hydrogen analyzer

The present PASS design, as documented in Reference 1, provides for a non safety-related inline containment atmosphere hydrogen analyzer to meet the PASS requirement for a containment atmosphere hydrogen analyzer. Within each of the Units 2 and 3 containments there are also two additional atmosphere hydrogen monitors which are safety related, environmentally qualified, and redundant. The PASS hydrogen monitor has proven to be unreliable and maintenance intensive.

The proposed PASS design deletes the non safety-related PASS monitor and utilizes the in containment monitors to provide post accident containment atmosphere hydrogen concentration. The range and accuracy of the containment atmosphere monitors meet all the requirements of NUREG-0737 and the guidance of Regulatory Guide 1.97.

BACKGROUND

The requirement for a PASS was a result of the Three Mile Island Unit 2 (TMI-2) incident. Studies documented in "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations" (NUREG-0578, July 1979) identified the need for improvement in the capability of licensees of nuclear power plants to determine post-accident plant conditions faster than occurred at TMI-2. Subsequently, the NRC issued specific requirements for implementation by licensees which resulted in NUREG-0737 "Post TMI Requirements." This NUREG

requires licensees to have the capability to obtain and analyze samples of the reactor coolant and the containment atmosphere. The samples must be taken, regardless of the accident scenario, without incurring radiation exposure to any individual in excess of 5 rem to the whole body or 75 rem to the extremities. The results of the sampling and subsequent analysis are intended to provide information for assessing the status of accidents involving core damage and for determining the amount of hydrogen present in the containment atmosphere. The PASS does not perform any accident mitigating safety function directly; it provides the necessary information to evaluate the performance of the plant safety systems and to plan the actions necessary after an accident.

To provide information to assess core integrity, shutdown boron (neutron absorber) concentration, reactor coolant corrosiveness, and containment hydrogen concentration, licensees of nuclear power plants are required (typically as a license condition) to establish a capability for the timely collection and chemical analysis of reactor coolant samples and the containment atmosphere after an accident. The chemical analyses for reactor coolant samples for pressurized water reactors (PWRs) designated in NUREG-0737 are for boron, chloride, and either total dissolved gases or dissolved hydrogen. The measurement of dissolved oxygen is recommended, but not required. Additionally, the hydrogen concentration of the containment atmosphere is to be measured. Regulatory Guide (R.G.) 1.97, Revision 2, (Compliance with R.G. 1.97, Rev. 2 is required by License Conditions 2.C.(11) and 2.C.(9) for San Onofre Units 2 and 3, respectively.) recommended the measurement of dissolved oxygen, pH and boron of the reactor coolant at all plants. NUREG-0737 specified that the analysis could be performed by employing a combination of pressurized/unpressurized, diluted/undiluted grab samples or inline monitoring methods. If inline sampling was the preferred method of analysis, a capability to collect backup grab samples and to provide procedures for their analysis is required. In all cases the samples for grab or inline analysis must be able to be acquired without resorting to the operation of any reactor coolant auxiliary system (e.g., letdown). With the exception of the chloride analysis, the time allowed by NUREG-0737 for sampling and on-site analysis is three (3) hours or less. The time allowed by NUREG-0737 for the chloride analysis, which may be performed offsite, is dependent on the type of water used for the ultimate heat sink (fresh, salt, or brackish water) and the number of barriers between the ultimate heat sink and the primary systems in the containment. Because the San Onofre Units 2 and 3 ultimate heat sink is saltwater from the Pacific Ocean, but is separated from all containment systems by intermediate cooling loops (at least one barrier), the chloride analysis is required within ninety-six (96) hours from the time the decision is made to sample.

PASS SYSTEM DESCRIPTION

The PASS is primarily analytical and sampling equipment mounted on a skid with an accompanying control panel. Both the skid and the control panel were supplied by the Combustion Engineering Company. The single PASS system for both Units 2 and 3 was installed in 1983. The PASS, as originally designed, has provided a means for sampling and analyzing highly radioactive reactor coolant, recirculating containment sump water, and the containment atmosphere

following a loss of coolant accident (LOCA) which would result in the loss of fuel clad integrity and subsequent releases of fission products. It provides the means to analyze these samples within three (3) hours after the decision is made to sample (with the exception of the chloride analysis) and will limit personnel exposure to less than 5 rem whole body and 75 rem to the extremities during post-accident sampling and analysis.

The PASS is located on the 24 foot elevation in a separate room in the Unit 2 and 3 radwaste building. The sample station is a free standing, totally enclosed skid measuring about 6 feet long by 6 feet high by 4 feet deep, and has removable panels or doors on three sides for access to maintain system components. The skid is essentially self-contained. The multichannel analyzer germanium/lithium (Ge/Li) detectors are located in a room adjacent to the skid.

The PASS is designed to facilitate the performance of the following analyses:

- Reactor Coolant System (RCS) and containment atmosphere isotopic analysis for isotopes that are indicators of core damage such as noble gases, iodines, cesiums, and nonvolatile isotopes.
- RCS dissolved hydrogen and oxygen concentration
- RCS boron concentration, chloride concentration, and pH
- RCS total gas concentration of up to 2000 cc/kg
- Containment atmosphere hydrogen levels in the range of 0 to 10 volume percent.

In addition to the above inline analysis, the PASS also provides the following grab sample capabilities:

- Depressurized, diluted, and degassed RCS sample
- Depressurized and diluted RCS gas sample
- Depressurized and diluted containment atmosphere sample
- Depressurized, undiluted, and degassed RCS sample

DISCUSSION

The PASS was originally procured as a skid mounted unitized package utilizing equipment which was current technology in 1980. The PASS instrumentation has been prone to drift, and the numerous flowpaths have been prone to leaks. The limitations on the accuracy of available measuring equipment at the time of installation also resulted in the need to send certain highly radioactive samples offsite for analysis to be consistent with the guidance of NUREG-0737. Measuring equipment now available and installed reduces the frequency of calibrations needed and has the accuracy to allow the required chloride analysis to be performed onsite from diluted samples, thus eliminating the

need to process and handle potentially highly radioactive undiluted reactor coolant outside the plant primary and sampling systems. The entire process of dilution and analysis, when performed on site, has been shown by conservative calculation to result in personnel exposures well within the limits allowed by NUREG-0737 (5 rem to the whole body and 75 rem to the extremities). Additionally, this new equipment requires fewer flow paths and connections to reduce leak potential and minimize congestion in the skid. The overall result will be improved PASS maintainability.

The PASS changes include those addressed in this PCN and additional modifications which do not alter system operation but are designed to make the PASS easier to maintain. Many of the changes serve to replace old components with equipment of a more proven performance level and do not modify existing license requirements. Four of these changes, however, are to delete existing requirements for the PASS design documented in Reference 1. These four changes, discussed below, are the objective of this proposed change to the San Onofre Units 2 and 3 licenses.

The four PASS requirements will be revised to indicate that information will be provided by different methods than previously used as follows:

A) Analyze dissolved total gas in the RCS.

SCE committed to measure total dissolved gas and dissolved hydrogen in the RCS fluid in Reference 1. SCE's proposal is to eliminate the total gas analysis. Dissolved hydrogen will continue to be analyzed. Although not a requirement for PASS operability, the capability to analyze for dissolved oxygen in the reactor coolant liquid is maintained.

The PASS is currently capable of analyzing both the dissolved hydrogen <u>and</u> the total gas content of the RCS. Both NUREG-0737 and Regulatory Guide 1.97 identify that either the total gas <u>or</u> the dissolved hydrogen of the reactor coolant be analyzed. If the coolant contains abnormally large amounts of hydrogen or gas, it suggests that inadequate core cooling may have resulted in a metal-water reaction. The RCS hydrogen and total dissolved gas measurements were previously performed using a phase separation process. The total dissolved gas analysis is still performed using a phase separation process. The current phase separation method for analyzing total dissolved gas is less accurate and less reliable than the new dissolved hydrogen analyzer described below. In addition, phase separation is an elaborate process that involves many components. Failure of any component would render the total gas and old hydrogen analysis unavailable. Recently, a new dissolved hydrogen analyzer became available that analyzes RCS hydrogen content directly from the pressurized liquid. This new analyzer eliminates the need for the unreliable gas separation apparatus. SCE has tested this new analyzer and has found it to be highly reliable. Because the new hydrogen analyzer is installed and operating, the total gas measurement is no longer necessary and will not be performed. A comparison of the old and new hydrogen measurement apparatus follows:

RCS DISSOLVED HYDROGEN MEASUREMENT PARAMETERS

	Requirement	Old Monitor	New Monitor
Range	0-2000 cc/kg H_2 *	0-10%, 0-100% H_2	0-2000 cc/kg H_2
Accuracy	±20% of lab analysis **	±2% of full scale	±2% of full scale
Sensitivity	minimum 25 cc/kg **	minimum 25 cc/kg ***	minimum 25 cc/kg

* Consistent with the guidance of Regulatory Guide 1.97, Revision 2
** Reference 1, Enclosure 1, p.2
*** Empirically determined by surveillance using reactor coolant of a known hydrogen concentration of <25 cc/kg

The actual physical components used for the total gas measurement will be retained in the PASS, and a portion of the apparatus will continue to be used to convert hydrogen concentration from "percent" to "cc/kg" if it is desired to analyze for hydrogen using the backup manual grab sample method.

B) Maintaining a cask suitable for shipping an undiluted reactor coolant sample to an offsite analysis facility.

SCE is required to maintain a cask for shipping undiluted RCS samples to maintain consistency with the NRC clarifications of NUREG-0737 issued to San Onofre Unit 1 (Docket No. 50-206) in Reference 2, which states in part: "... if chloride analysis is performed on a diluted sample, an undiluted sample need also be taken and retained for analysis within 30 days, consistent with ALARA." In Reference 3 SCE informed the NRC that an undiluted grab sample would be transported off site for analysis by the General Atomic Company.

When the PASS was first implemented on Units 2 and 3 reactor coolant could not be analyzed for chloride on site with the required accuracy. SCE had a cask designed and procured from Nuclear Packaging Incorporated (NUPAC) for transportation of an undiluted reactor coolant sample to the General Atomic Company in La Jolla, California for chloride analysis within four days. Chloride analysis which meets the requirements of NUREG-0737, as clarified in Reference 2 (0.5 ppm to 20 ppm with 10% accuracy), can now be performed on site using a dilute sample of reactor coolant. Taking full credit for the ion chromatograph will not only allow for more frequent sampling, but will remove the hazards of potential radiation exposure to both SCE personnel and the general public associated with potential accidents during handling and shipping undiluted reactor coolant off-site. Without the need to ship reactor coolant, the cask would be obsolete and could be discarded. Additionally, SCE will eliminate reliance on an off-site facility which has an uncertain future for maintaining its license to receive and process radioactive samples.

C) Collect an undiluted grab sample of reactor coolant as a backup for chloride analysis.

The requirements to collect a sample for backup chloride analysis are the same as those addressed for Item B above).

Subsequent to NUREG-0737, the NRC issued a clarification letter to SCE dated June 30, 1982 (Reference 2). The clarification of NUREG-0737 Criterion 5 stated that "Samples diluted by up to a factor of one thousand (such as the existing SONGS 2/3 PASS) are acceptable as initial scoping analysis for chloride." and "Additionally, if chloride analysis is performed on a diluted sample, an undiluted sample need also be taken and retained for analysis within 30 days, consistent with ALARA." It has been SCE's interpretation that this undiluted sample requirement is meant to be used as the final chloride analysis, because low level chloride could not be measured accurately from a diluted sample using the technology available at the time the PASS was implemented. Using the original titrametric procedure, the lowest detectable level of chlorides was about 0.1 ppm. When the sample of reactor coolant was diluted by 1000 to 1, as in the original design, the lowest level of chloride detectable would be about 100 ppm using the titrametric chloride analysis method. An ion chromatograph has been installed. Instruments of this type can detect chlorides as low as 0.002 ppm with an accuracy of ±7%. Using a dilution ratio of 250 to 1, the reactor coolant chloride level is detectable down to 0.5 ppm. The existing criteria for chloride analysis is 0.5 ppm to 20 ppm with an accuracy of ±10%. The ion chromatograph equipment, and any future instrument upgrades, will attain this accuracy without the need to analyze an undiluted sample of reactor coolant. Additionally, SCE will retain direct control over the analysis and will end dependance on an off-site facility whose license future is uncertain. Therefore, it is no longer necessary or desirable to collect undiluted samples for backup chloride analysis.

The only other use for the undiluted reactor coolant sample is to serve as a backup to the in-line pH analyzer. Reference 1 documents the requirement to collect and store an undiluted grab sample for pH analysis. The requirement is documented under "alternative capability." The pH measurement is used as an indicator of the potential for long term corrosive effects on submerged components following an accident, thus it can safely be delayed for several hours following the activation of PASS. There is time to take the necessary action to return the pH analyzer to service even if it were not operational at the time of the accident. In the unlikely event the pH analyzer could not be returned to service in a reasonable amount of time, the trisodium phosphate in the containment racks may be used to maintain pH greater than 7.0 for long term control following a Loss of Coolant Accident (LOCA). Therefore, because of the risk of personnel exposure at the site and to the general public posed by handling and shipping highly radioactive liquids offsite, this use of an undiluted sample is not justified.

D) Maintain a PASS containment atmosphere hydrogen analyzer.

SCE is required to maintain a PASS containment atmosphere hydrogen analyzer as documented in Reference 1. The required accuracy is ±20 percent of the comparative laboratory measurement but no less than a minimum sensitivity of 1 percent hydrogen concentration. This accuracy was not based on any NRC specified criteria, but was defined as being consistent with the accuracy of the reactor coolant hydrogen measurement. Also in Reference 1 is a requirement to use the in-containment hydrogen monitors to provide alternative capability (backup) to the PASS containment atmosphere hydrogen monitor. SCE now proposes to delete this PASS containment hydrogen monitor and take credit for the existing in-containment atmosphere hydrogen monitors to meet the NUREG-0737 II.B.3 requirements.

As required by NUREG-0737 item II.B.3, the current PASS has a non-safety related containment atmosphere hydrogen analyzer. This analyzer contributes to the PASS skid congestion and has proven unreliable during surveillance testing. San Onofre Units 2 and 3 are also each equipped with two environmentally qualified, safety related, redundant, inside containment (in-containment) hydrogen monitors installed in accordance with NUREG-0737 Item II.F.1 which also satisfy the II.B.3 requirements and are currently used as backup to the PASS containment atmosphere hydrogen monitor. The in-containment hydrogen monitors have a scale of 0 to 10 volume percent with an accuracy of ±5 percent of full scale reading. This range is consistent with the guidance of Regulatory Guide 1.97. A comparison of the PASS inline and in-containment monitors follows:

CONTAINMENT ATMOSPHERE HYDROGEN MEASUREMENT PARAMETERS

	Requirement	PASS Inline	In-Containment
Range	0-10% H_2 *	0-10%, 0-100% H_2	0-10% H_2
Accuracy	±20% of lab analysis **	±2% of full scale	±5% of full scale
Sensitivity	minimum 1% H_2 **	not defined ***	minimum 0.5% H_2

* Consistent with the guidance of Regulatory Guide 1.97 Revision 2
** Reference 1
*** Monitor is identical to old RCS dissolved hydrogen unit with a known sensitivity of <25 cc/kg

The accuracy and minimum sensitivity of the in-containment monitors are consistent with the existing requirements for the PASS monitor. The specified response time for the in-containment monitors is 90 percent of the reading in two hours based upon a 4 percent step change in hydrogen concentration. This response is acceptable because buildup of hydrogen inside the containment following an accident is caused primarily by the reaction between the Zirconium fuel cladding and the reactor coolant. The rate of hydrogen buildup in a Pressurized Water Reactor (PWR) containment causes the hydrogen lower combustible limit (4 volume percent) to be reached in approximately 21 days, however, the hydrogen recombiners are energized approximately 2 days into the

accident when the containment hydrogen is at 2 volume percent. The recombiners actually begin to remove hydrogen when concentrations reach 3 1/2 volume percent which occurs about two weeks into the accident. The in-containment hydrogen monitor system will also alarm in the control room when 3 volume percent hydrogen is reached inside the containment. The in-containment hydrogen monitor response is more than adequate to track and record changes in post-LOCA hydrogen generation. As there are two identical, redundant monitors installed in each containment, alternative capability is still available in the event of failure of one of the monitors. We therefore propose to delete the PASS containment atmosphere hydrogen monitor to eliminate the maintenance requirements for this existing system.

SAFETY ANALYSIS

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   No. The Updated Final Safety Analysis Report (UFSAR) Section 15.6.3.1 provides an analysis of a decrease in reactor coolant inventory due to a primary sample or instrument line break outside of containment. The analysis of protection measures against the dynamic effects associated with the postulated rupture of piping both inside and outside containment is provided in UFSAR section 3.6. UFSAR Section 6.2 provides the analysis of the containment isolation system integrity for postulated high energy line break scenarios inside the containment. PASS sample lines penetrating the containment boundary are provided with containment isolation valves as stated in UFSAR section 9.3.2.1 and are identified in UFSAR Table 6.2-35 as valves that close on a Containment Isolation Actuation Signal (CIAS) or a Safety Injection Actuation Signal (SIAS) actuation. PASS is used following a loss of coolant accident (LOCA) to determine the extent of core damage, and, therefore, control has been provided to override the CIAS signal (UFSAR Table 7.3-8) to perform post-accident sampling.

   In UFSAR Section 15.6.3.1, the radiological consequences of the 3/4" PASS reactor coolant sample line break accident is conservatively bounded by the 2" letdown line break accident. The PASS reactor coolant sample lines are additionally provided with locked flow restricting throttle valves to further limit blowdown (UFSAR section 9.3.2.2.2.1).

   The four proposed deletions to the PASS requirements, deletion of (1) dissolved total gas analysis, (2) the shipping cask, (3) collecting an undiluted grab sample, and (4) the PASS containment hydrogen analyzer, do not add or modify any lines penetrating the containment nor do these modifications affect the existing flowpath between the Reactor Coolant System (RCS) and the PASS sample skid. No increased leakage is expected as a result of these modifications. Therefore, PASS leakage

considerations are unchanged from those found in the UFSAR Section 15.6.3.3.5.1.B discussion of LOCA doses.

For each parameter measured by a new method, the accuracy, range, sensitivity, and response times of the new instrumentation and procedures are maintained within the previous requirements. In addition, radiation exposures to any individual for reactor coolant and containment atmosphere sampling and analysis will be as low as reasonably achievable and not exceed 5 rem whole body and 75 rem extremities as required by General Design Criterion 5 (Appendix A, 10 CFR Part 50) in accordance with the October 30, 1979, letter from H. R. Denton (NRC) to all licensees. Because alternate instrumentation will be used to provide the information needed for accident evaluation within the required times, there will be no increase in potential accident consequences.

It is concluded that these four revisions to the PASS requirements will not result in a significant increase in the probability or consequences of any accident previously identified.

2. Will operation of the facility in accordance with this proposed amendment create the possibility of a new or different kind of accident from any accident previously identified?

   No. The only types of accidents that can be related to the PASS are potential pipe breaks outside containment and high energy line breaks either inside or outside containment. These are already addressed in, and bounded by, UFSAR Sections 15.6.3.1, 3.6, and 6.2. The four proposed deletions to the PASS requirements, deletion of (1) dissolved total gas analysis, (2) the shipping cask, (3) the requirement to collect an undiluted grab sample, and (4) the PASS containment atmosphere hydrogen analyzer, do not alter the reactor coolant sample flowpath to the PASS or introduce any design alterations which could create the potential for a failure of a different type than already analyzed.

   It is concluded that these four revisions to the PASS requirements will not result in the possibility of a new or different kind of accident from any accident previously identified.

3. Will operation of the facility in accordance with this proposed amendment involve a significant reduction in a margin of safety?

   No. PASS is not a safety related system. The only components related to the PASS which are safety related are those sample lines which penetrate the containment boundary. These lines will not be modified in any way during the implementation of the four proposed revisions to the PASS requirements. As isolation of the PASS sample lines is automatically initiated on a CIAS or SIAS signal, there is no potential for a reduction in the margin of safety in the immediate post-accident environment. Following the manual post-accident implementation of PASS, the four deletions to the PASS requirements, deletion of (1) the dissolved total gas analysis, (2) the shipping cask, (3) collecting an undiluted grab sample, and (4) the PASS containment atmosphere hydrogen analyzer, are

anticipated to increase reliability due to simplification of the design. It is expected that no increase in PASS leakage will occur as a result of these deletions and that PASS leakage considerations will continue to be bounded by the evaluation in UFSAR section 15.6.3.3.5.1.B.

For each parameter measured by a new method, the accuracy, range, sensitivity, and response times of the new instrumentation and procedures are maintained within the previous requirements. Also, the new reactor coolant hydrogen analyzer eliminates the need for the total gas analysis because the new hydrogen analyzer is more reliable and accurate. In addition, radiation exposures to any individual for reactor coolant and containment atmosphere sampling and analysis will be as low as reasonably achievable and not exceed 5 rem whole body and 75 rem extremities as required by General Design Criterion 5 (Appendix A, 10 CFR Part 50) in accordance with the October 30, 1979, letter from H. R. Denton (NRC) to all licensees.

It is concluded that this proposed amendment will not involve a significant reduction in a margin of safety.

SAFETY AND SIGNIFICANT HAZARDS DETERMINATION

Based on the Safety Analysis, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change, and (3) this action will not result in a condition which significantly alters the impact of the Station on the environment as described in the NRC Final Environmental Statement.

REFERENCES

1) April 14, 1983 letter from Robert Dietch (SCE) to H. R. Denton (NRC), Subject: Docket Nos. 50-361 and 50-362, San Onofre Nuclear Generating Station, Units 2 and 3

2) June 30, 1982, letter from D. Crutchfield (NRC) to R. Dietch (SCE), Subject: NUREG-0737 Item II.B.3 Post Accident Sampling System

3) December 3, 1982 letter from K. P. Baskin (SCE) to D. M. Crutchfield (NRC), Subject: Docket No. 50-206. NUREG-0737, Item II.B.3 - Post-Accident Sampling Capability. Post-Implementation Review. San Onofre Nuclear Generating Station Unit 1.