



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION
AMENDMENT 7 to NPF-10
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2
DOCKET NO. 50-361

Introduction

Amendment 7 to the San Onofre Unit 2 Operating License makes several changes. These are:

- (1) Maximum Power Level is changed to 100 percent of full power.
- (2) The Technical Specification operability requirements for fire detection instrumentation are modified.
- (3) The date for implementation of the environmental qualification surveillance program is changed from June 30, 1982 to the first refueling.
- (4) Emergency preparedness conditions are imposed.
- (5) The study of rapid depressurization and decay heat removal requested in the NRC letter of March 27, 1982 is required by June 30, 1983.
- (6) A proposed hardware modification to increase the reliability of the AFW pumps in the event of a steam line break in the AFW pump room is required by October 30, 1982. Augmented inservice inspection is required in the interim.

The following sections evaluate each of the changes made in Amendment 7 to NPF-10.

Maximum Power Level

NPF-10 was issued on February 16, 1982, and contained a condition limiting the maximum power level to 5 percent of full power. In addition, several other conditions must be completed prior to exceeding 5 percent power. At the time that NPF-10 was issued, the principal open area that precluded authorization to operate above 5 percent power was emergency preparedness. As is discussed below, with the issuance of the ASLB Initial Decision and Order of May 14, 1982, the implementation of the ASLB conditions as discussed below and included in Amendment 7 to NPF-10, and based on the Commission Memorandum M820728 of July 30, 1982, there are no open items that require staff evaluation to resolve prior to allowing San Onofre Unit 2 to exceed 5 percent power. On this basis, the maximum power condition in the San Onofre Unit 2 license is changed by this amendment to allow full power operation in due course.

It should be noted, however, that there are several license conditions, both in the license as issued on February 16, 1982, and in this amendment, that will require NRC staff inspection to verify completion prior to San Onofre Unit 2 exceeding 5 percent power. Further, another condition requires the completion of the planned test program, which will result in power being raised in steps, with tests to verify plant operating characteristics at each power plateau.

Technical Specifications

By letters dated July 9, 1982, and July 12, 1982, the licensee requested that changes be made to Technical Specification 3.3.3.7, Table 3.3-11, "Fire Detection Instruments-Minimum Instruments Operable," and to Technical Specification 3.7.3.2, Table 3.7-5, "Safety Related Spray and/or Sprinkler Systems."

In its letter dated July 9, 1982, the Southern California Edison Company (SCE) on behalf of itself, San Diego Gas and Electric Company, the City of Riverside and the City of Anaheim (the licensees), requested the following change to the San Onofre Nuclear Generating Station, Unit 2 Technical Specifications:

For Specification 3.3.3.7, Fire Detection Instrumentation, Table 3.3-11, Fire Detection Instruments-Minimum Instruments Operable, Zone 1 Containment, SCE has requested to change the required early warning detectors from 6 flame to 10 smoke for cable tray areas elev 63' 3", 4 flame to 9 smoke for cable tray areas elev 45', 4 flame to 4 smoke for cable tray areas elev 30'. SCE also requested that the 32 smoke actuation detectors for combustion oil area steam generator rooms be deleted and that a single smoke detector be listed in the elevator machinery room. SCE also requested that the 2 heat actuation detectors be changed to 2 heat early warning detectors for charcoal filter area elev 45' and that the 1 heat actuation detector be changed to 1 heat early warning detector for Zone 9 Fuel Handling Building Elev 45' for both the emergency A.C. unit room 309-train A and the emergency A.C. unit room 301-train B.

Our evaluation of the proposed changes indicated above is as follows:

The 14 flame detectors listed in the cable tray areas are ultraviolet (UV) detectors and may not operate in the expected radiation environment. The licensee's proposal to replace these 14 UV detectors with 23 ionization smoke detectors which will operate in the expected radiation environment is acceptable because it will provide equivalent fire detection capability in the affected areas. The reactor coolant pump oil collection system provides adequate fire protection without UV detectors in the combustible oil area of containment.

The 32 UV flame detectors provided for early warning in the combustible oil area (reactor coolant pump area) were inadvertently listed as smoke detectors in the actuation column. The UV detectors may not operate in the expected radiation environment. The licensee's proposal to remove these 32 UV flame detectors is acceptable because the reactor coolant pump oil collection system in combination with a heat actuated deluge-water spray system provides adequate fire protection without the UV flame detectors being installed.

There has been spurious actuation of the automatic charcoal filter deluge system at San Onofre Unit 2 during the startup program. The licensee's proposal to change the charcoal filter deluge system from automatic to manual by moving the 2 heat detectors listed in the actuation column to the early warning column for the charcoal filter area and the fuel handling building is acceptable because in the automatic system, an early warning alarm would occur prior to actuation of the deluge system at higher temperatures and in the manual system, the early warning alarm would result in dispatch of the fire brigade to actuate the deluge system, if required. Because of the slow burning nature of charcoal filter fires, manual actuation would occur at approximately the same time after the early warning alarm as automatic actuation. As a result, the difference between automatic and manual actuation is insignificant. However, as a result of this change, charcoal filter availability is significantly increased by elimination of the possibility of spurious actuation associated with the automatic system.

Staff approval of the above changes was given by telephone on July 9, 1982 and was confirmed by letter dated July 15, 1982.

By letter dated July 12, 1982, the licensee requested that, in addition to the above changes, the following related changes be made to the San Onofre Unit 2 Technical Specifications.

(1) Technical Specification 3.3.3.7, Table 3.3-11

- Zone 28 Move the two heat detectors listed in the actuation column to the early warning column.
- Zone 32A Move the two heat detectors listed in the actuation column to the early warning column.
- Zone 32B Add two heat detectors to the early warning column.
- Zone 72 Change corridor 442 to 401.

(2) Technical Specification 3.7.8.2, Table 3.7-5

Charcoal Filter A-353: Delete the deluge-water spray system in this area.

Emergency AC Unit - Train A and Train B: Add a note to indicate the conversion of the automatic deluge-water spray systems protecting the charcoal filters to manual operation and clarify surveillance requirement 4.7.8.2.d.1.a.

Charcoal Filter E-419 and Charcoal Filter A-206: Delete deluge-water spray system and add wet pipe sprinkler system.

Add spray and/or sprinkler systems to Table 3.7-5 for the following areas:

HVAC Room 309; Corridor 303
Auxiliary Feedwater Pump Room
Fan Room 233 and Corridor 234
Salt Water Cooling Pumps
Salt Water Cooling Tunnel
CCW Heat Exchangers and Piping Room; AC Room 017
Corridor 401
Corridor 105

Our evaluation of the above changes as requested in the SCE letter of July 12, 1982 is given below.

(1) Technical Specification 3.3.3.7, Table 3.3-11.

Zones 28 and 32A: These changes are acceptable because they facilitate conversion of the charcoal filter deluge-water spray system from automatic to manual operation. This conversion provides adequate fire protection and enhances the availability of the charcoal filters by reducing the probability of spurious dousing of the charcoal. Because of the slow burning nature of charcoal fires, additional damage resulting from the time delay associated with manual actuation is insignificant when compared with the potential damage resulting from spurious dousing of the charcoal filter by the automatically actuated system.

Zone 32B: This change provides early warning of a charcoal filter fire, enabling manual actuation of the charcoal filter deluge-water spray system, and is, therefore, acceptable.

Zone 72: This change corrects a typographical error and is, therefore, acceptable.

(2) Technical Specification 3.7.8.2, Table 3.7-5.

Charcoal Filter A-353: Deletion of the deluge-water spray system in this area is acceptable because there is no safety related equipment or cabling in the vicinity of this charcoal filter, and a fire in this charcoal filter would not significantly increase the risk of a radioactive release to the environment.

Charcoal Filters E-419 and A-206: Replacement of the deluge-water spray system with a wet pipe sprinkler system for these filters is acceptable because the wet pipe sprinkler system adequately protects the train A and B safe shutdown equipment by insuring that a single fire in any of these charcoal filters would not incapacitate redundant trains of safety related equipment nor would a fire increase the risk of a radioactive release to the environment.

The addition of spray and/or sprinkler systems to Table 3.7-5 for the following areas

- HVAC Room 309A; Corridor 303
- Auxiliary Feedwater Pump Room
- Fan Room 233 and Corridor 234
- Salt Water Cooling Pumps
- Salt Water Cooling Pumps
- CCW Heat Exchangers and Piping Room; AC Room 017
- Corridor 401
- Corridor 105

is acceptable because it provides fire suppression capability in areas containing redundant trains of equipment, thereby ensuring that the redundant trains of safety-related equipment will not be incapacitated by a single fire nor will a fire significantly increase the risk of a release of radioactivity to the environment.

For the reasons given above, the staff concludes that the Technical Specification changes proposed in the licensee's letters of July 9 and 12, 1982 are acceptable.

Environmental Qualification

By letter dated May 14, 1982, the licensee requested that condition 2.C(5)c of the San Onofre Unit 2 Operating License be amended to (1) continue to require implementation of the environmental qualification maintenance program procedures by June 30, 1982 or prior to exceeding 5% power whichever comes first, but (2) change the date for implementation of the surveillance program procedures to the first refueling outage. The licensee further states in this letter that they will comply with both existing Sections 2.C.(5)a, which specifies that, by June 30, 1982 the provisions of NUREG-0588, Rev. 1, shall be complied with for safety-related electrical equipment exposed to a harsh environment, and 2.C(5)b, which requires that complete and auditable qualification records be available by June 30, 1982 and maintained thereafter.

In Supplement No. 3 to the SER, the staff addressed the environmental qualification of safety-related electrical equipment for San Onofre 2 and 3. That supplement requested certain information from the licensee and included several pages of equipment, with deficiencies identified, requiring additional information and/or corrective action. We received a subsequent revision to the licensee's environmental qualification report after the issuance of Supplement No. 3 to the SER, and our preliminary evaluation of this information is given in Supplement No. 4 to the SER. On February 16, 1982, an operating license, NPF-10, was issued for San Onofre Unit 2. Condition 2.C(5) of NPF-10 required that the licensee comply with the provisions of NUREG-0588 by June 30, 1982. However, the June 30, 1982 deadline by which electrical equipment must

be qualified has been removed as a license condition for all operating plants by a recently issued rule (47 F.R. 28363, June 30, 1982), and a new deadline will be imposed by a forthcoming revision to that rule. Therefore, the revision to the environmental qualification report submitted by the licensee will be reviewed in detail in accordance with the newly established deadline.

We have reviewed the May 14, 1982 letter and we find acceptable the licensee's request to revise existing Section 2.C.(5)c of the San Onofre 2 license such that implementation of the improved surveillance program procedures would not be required until the first refueling outage. This finding is based on our conclusion that the surveillance presently required by the Technical Specifications is adequate until a full surveillance and trending program related to the environmental qualification of electrical equipment can be implemented because few equipment failures resulting from environmental conditions are expected during the period of operation prior to the first refueling outage. Additionally, the licensee has stated that an experienced consultant is being hired to assist in the development of the surveillance program, and we conclude that requiring implementation of a full surveillance program at this time would preclude the orderly development a well thought out and technically sound program.

Emergency Preparedness

With regard to our evaluation of emergency preparedness at San Onofre, the staff review is complete, and there are no open licensing items other than the ASLB conditions discussed below. Based on the inclusion of these conditions in the San Onofre Unit 2 operating license, the staff confirmation of certain ASLB requirements (see below), and the staff finding that both offsite and onsite emergency preparedness are adequate, issuance of this amendment authorizing full power operation is warranted.

(1) ASLB Conditions

The NRC staff conclusion regarding onsite and offsite capabilities to respond to an emergency at San Onofre 2 and 3 was provided in Supplement No. 6 to the Safety Evaluation Report for San Onofre Nuclear Generating Station, Units 2 and 3, NUREG-0712, issued in June 1982 (SSER 6). That supplement also addressed the May 14, 1982, Initial Decision of the San Onofre 2 and 3 Atomic Safety and Licensing Board (the ASLB or Board), as modified by its clarifying Order of May 25, 1982. The staff committed to confirm that each Board condition has either been satisfied prior to issuance of a full power license for San Onofre Unit 2 or that the license will be conditioned to require that the Board condition be satisfied on the schedule defined by the Board. The staff, based on its review of the May 14, 1982 Initial Decision concluded that the items the Board required "prior to full power operation" should be completed prior to exceeding 5% power, and that the items the Board required "during the first six months of full power operation" should be completed no later than five months after initially exceeding 5% power in order to

permit NRC evaluation within the 6-month period. The following discussion addresses these items required to be completed prior to exceeding 5% power. The remaining items, viz., those required within five months after exceeding 5% power, will be imposed as license conditions by Amendment No. 7 to the San Onofre Unit 2 Operating License, NPF-10.

The conditions imposed by the Board that must be satisfied prior to exceeding 5% power are those identified as items A.1 and A.2 (a-h) in Section 13.3.4 of SSER 6 and are repeated below:

- A.1 The NRC staff shall certify to the ASLB that the siren system has been shown to perform in accordance with its technical specifications.
- A.2 The NRC staff shall confirm that:
 - a. The FEMA concerns expressed in the November Updated Evaluation about lesson plans and schedules have been satisfied.
 - b. Initial training of adequate numbers of onsite and offsite personnel in each category listed in Section II.0.4 of NUREG-0654 has been completed, except for radiological monitoring teams and radiological analysis personnel (paragraph 4.C of Section II.0.4).
 - c. The same (or an improved) communications system that was installed at the original interim Emergency Operations Facility (EOF) has been adopted for the relocated interim EOF.
 - d. The same (or an improved) set of operating procedures that were adopted for the original interim Emergency Operations Facility have been adopted for the relocated interim EOF.
 - e. Emergency equipment, suitable for its emergency purpose, has been purchased and delivered to the offsite response organizations.
 - f. A drill has been conducted to verify the adequacy of the physical design, communications equipment, and operating procedures of the relocated interim EOF.
 - g. FEMA has reviewed and confirmed that the EOF, Offsite Dose Assessment Center (ODAC), and Liaison SOPs are adequate.
 - h. Consistency has been achieved in the prewritten instructions for the public in the licensees' and the local jurisdictions' emergency plans.

Condition A.1.

The NRC staff certifies that the siren system installed within the 10 mile plume exposure EPZ has been shown to perform in accordance with its technical specifications. This certification is based upon a similar certification received from the Federal Emergency Management Agency (FEMA) in a memorandum to Brian Grimes, NRC, from Richard W. Krimm, FEMA, dated July 1, 1982 (Subject: Initial Decision (ASLB) on San Onofre 2 and 3 dated May 14, 1982). The staff has also reviewed the following correspondence and reports provided by the licensee to NRC and FEMA pertaining to the installation and testing of the siren system:

- (1) Letter to Ken Nauman, FEMA, from F. K. Massey, SCE, dated March 25, 1982.
- (2) Letters to Frank Miraglia, NRC, from K. P. Baskin, SCE, dated May 28, 1982, and June 4, 1982.

The above certification does not address the performance of the sirens planned for installation in Dana Point and the remainder of San Juan Capistrano in accordance with the Board's condition regarding extension of the plume exposure EPZ boundary. The staff will confirm siren performance in these areas on a schedule consistent with that established by the Board in its clarifying Order of May 25, 1982.

Conditions A.2 (a-h)

The NRC staff has determined that each of the above items a-h imposed by the Board and required by the Board to be satisfied prior to exceeding 5% power have been completed. The staff concurs with the FEMA evaluation of these license conditions given in their above mentioned July 1, 1982 letter and has evaluated NRC Inspection Reports Nos. 50-361/81-31, 50-361/82-07, and 50-361/82-18 and the documentation provided by the licensee in a May 20, 1982 letter to the Director, NRC Office of the Nuclear Reactor Regulation.

Based on this determination and the above finding regarding condition A.1, the staff concludes that all the ASLB conditions required to be completed prior to exceeding 5% power have been completed.

(2) Evaluation of April 15, 1982 Exercise

On April 15, 1982, an emergency preparedness exercise was conducted at San Onofre to demonstrate the adequacy of the emergency plan and the implementation capabilities of the State and local agencies involved. The exercise also provided opportunities to demonstrate the adequacy of corrective actions that were called for in the May 13, 1981 exercise critique.

The FEMA evaluation of the exercise was documented and transmitted to the NRC staff by letter dated July 7, 1982, from Richard W. Krimm, FEMA, to Brian Grimes, NRC, Subject: San Onofre Nuclear Generating Station Exercise. Based on their evaluation of the April 15, 1982 exercise, FEMA concluded that with respect to the status of offsite emergency preparedness, all participating jurisdictions exhibited an adequate or better capability to respond to an offsite emergency. The NRC staff has evaluated the FEMA findings and concurs.

(3) Ingestion Pathway

The ASLB, in its May 14, 1982 Initial Decision, determined that the adequacy of emergency preparedness in the ingestion pathway emergency planning zone (ingestion EPZ) was no longer a contested matter and accordingly left satisfaction of this planning standard to the NRC staff for resolution. This section addresses resolution of this item.

As part of the FEMA evaluation of the April 15, 1982 exercise, FEMA provided their findings regarding the results of a March 25, 1982 drill during which Orange County exercised its capabilities with regard to the ingestion EPZ. By letters dated July 28, 1982, and August 5, 1982, from Richard W. Krimm, FEMA, to Brian Grimes, NRC, FEMA presented additional information regarding ingestion pathway planning and capabilities and stated that the current overall offsite response capability is adequate. The NRC staff has evaluated the FEMA findings and conclusions and concurs.

(4) Completion of Emergency Preparedness Requirements

The formal FEMA approval process for State emergency response plans as outlined in the proposed FEMA rule, 44 CFR 350, has not been completed. Consistent with an agreement reached between General Giuffrida, Director, FEMA, and Chairman Palladino, NRC, at an August 19, 1981 meeting, the San Onofre Unit 2 license has been conditioned to identify to the licensee that deficiencies identified during the 44 CFR 350 approval process may be viewed as potentially significant deficiencies for which NRC enforcement action in accordance with 10 CFR 50.54(s)(2)(ii) may be considered.

(5) Conclusions

In summary, as stated above, the staff has found that:

- a. The ASLB conditions that must be satisfied prior to exceeding five percent power have been satisfied.
- b. The April 15, 1982 exercise demonstrated that the offsite emergency plans and implementation capability at San Onofre is adequate.
- c. The ingestion pathway EPZ assessment and monitoring capability is adequate.

Further, in Supplement No. 6 to the SER we stated that the ASLB conditions that must be satisfied within 6 months of full power operation would be included in the San Onofre Unit 2 license as conditions. Based on the foregoing we conclude that offsite emergency preparedness at San Onofre meets the requirements of 10 CFR 50.47(b), Appendix E to 10 CFR 50, Regulatory Guide 1.101, Revision 2, NUREG-0654/FEMA-REP-1, Revision 1, and the ASLB Initial Decision of May 14, 1982, and is acceptable.

Rapid Depressurization and Decay Heat Removal

On March 27, 1982, the NRC staff issued a letter to SCE requesting that information be provided about the capability of San Onofre 2 and 3 for rapid depressurization and decay heat removal without power operated relief valves (PORVs). This request was discussed at the July 28, 1982 meeting of the NRC, and the Commission voted to require that the information requested in March 27, 1982 letter be completed by approximately March to July, 1983 on a date to be agreed upon by the staff and licensee. By letter dated July 30, 1982, the licensee proposed that the completion date be June 30, 1983. The staff concurs with this date. The basis for safe plant operation prior to completion of the study is given in Section 5.4.3 of Supplement No. 6 to the SER.

Environmental Qualification of AFW Pump Motor Bearings

In meetings between the licensee and the NRC staff on May 24 and June 24, 1982, and in letters dated June 10 and July 12, 1982, the licensee informed the staff that failures of the environmentally qualified cast iron bearings of the AFW pump motors had occurred. To allow the startup test program to continue, the cast iron bearings had been replaced with Babbitt-metal bearings. However, the Babbitt bearings are not qualified for operation in the environment that they would experience in the event of a steam line break in the AFW pump room.

In their letter of July 12, 1982, SCE evaluated a number of possible solutions to the problem and recommended that augmented inservice inspection be performed on the steam line in the AFW pump room to reduce the likelihood of a catastrophic failure of the line. This would, in SCE's view, obviate the need to postulate a break in this line. The staff has evaluated this proposal and has concluded that while the augmented inservice inspection (daily visual inspection of the AFW pump room steam line) provides a basis for interim plant operation, that ultimately a hardware modification is necessary to protect the AFW system against the potential common-mode failure of all three pumps due to the failure of a single line.

Consequently, we will condition the San Onofre 2 operating license to require that SCE propose a hardware modification to resolve this problem by October 30, 1982. In the interim, daily inspection of the AFW pump room steam line will be required to provide an early indication of leaks in the steam line so that it may be isolated, thereby acceptably reducing the likelihood of catastrophic failure.

Environmental Consideration

We have determined that authorization of full power operation by this license amendment will not result in any environmental impacts other than those evaluated in the Final Environmental Statement (FES) and its Errata, since full power operation is encompassed by the overall action evaluated in the FES and its Errata.

We have determined that the other changes made by this amendment do not authorize a change in effluent types or total amount nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the other changes made by this amendment involve action which is insignificant from the standpoint of environmental impact, and, pursuant to 10 CFR Section 51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

Prior public notice of the overall action involving issuance of this operating license amendment authorizing full power operation, including emergency preparedness issues, was published in the FEDERAL REGISTER on April 7, 1977 (42 F.R. 18460). Staff evaluation of the safety of the overall action is given the SER and its supplements (NUREG-0712). With regard to the other actions authorized by this amendment including changes to the Technical Specifications, we have concluded that because they do not involve a significant increase in the probability or consequences of accidents previously considered, do not create the possibility of an accident of a type different from any evaluated previously, and do not involve a significant decrease in a safety margin, these actions do not involve a significant safety hazards consideration.

Further, there is reasonable assurance that the health and safety of the public will not be endangered by operation in the manner authorized by this amendment, and the activities authorized by this amendment will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public. We, therefore, conclude that the proposed changes are acceptable.

Dated: SEP 7 1982