SOUTHERN CALIFORNIA
EDISON
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Dwight E. Nunn
Vice President

June 29, 2001

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **Docket Nos. 50-361 and 50-362**
Amendment Application Nos. 209 and 194
Emergency Chilled Water and Control Room Emergency Cleanup System Allowed Outage Time Extension
San Onofre Nuclear Generating Station Units 2 and 3

Provided as an enclosure to this letter are Amendment Application Nos. 209 and 194 to Facility Operating Licenses NPF-10 and NPF-15, for the San Onofre Nuclear Generating Station, (SONGS) Units 2 and 3, respectively. The Amendment Applications consist of Proposed Change Number 524 (PCN-524).

PCN-524 is a request to revise Technical Specifications 3.7.10, "Emergency Chilled Water (ECW)" and 3.7.11, "Control Room Emergency Air Cleanup System (CREACUS)" and the associated Bases. The proposed change is to revise the Allowed Outage Time (AOT) for a single inoperable train of both the ECW and CREACUS from 7 days to 14 days. This is a risk-informed request in accordance with the guidance in NRC Regulatory Guides 1.174, "An Approach for Using Probabilistic Risk Assessment In Risk-Informed Decisions On Plant-Specific Changes to the Licensing Basis," and 1.177, "An Approach for Plant-Specific, Risk Informed Decisionmaking: Technical Specifications."

Southern California Edison (SCE) is planning a major maintenance overhaul of the ECW chillers beginning October 1, 2001. These amendment applications would support that activity in the event the overhaul duration extends beyond the current AOT for the ECW and CREACUS systems. If the overhaul duration should exceed the current AOT prior to approval of these amendment applications, Southern California Edison will seek relief from the current AOT using these amendment applications as a basis.

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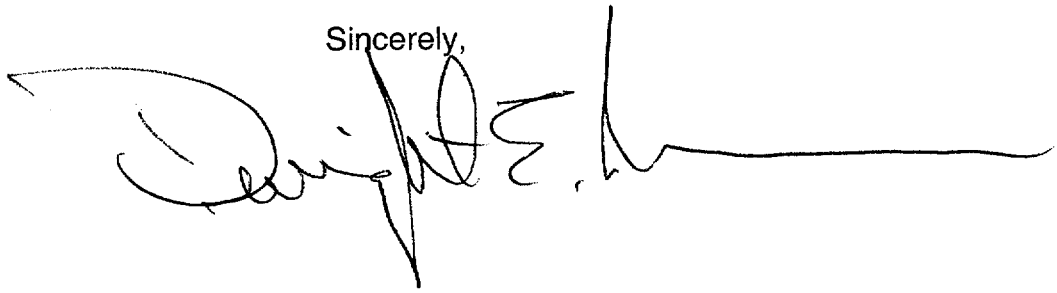
A001

If you need additional information on this Technical Specification change request, please contact Jack Rainsberry at (949) 368-7420.

Sincerely,



Enclosures

cc: E. W. Merschoff, Regional Administrator, NRC Region IV
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 & 3
J. E. Donoghue, NRC Project Manager, San Onofre Units 2 and 3
S.Y. Hsu, Department of Health Services, Radiologic Health Branch

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 No. 2 of the San Onofre Nuclear Generating Station	))))))	Docket No. 50-361 Amendment Application No. 209

SOUTHERN CALIFORNIA EDISON COMPANY, et al. pursuant to 10CFR50.90, hereby submit Amendment Application No. 209. This amendment application consists of Proposed Change No. NPF-10-524 to Facility Operating License NPF-10. Proposed Change No. NPF-10-524 is a request to revise Technical Specification (TS) 3.7.10, "Emergency Chilled Water (ECW)" and 3.7.11, "Control Room Emergency Air Cleanup System (CREACUS)" and the associated Bases. The proposed change is to revise the Allowed Outage Time (AOT) for a single inoperable train of the ECW and CREACUS systems from 7 days to 14 days.

Subscribed on this 29th day of June, 2001.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: _____
Dwight E. Nunn
Vice President
Engineering & Technical Services

State of California
County of San Diego

On June 29, 2001 before me, Mariane Sanchez,
personally appeared DWIGHT E. NUNN, personally known to me 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
Commission #1196482
Notary Public - California
San Diego County
My Comm. Expires Oct 14, 2002

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 No. 3 of the San Onofre Nuclear Generating Station	))))))	Docket No. 50-362 Amendment Application No. 194.

SOUTHERN CALIFORNIA EDISON COMPANY, et al. pursuant to 10CFR50.90, hereby submit Amendment Application No. 194. This amendment application consists of Proposed Change No. NPF-15-524 to Facility Operating License NPF-15. Proposed Change No. NPF-15-524 is a request to revise Technical Specification (TS) 3.7.10, "Emergency Chilled Water (ECW)" and 3.7.11, "Control Room Emergency Air Cleanup System (CREACUS)" and the associated Bases. The proposed change is to revise the Allowed outage Time (AOT) for a single inoperable train of the ECW and CREACUS systems from 7 days to 14 days.

Subscribed on this 29th day of June, 2001.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: _____
Dwight E. Nunn
Vice President
Engineering & Technical Services

State of California
County of San Diego
On June 29, 2001 before me, Mariane Sanchez,
personally appeared DWIGHT E. NUNN, personally known to me 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
Commission #1196482
Notary Public - California
San Diego County
My Comm. Expires Oct 14, 2002

DESCRIPTION OF
PROPOSED CHANGE NPF-10/15-524
EMERGENCY CHILLED WATER AND CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM ALLOWED OUTAGE TIME EXTENSION
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3

This proposed change is a request to revise Technical Specification (TS) 3.7.10 "Emergency Chilled Water (ECW)" and 3.7.11, "Control Room Emergency Air Cleanup System (CREACUS)," and the associated Bases. The proposed change is to revise the Allowed Outage Time (AOT) for a single inoperable train of the ECW and CREACUS systems from 7 days to 14 days.

Existing Technical Specifications

Unit 2: See Attachment A
Unit 3: See Attachment B

Proposed Technical Specifications: (Redline and Strikeout)

Unit 2: See Attachment C
Unit 3: See Attachment D

Proposed Technical Specifications

Unit 2: See Attachment E
Unit 3: See Attachment F

Proposed Bases (For Information)

Unit 2: See Attachment G
Unit 3: See Attachment H

1.0 DESCRIPTION OF PROPOSED CHANGES

Technical Specification (TS) 3.7.10 allows one train of ECW to be inoperable for 7 days. Similarly, TS 3.7.11 allows one train of CREACUS to be inoperable for 7 days. In both TSs 3.7.10 and 3.7.11, if the 7 day allowed outage time is exceeded, the technical specifications require the plant to be in Mode 3 in 6 hours and Mode 5 in 36 hours. Since the ECW and CREACUS are systems that are shared by both Units 2 and 3, the shutdown actions would result in the shutdown of both Units 2 and 3.

This proposed change revises the TS 3.7.10 Action A Completion Time from 7 days to 14 days. The change also revises the TS 3.7.11 Action A Completion Time from 7 days to 14 days. The Bases for TSs 3.7.10 and 3.7.11 are revised to reflect these changes.

A major maintenance overhaul of both chillers in the ECW system is scheduled for this year. This overhaul requires removing a chiller from service, which results in one ECW train being inoperable and one corresponding CREACUS train being inoperable. Failure to complete the overhaul within the 7 day AOT would result in the shutdown of both San Onofre Units 2 and 3. The extension of the AOT for the ECW and CREACUS trains provides additional time to perform maintenance on the ECW chillers. Approval of these proposed changes would reduce the burden of completing the overhaul within 7 days and avoiding a dual unit shutdown.

A Probabilistic Risk Assessment (PRA) of the ECW and CREACUS systems has been developed to support these proposed changes in accordance with the guidance provided in Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk Informed Decision Making: Technical Specifications."

2.0 ENGINEERING EVALUATION

Emergency Chilled Water (ECW) System

The emergency chilled water system is shared between San Onofre Nuclear Generating Station (SONGS) Units 2 and 3. Under emergency conditions this system provides chilled water to the various air cooling units located in Units 2 and 3. The 100% redundant trains (A and B) each consist of a pump and a package chiller. Each train has 100% of the required heat removal capacity. The system is not normally in operation, and is automatically started by a Control Room Isolation Signal (CRIS), a Toxic Gas Isolation Signal (TGIS), a Safety Injection Actuation Signal (SIAS), or a Fuel Handling Isolation Signal (FHIS) from either Unit 2 or 3. The system is described in the Updated Final Safety Analysis Report (UFSAR) Section 9.4.2.2, "Emergency Operation - Auxiliary Building VAC Systems."

The emergency chilled water system operates in a closed-loop mode. A single active failure in either train will not affect the functional capability of the other train. The system is designed to provide conditioned water at a temperature compatible with the requirements for the most demanding service condition.

Chilled water is pumped by the chilled water pump (P-162 Train A and P-160 Train B) to the chiller unit (ME336 Train A and ME335 Train B). The chiller unit is composed of a compressor, cooler, condenser, and oil cooler. The chiller unit removes heat from the chilled water, and the chilled water flows through the various cooling coils for Units 2 and 3. The heat removed by the chiller unit is removed by the component cooling water system. The chilled water returns from the various cooling coils to the suction of the chilled water pump.

The cooling coils that are supplied with emergency chilled water are in the following areas:

Auxiliary Building
- Control room cabinet area
- Control room area
- ESF switchgear room
- Charging pump rooms
- Boric acid makeup pump rooms

Fuel Handling Building
- Fuel handling pump room

Safety Equipment Building
- Emergency Core Cooling System (ECCS) (includes Low Pressure Safety Injection (LPSI), High Pressure Safety Injection (HPSI), and Containment Spray (CS) pump rooms)
- Component cooling water pump rooms

The ECW interfaces with CREACUS in the control room area. Therefore, an inoperable ECW train also results in an inoperable air conditioning unit in a CREACUS train.

The regular preventive maintenance activities for the chiller and the chilled water pump are listed in Table 1. These maintenance activities are typically performed within the 7 day allowed outage time. Over the 36 month period (02/01/98 - 01/31/01) there have been no failures experienced with chiller unit ME336 in Train A. The failures with chiller unit ME335 in Train B over the 36 month period are listed and explained below.

- ME335 inoperable due to faulty temperature control unit
- ME335 would not start for surveillance/operations test run
- ME335 tripped on low refrigerant temperature
- Freon level below guidance for operability
- Refrigerant leak due to degraded 4kV terminal
- Chilled water leaking past valve stem of ECW pump P160 suction valve

Control Room Emergency Air Cleanup System (CREACUS)

The control room emergency air cleanup system is shared between SONGS 2 and 3. The system has two 100% complete and redundant subsystems. Each subsystem consists of one emergency ventilation supply unit and one emergency air conditioning unit. The system is descibed in UFSAR Section 9.4.2.2, "Emergency Operation - Auxiliary Building VAC Systems."

Table 1
ECW Maintenance

Chiller Preventive Maintenance		Frequency
	Equipment Oil Sample	6 months
	Replace Oil Heater Thermostat	2 years
	Change Oil	Annual
	Chiller Overhaul (Freon Boundary Breach)	5 years *
	Refrigerant Boundary Instrument Calibration Support, oil, oil filter, and refrigeration filter clean and inspect (Freon Boundary Breach)	2 years
	Capacity Control Module Operational Calibration/Inspection	2 years
	4kV Terminal Inspection (Freon Boundary Breach)	4 years
	Clean and Inspect/Megger Motor	Annual
	Obtain refrigerant vapor and liquid samples	4 years
	Pump out compressor leak check	3 years
	Perform monthly freon leak check inspections	Monthly
	Obtain chiller performance data	Quarterly
	Dynamic temperature switch calibration	2 years
Chilled Water Pump Preventive Maintenance		
	Pump oil change, motor lube	Annual
	Clean and inspect/megger motor	4 years

* Previously performed as required, recently established a 5 year frequency.

The control room emergency air conditioning system is automatically switched to the emergency mode on a CRIS (or SIAS). A TGIS automatically switches the emergency air conditioning system to the isolation mode. A CRIS or TGIS also actuates the emergency chilled water system.

Supply air is cooled and discharged through a duct system into the control room envelope, which includes the following areas:

computer rooms
control room
technical support system
cabinet areas
work areas
central alarm station
offices
fan rooms
telecommunications room
turbine lab
lunch room
kitchen
men's and women's locker rooms

The regular preventive maintenance activities for the CREACUS are listed in Table 2. These activities are typically performed within the 7 day allowed outage time. Functional failures of CREACUS components since November 1996 are identified below.

- Flow transmitter (2/3FT9722) failed to respond when the Emergency Air Conditioning Unit (ME-419) was started. This prevented the Emergency Ventilation Supply Unit (MA-206) from starting, which resulted in CREACUS Train B being inoperable.

- A Unit 2 Cabinet Area Emergency Air Conditioning Unit (2ME-423) discharge damper (2HV9739) failed to open on a TGIS actuation signal.

- While adjusting chart paper to correct the time, the air flow recorder (2/3 FR9742) and the flow indicating controller (2/3FIC9742) both failed high at the same time.

- With the CREACUS Train A Emergency Ventilation Supply Unit (MA-207) off and the inlet damper closed, the flow indicating recorder (2/3 FIC9761) and the associated flow recorder (2/3 FR9761) pegged high.

- A 100% ground was indicated on the load center panel (3B06), followed by an overcurrent trip of the Cabinet Area Emergency Air Conditioning Unit (3ME-426). The cause of the motor failure was a loose screw correction at the C phase motor starter.

- With both trains of CREACUS not running (normal mode), the CREACUS Train B Emergency Ventilation Supply Unit (MA-206) flow indicating controller (2/3 FIC9742) and associated flow recorder (2/3 FR9742) were found indicating off-scale high. CREACUS Train B was declared inoperable. This is a repeat event.

- CREACUS Train A Emergency Ventilation Supply Unit (MA-207) flow indicating controller (2/3 FIC9761) pegged high (3000 CFM). Controller output to the Emergency Ventilation isolation damper was at zero, which meant no flow could come from CREACUS Train A. A loose circuit board was the cause of the failed output.

- A cracked weld was discovered on the CREACUS Train B Emergency Air Conditioning Unit (ME-419) motor junction box. As a result, CREACUS Train B was declared inoperable.

Table 2

CREACUS Preventive Maintenance		Frequency
	Lube motor bearings, inspect cooling coils, clean as required	4 years
	18 month Operability Test	18 months
	720 hour operation carbon sample	As required
	18 month carbon sample	18 months
	Inspect filters	9 months
	Clean and inspect motor	As required
	Measure chilled water coil flow, pressure & temperature support emergency HVAC performance program	As required
	3 year spray/sprinkler system air flow test	3 years
	Positive pressure test of control room boundary	24 months

ECW Chiller Overhaul

This year both chillers (ME336 and ME335) in the ECW system will be overhauled. The last chiller overhaul was performed in 1989. The overhaul of ME336 is scheduled to begin on October 1, 2001, and the overhaul of ME335 is scheduled to begin on December 17. The overhaul will include the following major steps:

1. Disconnect power to the chiller
2. Remove freon from the chiller (12 hours)
3. Remove oil from the chiller
4. Internal components disassembly and inspection
5. Repair/refurbish/replace components as necessary
6. Reassemble internal components
7. Chiller pressurization test (4 hours)
8. Vacuum (8-12 hours)
9. Refill oil
10. Transfer freon to chiller (24 hours)
11. Maintenance run to adjust chiller parameters
12. Return chiller to operations

Steps 4 and 6 of the chiller overhaul include inspection of compressor fits and clearances, bearings, guide vane assembly, and demister nozzles.

Inspection, repairing, refurbishing, and/or replacement of components, refilling of the freon, and the maintenance run are key evolutions during the overhaul which could impact the maintenance schedule. It is expected that the overhaul would take approximately 7 days. However, repair, refurbishing, and/or replacement of certain components, a longer than expected time for replacing the freon, or unacceptable running parameters could extend the overhaul beyond 7 days.

Therefore, it is necessary to extend the allowed outage time for an ECW and CREACUS train to accommodate this chiller overhaul. With the current 7 day AOT, if the chiller overhaul requires more than 7 days to complete, both San Onofre Units 2 and 3 would be shut down.

2.1 Compliance with Current Regulations

The control room habitability systems, which include ECW and CREACUS, were reviewed by the NRC and the results documented in NUREG-0712, "Safety Evaluation Report Related to the Operation of San Onofre Nuclear Generating Station Units 2 and 3." The NRC staff performed independent calculations of the potential radiation doses to control room personnel following a LOCA to show the doses were within the guidelines of 10 CFR 50 Appendix A General Design Criterion (GDC) 19, "Control Room." The control room was also reviewed for toxic gas protection, and the NRC concluded the guidelines of Regulatory Guides 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," and 1.95 "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release" were met.

The proposed change to the technical specifications extends the allowed outage time from 7 days to 14 days for both trains of ECW and CREACUS. This change meets the current regulations for a license amendment in 10 CFR 50.90, technical specifications in 10 CFR 50.36, and all license conditions. The technical specifications for SONGS 2 and 3 are based on the NUREG-1432, "Standard Technical Specifications - Combustion Engineering Reactors," September 1992. The technical specifications, including TS 3.7.10 (ECW) and TS 3.7.11 (CREACUS), were approved by the NRC on February 9, 1996 in Amendments 127 and 116.

2.2 Traditional Engineering Considerations

2.2.1 Defense-in-Depth

The ECW and CREACUS systems are required to operate under emergency conditions during a design basis event. The ECW provides chilled water to various air conditioning systems to maintain room cooling for equipment operation or operator performance. The two trains of ECW provide chilled water to the air conditioning units of the respective CREACUS trains. The CREACUS isolates the control room envelope and provides filtered cool air to the control room envelope during design basis events. The safety functions of ECW and CREACUS systems are required so that the safety functions of other systems and components and operator actions are properly performed in mitigating the consequences of a design basis accident to ensure the defense-in-depth principle is maintained.

The proposed change is to extend the allowed outage time for a single train in both the ECW and CREACUS systems. The proposed change does not affect the ECW and CREACUS performance during design basis events as described in the UFSAR.

Following the guidance provided in Regulatory Guide (RG) 1.177, the impact of the proposed Technical Specification (TS) change on defense-in-depth is addressed below. Based on the following discussion, it is concluded that the proposed TS change meets the defense-in-depth principle.

A reasonable balance among prevention of core damage, prevention of containment failure, and consequence mitigation is preserved.

The balance among prevention of core damage, prevention of containment failure, and consequence mitigation is still maintained with this proposed change. This change extends the allowed outage time for a train of both ECW and CREACUS an additional 7 days. This change has no impact on ECW and CREACUS system performance as described in the UFSAR. Since the systems are not modified by this change, the probability of an accident is not changed and there are no new accidents introduced.

Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided.

There are no weaknesses in the plant design, and weaknesses are not being introduced with this change. The ECW and CREACUS systems are not being modified as part of this proposed change. The purpose of this change is to provide an extended AOT for both an ECW and a CREACUS train for those major maintenance activities that may require additional time. No weaknesses in the ECW and CREACUS systems are being introduced by this change. The systems will perform as described in the UFSAR during a design basis accident.

System redundancy, independence, and diversity are preserved commensurate with the expected frequency and consequences of challenges to the system (e.g., no risk outliers).

The system redundancy, independence, and diversity will continue to be preserved with this proposed change. The current technical specifications allow a train of both ECW and CREACUS to be out of service for 7 days. During that time period one ECW and one CREACUS train are available. This change extends the out of service time period to 14 days. There is no change to the ECW and CREACUS systems redundancy, independence, and diversity. In the event major maintenance activities go beyond 7 days, an additional 7 days is requested to be available to complete the activity to avoid shutdown of both San Onofre Units 2 and 3. During the extended AOT, the available train of ECW and CREACUS will be maintained operable.

Defenses against potential common cause failure are preserved and the potential for introduction of new common cause failure mechanisms is assessed.

This change does not modify the ECW or CREACUS systems such that a common cause failure can now be introduced or a new common cause failure is introduced. The requested change is to extend the AOT from 7 to 14 days to provide additional time to perform maintenance activities that go beyond 7 days. The ECW and CREACUS systems will continue to perform as described in the UFSAR during the additional 7 day period. There is no evidence that a new common cause failure will be introduced with this change.

Independence of barriers is not degraded.

The barriers to fission product release are not affected by this proposed change. This change does not modify the ECW or CREACUS systems nor change the plant design. The ECW and CREACUS systems safety functions are to ensure other systems and components safety functions and operator actions are performed to mitigate the consequences of a design basis accident such that barriers are maintained. Therefore, the independence of barriers to fission product release remains unchanged.

Defenses against human errors are preserved.

Implementation of this change will not have any impact on the possibility of a human error being made during a design basis accident when the ECW and CREACUS are required. The purpose of this change is to provide additional time to complete maintenance activities on the ECW or CREACUS systems that go beyond the existing 7 day AOT due to unforeseen circumstances. Extending the 7 day AOT has no impact on the operator response during a design basis event. The operable ECW and CREACUS train would perform as designed and operator action is unchanged. This proposed change does not introduce any human error.

The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

The designs of the ECW and CREACUS are not changed by this proposed change. The plant design will continue to satisfy the General Design Criteria as currently licensed and described in the UFSAR.

2.2.2 Safety Margins

This proposed change is to extend the AOT for both an ECW and a CREACUS train. The design of the ECW and CREACUS systems is not changed. The codes and standards which govern the design of the systems are not affected by this change. Since the proposed change does not modify the design of the ECW and CREACUS systems, the systems will continue to perform as described in the UFSAR. The safety analysis in the UFSAR is not affected since both the ECW and CREACUS are designed to perform their safety function with one train.

2.3 Evaluation of Risk Impact

The evaluation of the risk impact of the proposed changes followed the three-tiered approach outlined in Regulatory Guide 1.77.

Tier 1: Probabilistic Risk Analysis (PRA) Capability and Insights

The SONGS Living PRA model was used to assess the risk impact of the proposed change. As described below, this model reflects the as-built design and operation of the plant and is capable of assessing the risk impact of the proposed change. The impact of the proposed change on core damage frequency (CDF), incremental conditional core damage probability (ICCDP), large early release frequency (LERF), and incremental conditional large early release probability (ICLERP) were assessed. The results are provided in Tables 3 through 6.

Table 3a
SONGS Conditional CDF & LERF Contributions for
Preventive Maintenance (PM) for Emergency Chilled Water

	CDF	LERF
Present Allowed Outage Time (AOT)	7 days	
Proposed AOT	14 days	
Baseline (CDF/LERF)	4.4E-5/yr	1.7E-6/yr
Conditional CDF/LERF for PM (1 Train always unavailable)	6.4E-5/yr	3.1E-6/yr
Conditional CDF/LERF for PM (1 Train always available)	4.3E-5/yr	1.7E-6/yr
Increase in CDF/LERF for PM	2.1E-5/yr	1.4E-6/yr
Single AOT Risk (ICCDP/ICLERP) for PM (based on current 7 day AOT)	4.0E-7	2.6E-8
Single AOT Risk (ICCDP/ICLERP) for PM (based on proposed 14 day AOT)	8.1E-7	5.3E-8
Downtime Frequency for PM*	4.7 events/yr	
Yearly AOT Risk for PM (based on current 7 day AOT)	1.9E-6/yr	1.2E-7/yr
Yearly AOT Risk for PM (based on proposed 14 day AOT)	3.8E-6/yr	2.5E-7/yr
Mean Duration for PM	70.9 hours/event	
Single AOT Risk for PM (based on mean duration)	1.7E-7	1.1E-8
Yearly AOT Risk for PM (based on mean duration)	8.0E-7/yr	5.2E-8/yr

*Frequency represents the combined downtime frequency of both trains.

Table 3b
SONGS Conditional CDF & LERF Contributions for
Preventive Maintenance (PM) for CREACUS

	CDF	LERF
Present Allowed Outage Time (AOT)	7 days	
Proposed AOT	14 days	
Baseline (CDF/LERF)	5.4E-5/yr	2.1E-6/yr
Conditional CDF/LERF for PM (1 Train always unavailable)	6.2E-5/yr	2.8E-6/yr
Conditional CDF/LERF for PM (1 Train always available)	4.7E-5/yr	1.8E-6/yr
Increase in CDF/LERF for PM	1.5E-5/yr	9.7E-7/yr
Single AOT Risk (ICCDP/ICLERP) for PM (based on current 7 day AOT)	2.9E-7	1.9E-8
Single AOT Risk (ICCDP/ICLERP) for PM (based on proposed 14 day AOT)	5.8E-7	3.7E-8
Downtime Frequency for PM*	5.72 events/yr	
Yearly AOT Risk for PM (based on current 7 day AOT)	1.7E-6/yr	1.1E-7/yr
Yearly AOT Risk for PM (based on proposed 14 day AOT)	3.3E-6/yr	2.1E-7/yr
Mean Duration for PM	64.9 hours/event	
Single AOT Risk for PM (based on mean duration)	1.1E-7	7.1E-9
Yearly AOT Risk for PM (based on mean duration)	6.4E-7/yr	4.1E-8/yr

*Frequency represents the combined downtime frequency of both trains.

Table 4
SONGS Conditional Average CDF & LERF for
Combined ECW & CREACUS AOT Changes

	CDF	LERF
Baseline (CDF/LERF) with actual average maintenance	4.50E-5/yr	1.72E-6/yr
Proposed Average CDF/LERF (actual average maintenance plus extended maintenance of each ECW and CREACUS train once per 5 years)	4.57E-5/yr	1.73E-6/yr
Change in baseline risk	7E-7/yr	1E-8/yr

Tier 2: Avoidance of Risk-Significant Plant Configurations

A review of potential risk significant plant configurations, which could occur when the affected systems are out of service, has been performed. A review was performed of a risk achievement worth importance ranking of other components which could be out of service during the AOT. The review identified the normal chilled water system as a very risk significant system when an emergency chilled water system train is inoperable. This indicates that the normal chilled water system should not voluntarily be removed from service when an emergency chiller water system train is also out of service. Therefore, administrative controls will be implemented to ensure that preventive maintenance on an emergency chilled water system train does not occur simultaneously with a planned outage of the normal chilled water system.

Tier 3: Risk-Informed Configuration Risk Management

Years ago, a Configuration Risk Management Program was implemented at SONGS in accordance with Regulatory Guide 1.177 in SONGS Technical Specification 5.5.2.14 to obtain risk-informed changes to other SONGS technical specifications. In addition, SONGS has enhanced its Configuration Risk Management Program to comply with Maintenance Rule 10 CFR 50.65(a)(4), Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," and NUMARC 93-01, Rev. 3, "Industry Guideline for Monitoring Effectiveness of Maintenance at Nuclear Power Plants," Section 11 guidance as well as Regulatory Guide1.177.

2.3.1 Quality of PRA

The risk associated with the proposed change was analyzed using the SONGS Living PRA as modeled in the WINNUPRA 2.0 software. The SONGS Living PRA is a Level 1 and 2 PRA model that includes all significant internal and external initiating events. The SONGS Living PRA was derived from the Individual Plant Examination (IPE) and Individual Plant Examination for External Events (IPEEE), and has been enhanced to support its use in the SONGS Safety Monitor for implementation of the SONGS Configuration Risk Management Program and Maintenance Rule 10 CFR 50.65(a)(4) monitoring.

Several measures have been implemented in the development of the SONGS 2 and 3 PRA to ensure quality. Changes in the model that impact assumptions, success criteria, basic event probabilities, and system and plant models formally undergo several levels of review, and, depending on the complexity of the change, may also include peer and/or technical expert panel review.

A comprehensive independent peer review of the SONGS 2 and 3 Level 1 and Level 2 internal events living PRA for full power and shutdown operations was conducted between August 1996 and April 1997 by an outside consultant (Scientech, Inc.). During this review, documents, procedures, and supporting calculations and analyses were available. The review was based primarily on the guidance provided in the PRA procedure guides such as NUREG/CR-2300, "PRA Procedures Guide: A Guide to the Performance of PRAs for Nuclear Power Plants," and NUREG/CR-4550, Rev. 1, "Analysis of Core Damage Frequency," as well as PRA applications documents such as EPRI TR-105396, "PSA Applications Guide," and NUREG-1489, 3/94, "Review of NRC Staff Uses of PRA." The results of all independent review activities performed by internal and external reviewers were documented in the Southern California Edison (SCE) PRA Change Package process and tracked in the PRA Punch List Database.

In addition to extensive internal and external peer review, these refined full-scope models were used to support technical specification AOT changes for the SONGS 2 and 3 Diesel Generators, Low Pressure Safety Injection System, Containment Spray System, Containment Isolation Valves, and Safety Injection Tanks. In addition, the SONGS PRA models were used to support major risk-informed changes to the Inservice Testing Program at SONGS.

In summary, the SONGS PRA has been subjected to extensive peer and regulatory review. The PRA model, assumptions, database changes, improvements, and computer code are controlled and documented by administrative procedure. The model and database reflect the as-built design and the most recent historical data. Therefore, the SONGS PRA is of a quality consistent with that required to perform accurate, thorough, and comprehensive evaluations for this application.

2.3.2 Scope of PRA for TS Change Evaluations

The SONGS Living PRA is capable of evaluating the risk significance of the proposed change since it contains: (1) detailed fault tree models for the systems and associated support systems affected by this change and (2) all initiating events whose mitigation is affected by availability of the systems and associated support systems affected by this change.

2.3.3 PRA Modeling

The PRA modeling used in this analysis was consistent in scope and methodology with that used in prior NRC approved risk-informed technical specification AOT extensions.

2.3.3.1 Detail Needed for Technical Specification Changes

The affected systems and their support systems are modeled at the component level. The affected systems and support systems include ECW, CREACUS, Component Cooling Water, Saltwater Cooling, 1E AC, 1E DC, and safety related Heating, Ventilation, and Air Conditioning (HVAC) systems. Also, the non-safety related systems which provide normally running functions redundant to these safety related systems are all modeled at the component level. Plant specific data was evaluated for the affected systems.

2.3.3.2 Modeling of Initiating Events

The initiating events which challenge the affected systems include all the events typically found analyzed in a PRA. In addition, events specific to CREACUS were modeled including loss of control room cooling, toxic gas releases both outside the control room onsite and on the nearby interstate freeway, and radiation release from the adjacent nuclear unit.

2.3.3.3 Screening Criteria

The methodology used to assess the risk significance of the proposed change eliminated any issues associated with screening since the quantification was performed with the affected systems assumed totally unavailable (i.e., set their failure probability to 1.0). Therefore, sequences involving the subject systems were not excluded based on frequency.

2.3.3.4 Truncation Limits

The truncation limit used in the quantification of the SONGS Living PRA model is 5E-10. The SONGS Living PRA model is a single merged fault tree which is optimized for use in the SONGS Safety Monitor. The events trees developed for the IPE and IPEEE were converted to a single master fault tree which forms the basis for the single merged fault tree. Therefore, all cutsets from all portions of the fault tree are analyzed using the same single truncation limit.

The top event probability for the SONGS Living PRA model is approximately 5E-5. The truncation limit of 5E-10 is 5 orders of magnitude below the top event probability, which is sufficient based on the guidance in the draft ASME PSA Standard, "Proposed Final ASME Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," Revision 12.

2.3.4 Assumptions in the AOT

The assessment of the risk associated with the change was performed for two cases: (1) assuming the AOT is entered to perform corrective maintenance with a potential for common cause failures and (2) assuming the AOT is entered to perform preventive maintenance with no potential for common cause failures.

Recovery of the affected systems following entry into the AOT to mitigate an event was not assumed as a conservatism.

2.3.5 Sensitivity and Uncertainty Analysis Relating to Assumptions in TS Change

A sensitivity analysis was performed to determine the impact on risk if the AOT entry was due to corrective maintenance. Corrective maintenance entries have an increased potential for common cause failure of the redundant train until the root cause is found and determined to not impact the redundant train. Table 5 contains the results of the sensitivity analysis. The results indicate that the increase in risk does not increase significantly when the potential for common cause failure is increased.

Table 5
SONGS Conditional CDF & LERF Contributions for Corrective Maintenance (CM) of Emergency Chilled Water

	CDF	LERF
Present Allowed Outage Time (AOT)	7 days	
Proposed AOT	14 days	
Baseline (CDF/LERF)	4.4E-5/yr	1.7E-6/yr
Conditional CDF/LERF for PM (1 Train always unavailable, common cause failure rate for other Train set to common cause beta factor)	2.2E-4/yr	1.4E-5/yr
Conditional CDF/LERF for CM (1 Train always available)	4.3E-5/yr	1.7E-6/yr
Increase in CDF/LERF for CM	1.7E-4/yr	1.2E-5/yr
Single AOT Risk for CM (based on current 7 day AOT)	3.3E-6	2.3E-7
Single AOT Risk for CM (based on proposed 14 day AOT)	6.7E-6	4.6E-7
Downtime Frequency for CM	8.3 events/yr	
Yearly AOT Risk for CM (based on current 7 day AOT)	2.8E-5/yr	1.9E-7/yr
Yearly AOT Risk for CM (based on proposed 14 day AOT)	5.5E-5/yr	3.9E-6/yr
Mean Duration for CM	49 hours/event	
Single AOT Risk for CM (based on mean duration)	9.7E-7/yr	6.8E-8/yr
Yearly AOT Risk for CM (based on mean duration)	8.1E-6/yr	5.6E-7/yr

A parametric uncertainty analysis was performed to determine if any parameter uncertainties influenced the results. Table 6 provides the results of the uncertainty analysis. The results do not indicate any unexpected parameter uncertainties.

Table 6
SONGS Uncertainty for Combined ECW and CREACUS AOT Change

	Mean (from uncertainty)	Median (50% confidence level)	5% confidence level	95% confidence level
Baseline average CDF	7.6E-5/yr	5.0E-5/yr	2.5E-5/yr	1.7E-4/yr
Proposed Average CDF	8.2E-5/yr	5.2E-5/yr	2.6E-5/yr	2.0E-4/yr

2.3.6 Use of Compensatory Measures in TS Change Evaluations

An evaluation of the results from the ECW and CREACUS risk assessment indicate that compensatory measures during an ECW or a CREACUS train outage are not necessary.

2.3.7 Contemporaneous Configuration Control

2.3.7.1 Configuration Risk Management Program (CRMP)

SONG has an existing technical specification Configuration Risk Management Program (Technical Specification 5.5.2.14) which was implemented in support of prior risk-informed technical specification AOT changes for emergency diesel generators, containment spray system, low pressure injection system, and containment isolation valves. This program complies with Regulatory Guide 1.177. Furthermore, SONGS has enhanced this program to comply with Maintenance Rule 10 CFR 50.65(a)(4) monitoring requirements as specified in NRC endorsed NUMARC 93-01 Section 11. The SONGS Configuration Risk Management Program is based on the SONGS Safety Monitor, a real time risk monitor which has been in service since 1994.

2.3.7.2 Key Components of the CRMP

The SONGS CRMP conforms with the key elements of the CRMP as defined in Regulatory Guide 1.177.

2.4 Acceptance Guidelines for TS Changes

The risk assessment results presented in Tables 3 through 6 meet the guidelines in Regulatory Guide 1.174 and 1.177 for risk-informed technical specification changes. The increase in average annual core damage and large early release risk for extending the ECW and CREACUS allowed outage times to 14 days are 7E-7/yr and 1E-8/yr, which are characterized as very small in Regulatory Guide 1.174.

The single AOT CDF risk (i.e., ICCDP and ICLERP) for preventive maintenance of ECW given an ECW AOT extension is 8.1E-7 and 5.3E-8, which are very close to the 5E-7 single AOT ICCDP and 5E-8 acceptance guidelines in Regulatory Guide 1.177.

The single AOT CDF risk (i.e., ICCDP and ICLERP) for preventive maintenance of CREACUS given a CREACUS AOT extension is 5.8E-7 and 3.7E-8, which are very close to the 5E-7 single AOT ICCDP and 5E-8 acceptance guidelines in Regulatory Guide 1.177.

2.5 Comparison of Risk of Available Alternatives

The alternative to this proposed change is to leave the allowed outage time at 7 days. In the event the 7 days are exceeded during the overhaul of the ECW chillers, both Units 2 and 3 would be shutdown. This in itself has some risk due to the shutting down of two units would significantly increase activities at both units. Also, in the current time frame the shutdown of both units could have a significant impact on the California electricity

crisis. The alternative to the proposed change is not considered appropriate since the risk and impacts associated with extending the allowed outage time an additional 7 days are less than a dual unit shutdown.

3.0 Implementation and Monitoring Program

3.1 Three-Tiered Implementation Approach

SONGS will employ a three-tiered approach in implementing the proposed TS AOT. The Tier 1 approach indicates that the risk of the proposed AOT is acceptable based on the single AOT risk. The Tier 2 approach indicates that administrative controls must be established to ensure that planned maintenance on the normal chilled water system should not coincide with planned maintenance on the emergency chilled water system. The Tier 3 approach employs the SONGS CRMP program based on the Safety Monitor to ensure that risk-significant configurations are identified and managed appropriately per the Maintenance Rule 10 CFR 50.65(a)(4).

3.2 Maintenance Rule Control

SONGS will ensure that when the ECW and CREACUS systems do not meet their Maintenance Rule program unavailability performance criteria, the evaluation required under the Maintenance Rule includes prior related TS changes in its scope. If it is concluded that the performance or condition of TS equipment affected by the TS change does not meet established performance criteria, appropriate corrective action would be taken in accordance with the Maintenance Rule program. Such corrective action could include consideration of another TS change to shorten the revised AOT or imposition of a more restrictive administrative limit, if determined that such a change is needed to reverse a negative trend.

References: 1) USNRC, Regulatory Guide 1.174, "An Approach for Using ProbabilisticRisk Assessment in Risk-Informed Decision on Plant-Specific Changes to the Licensing Basis," July 1998.

2) USNRC, Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specification," August 1998

3) USNRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," May 2000.

4) NUMARC 93-01, Rev. 3, "Industry Guideline for Monitoring Effectiveness of Maintenance at Nuclear Power Plants."

5) NUREG/CR 2300, "PRA Procedures Guide: A Guide to the Performance of PRAs for Nuclear Power Plants."

6) NUREG/CR-4550, Rev. 1, "Analysis of Core Damage Frequency."

7) NUREG 1489, 3/94, "Review of NRC Staff Uses of PRAs."

8) EPRI TR-105396, "PSA Applications Guide."

9) ASME PSA Standard, Rev. 12, "Proposed Final ASME Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications."

NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10CFR50.92. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with a proposed amendment would not: (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) Involve a significant reduction in a margin of safety. A discussion of these standards as they relate to this amendment request follows:

(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?

Response: No.

This proposed change is to revise the Allowed Outage Time (AOT) for a single inoperable train of the Emergency Chilled Water (ECW) and Control Room Emergency Air Cleanup System (CREACUS) systems from 7 days to 14 days. The proposed change does not involve a change in the design configuration, or operation of the plant.

Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

(2) Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

This proposed change does not involve a change in the design, configuration, or method of operation of the plant.

Therefore, this proposed change will not create the possibility of a new or different kind of accident from any accident that has been previously evaluated.

(3) Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change does not affect the limiting conditions for operation or their bases that are used in the deterministic analyses to establish the margin of safety. Probabilistic risk analysis was used to evaluate these changes.

Therefore, there will be no significant reduction in a margin of safety as a result of this change.

Based on the responses to these three criteria, Southern California Edison (SCE) has concluded that the proposed amendment involves no significant hazards consideration.

ENVIRONMENTAL CONSIDERATION

SCE has determined that the proposed amendment involves no changes in the amount or type of effluent that may be released offsite, and results in no increase in individual or cumulative occupational radiation exposure. As described above, the proposed TS amendment involves no significant hazards consideration and, as such, meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Attachment A

(Existing Pages)

SONGS Unit 2

3.7 PLANT SYSTEMS

3.7.10 Emergency Chilled Water (ECW)

LCO 3.7.10 Two ECW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

(continued)

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

LCO 3.7.11 Two CREACUS trains shall be OPERABLE.

----------NOTE----------
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

----------NOTES----------
1. The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration.

2. Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREACUS train inoperable.	A.1	Restore CREACUS train to OPERABLE status.	7 days
B. Two CREACUS trains inoperable due to inoperable control room boundary in Modes 1, 2, 3, or 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 AND C.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

(continued)

Attachment B

(Existing Pages)

SONGS Unit 3

3.7 PLANT SYSTEMS

3.7.10 Emergency Chilled Water (ECW)

LCO 3.7.10 Two ECW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

(continued)

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

LCO 3.7.11 Two CREACUS trains shall be OPERABLE.

----------NOTE----------
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS ----------NOTES----------
1. The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration.

2. Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREACUS train inoperable.	A.1	Restore CREACUS train to OPERABLE status.	7 days
B. Two CREACUS trains inoperable due to inoperable control room boundary in Modes 1, 2, 3, or 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

Attachment C

(Proposed Pages)

(Redline and Strikeout)

SONGS Unit 2

3.7 PLANT SYSTEMS

3.7.10 Emergency Chilled Water (ECW)

LCO 3.7.10 Two ECW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train to OPERABLE status.	~~7~~14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

(continued)

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

LCO 3.7.11 Two CREACUS trains shall be OPERABLE.

----------NOTE----------
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS ----------NOTES----------
1. The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration.

2. Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREACUS train inoperable.	A.1	Restore CREACUS train to OPERABLE status.	~~7~~14 days
B. Two CREACUS trains inoperable due to inoperable control room boundary in Modes 1, 2, 3, or 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 AND C.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

(continued)

Attachment D

(Proposed Pages)

(Redline and Strikeout)

SONGS Unit 3

3.7 PLANT SYSTEMS

3.7.10 Emergency Chilled Water (ECW)

LCO 3.7.10 Two ECW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train to OPERABLE status.	~~7~~14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

(continued)

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

LCO 3.7.11 Two CREACUS trains shall be OPERABLE.

---NOTE---
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

---NOTES---
1. The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration.

2. Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREACUS train inoperable.	A.1	Restore CREACUS train to OPERABLE status.	~~7~~14 days
B. Two CREACUS trains inoperable due to inoperable control room boundary in Modes 1, 2, 3, or 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 AND C.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

Attachment E

(Proposed Pages)

SONGS Unit 2

3.7 PLANT SYSTEMS

3.7.10 Emergency Chilled Water (ECW)

LCO 3.7.10 Two ECW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

(continued)

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

LCO 3.7.11 Two CREACUS trains shall be OPERABLE.

----------NOTE----------
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS ----------NOTES----------
1. The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration.

2. Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREACUS train inoperable.	A.1	Restore CREACUS train to OPERABLE status.	14 days
B. Two CREACUS trains inoperable due to inoperable control room boundary in Modes 1, 2, 3, or 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

(continued)

Attachment F

(Proposed Pages)

SONGS Unit 3

3.7 PLANT SYSTEMS

3.7.10 Emergency Chilled Water (ECW)

LCO 3.7.10 Two ECW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ECW train inoperable.	A.1 Restore ECW train to OPERABLE status.	14 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify each ECW manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

(continued)

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

LCO 3.7.11 Two CREACUS trains shall be OPERABLE.

----------NOTE----------
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS ----------NOTES----------
1. The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration.

2. Each Unit shall enter applicable ACTIONS separately.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREACUS train inoperable.	A.1	Restore CREACUS train to OPERABLE status.	14 days
B. Two CREACUS trains inoperable due to inoperable control room boundary in Modes 1, 2, 3, or 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

Attachment G

(Proposed Bases Pages)

(Redline and Strikeout)

SONGS Unit 2

B 3.7 PLANT SYSTEMS

B 3.7.10 Emergency Chilled Water (ECW) System

BASES

BACKGROUND

The ECW System provides a heat sink for the removal of process and operating heat from selected safety related air handling systems during a Design Basis Accident (DBA) or transient.

The ECW System is a closed loop system consisting of two independent trains. Each 100% capacity train includes a heat exchanger, compression tank, pump, chemical addition tank, piping, valves, controls, and instrumentation. An independent 100% capacity emergency chiller cools each train. The ECW System is actuated on a safety injection actuation signal (SIAS), toxic gas isolation signal (TGIS), control room isolation signal (CRIS), or fuel handling isolation signal (FHIS), and supplies chilled water to the heating, ventilation, and air conditioning (HVAC) units in Engineered Safety Feature (ESF) equipment areas (e.g., the main control room, electrical equipment room, and safety injection pump area).

The flow path for the ECW System includes the closed loop of piping to all serviced equipment. During normal operation, the normal HVAC System performs the cooling function of the ECW System. Additional information about the design and operation of the system, along with a list of components served, can be found in the UFSAR, Section 9.4.2 (Ref. 1).

General Requirements for ECWS OPERABILITY

An Emergency Chilled Water (ECW) train is considered OPERABLE when the components required to perform the safety related function are all operable, as follows: chilled water pump, compression tank, piping, valves, heat exchanger, emergency chiller, instrumentation and controls.

If while implementing LCO 3.7.10 Action A due to the inoperability of an ECWS component, a subsequent component failure occurs on the affected Unit(s) in the same ECW train, do not start a second ~~7~~14 day clock. The entire ECW train must be returned to OPERABLE status within the time constraint of the original ~~7~~14 day clock.

(continued)

BASES (continued)

BACKGROUND (continued)

If while implementing LCO 3.7.10 Action A for an inoperable ECW train, the opposite ECW train for the affected Unit(s) becomes inoperable, enter LCO 3.0.3 on the applicable Unit(s).

TS 3.7.10 allows ~~7~~14 days for restoring operability of one ECWS train. The 14 day AOT is based on a probabilistic risk assessment that was done in accordance with the guidance of Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk Informed Decisionmaking: Technical Specifications." The 14 day AOT is implemented in the three-tiered approach. First, the risk of the 14 day AOT is acceptable based on the single AOT risk. Second, administrative controls must be established to ensure that planned maintenance on the normal chilled water system does not coincide with planned maintenance on the ECW system. Third, the SONGS Configuration Risk Management Program (CRMP) program is employed to ensure that risk-significant configurations are identified and managed appropriately per the Maintenance Rule (a)(4). Allowing only one ~~7~~14 day clock even in the case of multiple single train component failures is conservative. This approach prohibits exceeding the intent of the LCO, which is to ensure an ECWS train remains out of service for no more than ~~7~~14 days, regardless of circumstances.

LCO 3.7.10 allows only one ECW train to be inoperable. Therefore, with both trains inoperable, a LCO 3.0.3 entry is required.

An emergency chiller is considered OPERABLE when it is or can be aligned to either Unit's operating or standby OPERABLE Component Cooling Water (CCW) critical loop, provided that the OPERABLE CCW critical loop can be placed in operation within 2 hours after a design basis event is detected in the Control Room. (Reference 2) Thus, an emergency chiller, under normal circumstances, remains OPERABLE during a transfer operation between OPERABLE CCW critical loops completed in less than 2 hours.

Likewise, an emergency chiller is considered OPERABLE when it is aligned to either Unit's energized 4 kV bus. Under normal circumstances, the emergency chiller remains OPERABLE during a transfer operation between 4 kV buses, provided the transfer operation is completed in less than 2 hours.

Room Coolers OPERABILITY, General

If one or more required individual room coolers for a Unit are inoperable and the backup cooling listed in Table 1 for the affected room(s) is also inoperable, OR if the temperature in the affected room(s) increases above its design temperature, declare the safety related equipment in the cooled room(s) inoperable and enter the LCO action

(continued)

BASES (continued)

BACKGROUND (continued)

TABLE 1
Individual Room Coolers

1E COOLER	BACKUP COOLER	EQUIPMENT IN ROOM
ME417	ME414	P017, P015, P012
ME416	ME413	P019, P016, P013
ME517	ME445 (1E)	P018
ME445	ME517 (1E)	P018
ME455	ME448	P026
ME454	ME450 (NON-1E) or ME518	P025
ME518	ME450 (NON-1E) or ME454	P025
ME453	ME449	P024
ME439	RADWASTE FANS: ME433 or ME434 (supply) -AND- MA192 or MA193 (exhaust)	P174
ME440	Same as above for ME439	P175
ME438	Same as above for ME439	P190
ME435	Same as above for ME439	P192
ME436	ME437 (1E) or Same as above for ME439	P191
ME437	ME436 (1E) or Same as above for ME439	P191
ME255	ME430 and MA165, or alternate method	50 ft. swgr
ME257	ME430 and MA165, or alternate method	50 ft. swgr
ME441	ME442 (1E) or FUEL HANDLING BUILDING FANS: MA359 or MA360 (supply) -AND- MA316 or MA317 (exhaust)	P009

(continued)

BASES (continued)

BACKGROUND (continued)

TABLE 1
Individual Room Coolers
(continued)

ME442	ME441 (1E) or FUEL HANDLING BUILDING FANS: as above for ME441	P010

statement(s) for the inoperable equipment in the cooled room(s). See details for specific rooms, below.

If one or more required individual room cooler(s) for a Unit are inoperable, the ECW train for that Unit remains OPERABLE. OPERABILITY of the safety related equipment in the cooled room(s) remains unaffected provided that the backup room cooling listed in Table 1 remains OPERABLE AND provided that the temperature in the affected room(s) remains below its design temperature. Return the individual room cooler(s) to OPERABLE status within ~~7~~14 days while maintaining the temperature in the affected room(s) below its design temperature or enter the applicable action statement for the equipment in the room. Separate entry is allowed for each inoperable emergency room cooler.

For equipment in rooms cooled by only emergency cooling with no normal cooling, redundant emergency coolers are 100% capacity, and are adequate for maintaining the cooled equipment OPERABLE for up to ~~7~~14 days.

It is not prudent to rely on backup cooling for periods longer than the allowed outage time for an ECW train itself. Therefore it is conservative to require restoration of an inoperable room cooler within ~~7~~14 days.

With both emergency and backup room cooling inoperable, safety related equipment does not have the cooling required by the LCO 1.1 definition of OPERABLE.

Table 1 permits normal Radwaste Building ventilation to provide backup cooling for the boric acid makeup pump rooms and the charging pump rooms. This is reasonable because these pumps can be running normally and have no normal room coolers. The same is true for the normal Fuel Handling Building ventilation and the spent fuel pool cooling pumps.

(continued)

BASES (continued)

BACKGROUND (continued)

CREACUS Coolers OPERABILITY

Inability of the ECWS to supply cooling water to CREACUS cooler ME418 or ME419 forces entry into TS 3.7.11 for both Units. Inability to supply Unit 2 cabinet area coolers ME423 or ME424 forces entry into TS 3.7.11 for Unit 2. Inability to supply Unit 3 cabinet area coolers ME426 or ME427 forces entry into TS 3.7.11 for Unit 3.

LCO 3.7.10 does not specifically address individual room coolers. The identification of the Unit applicability for CREACUS coolers is consistent with the function that the coolers provide. The coolers associated with the control room emergency HVAC are covered by TS 3.7.11, and it is not necessary to also apply TS 3.7.10.

Switchgear Room Coolers OPERABILITY

The Unit 2 ESF switchgear emergency room coolers impact both Units because MCCs BQ and BS are physically located inside the respective train ESF switchgear rooms on Unit 2. MCCs BQ and BS provide power to the chilled water pumps and provide chiller control power and can be powered from either Unit.

The applicability of the Unit 3 ESF switchgear emergency room coolers depends on alignment of the associated train power sources for Units 2 and 3 common systems. If the source of power is from Unit 3 then the Unit 3 ESF switchgear cooler impacts common power systems on that train. Therefore, the Unit 3 ESF switchgear emergency room cooler can impact both Units. If all of the common system power sources are from Unit 2, there are no common systems that could be impacted by the inoperable Unit 3 cooler. Therefore, only Unit 3 would be impacted in this case.

The Unit applicability of inoperable Unit 3 ESF switchgear emergency cooler 3ME255 or 3ME257 depends on the Unit providing the power source for common components. The inoperability of either Unit 3 ESF switchgear emergency cooler 3ME255 or 3ME257 affects both Unit 2 and Unit 3 only when emergency chiller(s), Motor Control Center (MCC) BQ, or MCC BS are powered from Unit 3. If Unit 3 does not provide power to any of these components, only Unit 3 is affected.

(continued)

BASES (continued)

BACKGROUND (continued)

The inoperability of either Unit 2 Engineered Safety Feature (ESF) switchgear emergency cooler 2ME255 or 2ME257 affects both Units 2 and 3.

APPLICABLE SAFETY ANALYSES

The design basis of the ECW System is to remove the post accident heat load from ESF spaces following a DBA coincident with a loss of offsite power. Each train provides chilled water to the HVAC units at the design temperature and flow rate.

The maximum heat load in the ESF pump room area occurs during the recirculation phase following a loss of coolant accident. During recirculation, hot fluid from the containment sump is supplied to the high pressure safety injection and containment spray pumps. This heat load to the area atmosphere must be removed by the ECW System to ensure that these pumps remain OPERABLE.

The ECW satisfies Criterion 3 of the NRC Policy Statement.

LCO

Two ECW trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming the worst single failure.

An ECW train is considered OPERABLE when:

a. The associated pump and compression tank are OPERABLE; and

b. The associated piping, valves, heat exchanger, emergency chiller, and instrumentation and controls required to perform the safety related function are OPERABLE.

The isolation of the ECW from other components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ECW System.

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, 3, and 4, the ECW System is required to be OPERABLE when a LOCA or other accident would require ESF operation.

In MODES 5 and 6, potential heat loads are smaller and the probability of accidents requiring the ECW System is low.

ACTIONS

ACTION statements are modified by a Note: "Each Unit shall enter applicable ACTIONS separately." Because the ECW System is shared between Unit 2 and Unit 3, this note clarifies what Action should be taken when the Units are in different MODES.

A.1

If one ECW train is inoperable, action must be taken to restore OPERABLE status within ~~7~~14 days. The 14 day AOT is based on a probabilistic risk assessment that requires administrative controls be implemented to ensure that planned maintenance on the normal chilled water system does not coincide with planned maintenance on the ECW system. In this condition, one OPERABLE ECW train is adequate to perform the cooling function. The ~~7~~14 day Completion Time is reasonable, based on the low probability of an event occurring during this time, the 100% capacity OPERABLE ECW train, and the redundant availability of the normal HVAC System.

B.1 and B.2

If the ECW train cannot be restored to OPERABLE status within the associated Completion Time, or two ECW trains are inoperable, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

Verifying the correct alignment for manual, power operated, and automatic valves in the ECW flow path provides assurance that the proper flow paths exist for ECW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1 (continued)

Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.10.2

This SR verifies proper automatic operation of the ECW System components and that the ECW pumps and chillers will start in the event of any accident or transient that generates an SIAS, TGIS, CRIS, or FHIS. The ECW System cannot be fully actuated as part of the SIAS, TGIS, CRIS, or FHIS CHANNEL FUNCTIONAL TESTS during normal operation. The actuation logic for each of these signals is part of their functional tests every 92 days, except for the subgroup relays that actuate the system that cannot be tested during normal unit operation. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on operating experience and design reliability of the equipment.

REFERENCES

1. UFSAR, Section 9.4.2.

2. Memorandum from V. Barone (NEDO) to T. Vogt (OPS), Revision 1, dated 12-22-94 (CDM document HVAC-352).

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

BASES

BACKGROUND

The CREACUS provides a protected environment from which operators can control the plant following an uncontrolled release of radioactivity.

The CREACUS consists of two independent, redundant trains that recirculate and filter the control room air. Each CREACUS train consists of emergency air conditioning unit, emergency ventilation air supply unit, emergency isolation dampers, and cooling coils and two cabinet coolers per Unit. Each emergency air conditioning unit includes a prefilter, a high efficiency particulate air (HEPA) filter, an activated carbon adsorber section for removal of gaseous activity (principally iodine), and a fan. A second bank of HEPA filters follows the adsorber section to collect carbon fines. Each emergency ventilation air supply unit includes prefilter, HEPA filter, carbon adsorber and fan. Ductwork, motor-operated dampers, and instrumentation also form part of the system. Air and motor-operated dampers are provided for air volume control and system isolation purposes.

Upon receipt of the actuating signal, normal air supply to the control room is isolated, and the stream of ventilation air is recirculated through the system's filter trains. The prefilters remove any large particles in the air to prevent excessive loading of the HEPA filters and charcoal adsorbers. Continuous operation of each train for at least 15 minutes per month verifies proper system operability.

There are two CREACUS operational modes. Emergency mode is an operational mode when the control room is isolated to protect operational personnel from radioactive exposure through the duration of any one of the postulated limiting faults discussed in Chapter 15 UFSAR (Ref. 2). Isolation mode is an operational mode when the control room is isolated to protect operational personnel from toxic gasses and smoke.

Actuation of the CREACUS places the system into either of two separate states of operation, depending on the initiation signal. Actuation of the system to either the emergency mode or isolation mode of CREACUS operation

(continued)

BACKGROUND (continued)

closes the unfiltered-outside-air intake and unfiltered exhaust dampers, and aligns the system for recirculation of control room air through the redundant trains of HEPA and charcoal filters.

The emergency mode initiates pressurization of the control room. Outside air is added to the air being recirculated from the control room. Pressurization of the control room prevents infiltration of unfiltered air from the surrounding areas of the building.

The control room supply and the outside air supply of the normal control room HVAC are monitored by radiation and toxic-gas detectors respectively. One detector output above the setpoint will cause actuation of the emergency mode or isolation mode as required. The actions of the isolation mode are more restrictive, and will override the actions of the emergency mode of operation. However, toxic gas and radiation events are not considered to occur concurrently.

A single train will pressurize the control room to at least 0.125 inches water gauge, and provides an air exchange rate in excess of 45% per hour. The CREACUS operation in maintaining the control room habitable is discussed in Reference 1.

Redundant recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally-open isolation dampers are arranged in series pairs so that one damper's failure to shut will not result in a breach of isolation. The CREACUS is designed in accordance with Seismic Category I requirements.

The CREACUS is designed to maintain the control room environment for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5-rem whole-body dose.

APPLICABLE SAFETY ANALYSES

The CREACUS components are arranged in redundant safety related ventilation trains. The location of components and ducting within the control room envelope ensures an adequate supply of filtered air to all areas requiring access.

The CREACUS provides airborne radiological protection for the control room operators, as demonstrated by the control

(continued)

APPLICABLE SAFETY ANALYSES (continued)

room accident dose analyses for the most limiting design basis loss of coolant accident fission product release presented in the UFSAR, Chapter 15 (Ref. 2).

Dose calculations, as specified in Unit 2/3 UFSAR (Table 15B-5, Appendix 15B), only take credit for the HEPA filters and charcoal adsorbers of the emergency recirculation air conditioning unit. The emergency ventilation supply unit is credited only with contributing to the pressurization of the control room to 1/8 inch water gauge positive pressure (minimum) to prevent unfiltered inleakage as indicated in Unit 2/3 UFSAR.

The analysis of toxic gas releases demonstrates that the toxicity limits are not exceeded in the control room following a toxic chemical release, as presented in Reference 1.

The worst case single active failure of a component of the CREACUS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The CREACUS satisfies Criterion 3 of the NRC Policy Statement.

LCO

Two independent and redundant trains of the CREACUS are required to be OPERABLE to ensure that at least one is available, assuming that a single failure disables the other train. Total system failure could result in a control room operator receiving a dose in excess of 5 rem in the event of a large radioactive release.

The CREACUS is considered OPERABLE when the individual components necessary to control operator exposure are OPERABLE in both trains. A CREACUS train is considered OPERABLE when the associated:

a. Fan is OPERABLE;

b. HEPA filters and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions; and

c. Ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained. If an Emergency Isolation Damper is stuck open, the associated train of CREACUS may still be considered OPERABLE if the redundant damper in series with the inoperable damper is closed with power removed.

(continued)

BASES (continued)

LCO (continued)

In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

The LCO is modified by a Note allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CREACUS must be OPERABLE to limit operator exposure during and following a DBA.

In MODES 5 and 6, the CREACUS is required to cope with the release from a rupture of a waste gas tank.

During movement of irradiated fuel assemblies, the CREACUS must be OPERABLE to cope with the release from a fuel handling accident.

ACTIONS

ACTION statements are modified by two NOTES. NOTE 1 says: "The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration."

Specification 3.0.4 establishes that entry into an operational mode or other specified condition shall not be made unless the conditions of the LCO are met. Applicability statement "During movement of irradiated fuel assemblies" ensures the OPERABILITY of both CREACUS trains prior to the start of movement of irradiated fuel assemblies.

NOTE 2 says: "Each Unit shall enter applicable ACTIONS separately." CREACUS is a shared system between Unit 2 and Unit 3. LCO doesn't address the operational situation when the Units are in different operational MODES. Without this NOTE it may not be clear what ACTIONS should be taken.

(continued)

BASES (continued)

ACTIONS (continued)

A.1

With one CREACUS train inoperable, action must be taken to restore OPERABLE status within ~~7~~14 days. The 14 day AOT is based on a probabilistic risk assessment that does not require administrative controls to be implemented when a CREACUS train is taken out of service. In this Condition, the remaining OPERABLE CREACUS subsystem is adequate to perform control room radiation protection function.

However, the overall reliability is reduced because a single failure in the OPERABLE CREACUS train could result in loss of CREACUS function. The ~~7~~14 day Completion Time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

B.1

If the control room boundary is inoperable in MODES 1, 2, 3, or 4, the CREACUS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.

C.1 and C.2

If the inoperable CREACUS or control room boundary cannot be restored to OPERABLE status within the associated Completion Time in MODE 1, 2, 3, or 4, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

BASES (continued)

ACTIONS (continued)

D.1, D.2.1, and D.2.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies, if Required Action D.1 cannot be completed within the required Completion Time, the OPERABLE CREACUS train must be immediately placed in the emergency mode of operation. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies to a safe position.

E.1 and E.2

When in MODES 5 or 6, or during movement of irradiated fuel assemblies with two trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room.

This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

F.1

If both CREACUS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable control room boundary (i.e., Condition B), the CREACUS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

Cumulative operation of the system for at least 2 hours over a 31 day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filtes. The 2 hour time frame is based on a conservative engineering evaluation which calculated the time required to evaporate the moisture contained in the air trapped inside the CREACUS duct upstream of charcoal beds. The 31 day Frequency is based on the known reliability of the equipment, and the two train redundancy available.

SR 3.7.11.2

This SR verifies that the required CREACUS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CREACUS filter tests are based on Regulatory Guide 1.52 (Ref. 3). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of theactivated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

The filtration efficiency only apply to the emergency recirculation air conditioning units E418 and E419. Therefore, testing for filtration efficiency is not required for the emergency ventilation supply units A206 and A207.

However, the specified air flow from the emergency ventilation units is required during the filtration efficiency testing of the emergency recirculation air conditioning units. Also, the air flow requirements which are specified in the VFTP apply to the emergency ventilation and emergency air conditioning units.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.11.3

This SR verifies each CREACUS train starts and operates on an acutual or simulated actuation signal. The Frequency of 24 months is consistent with that specified in Reference 3.

SR 3.7.11.4

This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated atmosphere, is periodically tested to verify proper function of the CREACUS. During the emergency radiation state of the emergency mode of operation, the CREACUS is designed to pressurize the control room $\geq$ 0.125 inches water gauge positive pressure with respect to the atmosphere in order to prevent unfiltered inleakage. The CREACUS is designed to maintain this positive pressure with one train.

REFERENCES

1. UFSAR, Section 9.4.

2. UFSAR, Chapter 15.

3. Regulatory Guide 1.52 (Rev. 2).

Attachment H

(Proposed Bases Pages)

(Redline and Strikeout)

SONGS Unit 3

B 3.7 PLANT SYSTEMS

B 3.7.10 Emergency Chilled Water (ECW) System

BASES

BACKGROUND

The ECW System provides a heat sink for the removal of process and operating heat from selected safety related air handling systems during a Design Basis Accident (DBA) or transient.

The ECW System is a closed loop system consisting of two independent trains. Each 100% capacity train includes a heat exchanger, compression tank, pump, chemical addition tank, piping, valves, controls, and instrumentation. An independent 100% capacity emergency chiller cools each train. The ECW System is actuated on a safety injection actuation signal (SIAS), toxic gas isolation signal (TGIS), control room isolation signal (CRIS), or fuel handling isolation signal (FHIS), and supplies chilled water to the heating, ventilation, and air conditioning (HVAC) units in Engineered Safety Feature (ESF) equipment areas (e.g., the main control room, electrical equipment room, and safety injection pump area).

The flow path for the ECW System includes the closed loop of piping to all serviced equipment. During normal operation, the normal HVAC System performs the cooling function of the ECW System. Additional information about the design and operation of the system, along with a list of components served, can be found in the UFSAR, Section 9.4.2 (Ref. 1).

General Requirements for ECWS OPERABILITY

An Emergency Chilled Water (ECW) train is considered OPERABLE when the components required to perform the safety related function are all operable, as follows: chilled water pump, compression tank, piping, valves, heat exchanger, emergency chiller, instrumentation and controls.

If while implementing LCO 3.7.10 Action A due to the inoperability of an ECWS component, a subsequent component failure occurs on the affected Unit(s) in the same ECW train, do not start a second ~~7~~14 day clock. The entire ECW train must be returned to OPERABLE status within the time constraint of the original ~~7~~14 day clock.

(continued)

BASES (continued)

BACKGROUND (continued)

If while implementing LCO 3.7.10 Action A for an inoperable ECW train, the opposite ECW train for the affected Unit(s) becomes inoperable, enter LCO 3.0.3 on the applicable Unit(s).

TS 3.7.10 allows ~~7~~14 days for restoring operability of one ECWS train. The 14 day AOT is based on a probabilistic risk assessment that was done in accordance with the guidance of Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk Informed Decisionmaking: Technical Specifications." The 14 day AOT is implemented in the three-tiered approach. First, the risk of the 14 day AOT is acceptable based on the single AOT risk. Second, administrative controls must be established to ensure that planned maintenance on the normal chilled water system does not coincide with planned maintenance on the ECW system. Third, the SONGS Configuration Risk Management Program (CRMP) program is employed to ensure that risk-significant configurations are identified and managed appropriately per the Maintenance Rule (a)(4). Allowing only one ~~7~~14 day clock even in the case of multiple single train component failures is conservative. This approach prohibits exceeding the intent of the LCO, which is to ensure an ECWS train remains out of service for no more than ~~7~~14 days, regardless of circumstances.

LCO 3.7.10 allows only one ECW train to be inoperable. Therefore, with both trains inoperable, a LCO 3.0.3 entry is required.

An emergency chiller is considered OPERABLE when it is or can be aligned to either Unit's operating or standby OPERABLE Component Cooling Water (CCW) critical loop, provided that the OPERABLE CCW critical loop can be placed in operation within 2 hours after a design basis event is detected in the Control Room. (Reference 2) Thus, an emergency chiller, under normal circumstances, remains OPERABLE during a transfer operation between OPERABLE CCW critical loops completed in less than 2 hours.

Likewise, an emergency chiller is considered OPERABLE when it is aligned to either Unit's energized 4 kV bus. Under normal circumstances, the emergency chiller remains OPERABLE during a transfer operation between 4 kV buses, provided the transfer operation is completed in less than 2 hours.

Room Coolers OPERABILITY, General

If one or more required individual room coolers for a Unit are inoperable and the backup cooling listed in Table 1 for the affected room(s) is also inoperable, OR if the temperature in the affected room(s) increases above its design temperature, declare the safety related equipment in the cooled room(s) inoperable and enter the LCO action

(continued)

BASES (continued)

BACKGROUND (continued)

TABLE 1
Individual Room Coolers

1E COOLER	BACKUP COOLER	EQUIPMENT IN ROOM
ME417	ME414	P017, P015, P012
ME416	ME413	P019, P016, P013
ME517	ME445 (1E)	P018
ME445	ME517 (1E)	P018
ME455	ME448	P026
ME454	ME450 (NON-1E) or ME518	P025
ME518	ME450 (NON-1E) or ME454	P025
ME453	ME449	P024
ME439	RADWASTE FANS: ME433 or ME434 (supply) -AND- MA192 or MA193 (exhaust)	P174
ME440	Same as above for ME439	P175
ME438	Same as above for ME439	P190
ME435	Same as above for ME439	P192
ME436	ME437 (1E) or Same as above for ME439	P191
ME437	ME436 (1E) or Same as above for ME439	P191
ME255	ME430 and MA165, or alternate method	50 ft. swgr
ME257	ME430 and MA165, or alternate method	50 ft. swgr
ME441	ME442 (1E) or FUEL HANDLING BUILDING FANS: MA359 or MA360 (supply) -AND- MA316 or MA317 (exhaust)	P009

(continued)

BASES (continued)

BACKGROUND (continued)

TABLE 1
Individual Room Coolers
(continued)

ME442	ME441 (1E) or FUEL HANDLING BUILDING FANS: as above for ME441	P010

statement(s) for the inoperable equipment in the cooled room(s). See details for specific rooms, below.

If one or more required individual room cooler(s) for a Unit are inoperable, the ECW train for that Unit remains OPERABLE. OPERABILITY of the safety related equipment in the cooled room(s) remains unaffected provided that the backup room cooling listed in Table 1 remains OPERABLE AND provided that the temperature in the affected room(s) remains below its design temperature. Return the individual room cooler(s) to OPERABLE status within ~~7~~14 days while maintaining the temperature in the affected room(s) below its design temperature or enter the applicable action statement for the equipment in the room. Separate entry is allowed for each inoperable emergency room cooler.

For equipment in rooms cooled by only emergency cooling with no normal cooling, redundant emergency coolers are 100% capacity, and are adequate for maintaining the cooled equipment OPERABLE for up to ~~7~~14 days.

It is not prudent to rely on backup cooling for periods longer than the allowed outage time for an ECW train itself. Therefore it is conservative to require restoration of an inoperable room cooler within ~~7~~14 days.

With both emergency and backup room cooling inoperable, safety related equipment does not have the cooling required by the LCO 1.1 definition of OPERABLE.

Table 1 permits normal Radwaste Building ventilation to provide backup cooling for the boric acid makeup pump rooms and the charging pump rooms. This is reasonable because these pumps can be running normally and have no normal room coolers. The same is true for the normal Fuel Handling Building ventilation and the spent fuel pool cooling pumps.

(continued)

BASES (continued)

BACKGROUND (continued)

CREACUS Coolers OPERABILITY

Inability of the ECWS to supply cooling water to CREACUS cooler ME418 or ME419 forces entry into TS 3.7.11 for both Units. Inability to supply Unit 2 cabinet area coolers ME423 or ME424 forces entry into TS 3.7.11 for Unit 2. Inability to supply Unit 3 cabinet area coolers ME426 or ME427 forces entry into TS 3.7.11 for Unit 3.

LCO 3.7.10 does not specifically address individual room coolers. The identification of the Unit applicability for CREACUS coolers is consistent with the function that the coolers provide. The coolers associated with the control room emergency HVAC are covered by TS 3.7.11, and it is not necessary to also apply TS 3.7.10.

Switchgear Room Coolers OPERABILITY

The Unit 2 ESF switchgear emergency room coolers impact both Units because MCCs BQ and BS are physically located inside the respective train ESF switchgear rooms on Unit 2. MCCs BQ and BS provide power to the chilled water pumps and provide chiller control power and can be powered from either Unit.

The applicability of the Unit 3 ESF switchgear emergency room coolers depends on alignment of the associated train power sources for Units 2 and 3 common systems. If the source of power is from Unit 3 then the Unit 3 ESF switchgear cooler impacts common power systems on that train. Therefore, the Unit 3 ESF switchgear emergency room cooler can impact both Units. If all of the common system power sources are from Unit 2, there are no common systems that could be impacted by the inoperable Unit 3 cooler. Therefore, only Unit 3 would be impacted in this case.

The Unit applicability of inoperable Unit 3 ESF switchgear emergency cooler 3ME255 or 3ME257 depends on the Unit providing the power source for common components. The inoperability of either Unit 3 ESF switchgear emergency cooler 3ME255 or 3ME257 affects both Unit 2 and Unit 3 only when emergency chiller(s), Motor Control Center (MCC) BQ, or MCC BS are powered from Unit 3. If Unit 3 does not provide power to any of these components, only Unit 3 is affected.

(continued)

BASES (continued)

BACKGROUND (continued)

The inoperability of either Unit 2 Engineered Safety Feature (ESF) switchgear emergency cooler 2ME255 or 2ME257 affects both Units 2 and 3.

APPLICABLE SAFETY ANALYSES

The design basis of the ECW System is to remove the post accident heat load from ESF spaces following a DBA coincident with a loss of offsite power. Each train provides chilled water to the HVAC units at the design temperature and flow rate.

The maximum heat load in the ESF pump room area occurs during the recirculation phase following a loss of coolant accident. During recirculation, hot fluid from the containment sump is supplied to the high pressure safety injection and containment spray pumps. This heat load to the area atmosphere must be removed by the ECW System to ensure that these pumps remain OPERABLE.

The ECW satisfies Criterion 3 of the NRC Policy Statement.

LCO

Two ECW trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming the worst single failure.

An ECW train is considered OPERABLE when:

a. The associated pump and compression tank are OPERABLE; and

b. The associated piping, valves, heat exchanger, emergency chiller, and instrumentation and controls required to perform the safety related function are OPERABLE.

The isolation of the ECW from other components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ECW System.

(continued)

BASES (continued)

APPLICABILITY

In MODES 1, 2, 3, and 4, the ECW System is required to be OPERABLE when a LOCA or other accident would require ESF operation.

In MODES 5 and 6, potential heat loads are smaller and the probability of accidents requiring the ECW System is low.

ACTIONS

ACTION statements are modified by a Note: "Each Unit shall enter applicable ACTIONS separately." Because the ECW System is shared between Unit 2 and Unit 3, this note clarifies what Action should be taken when the Units are in different MODES.

A.1

If one ECW train is inoperable, action must be taken to restore OPERABLE status within ~~7~~ days. The 14 day AOT is based on a probabilistic risk assessment that requires administrative controls be implemented to ensure that planned maintenance on the normal chilled water system does not coincide with planned maintenance on the ECW system. In this condition, one OPERABLE ECW train is adequate to perform the cooling function. The ~~7~~14 day Completion Time is reasonable, based on the low probability of an event occurring during this time, the 100% capacity OPERABLE ECW train, and the redundant availability of the normal HVAC System.

B.1 and B.2

If the ECW train cannot be restored to OPERABLE status within the associated Completion Time, or two ECW trains are inoperable, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

Verifying the correct alignment for manual, power operated, and automatic valves in the ECW flow path provides assurance that the proper flow paths exist for ECW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1 (continued)

Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.10.2

This SR verifies proper automatic operation of the ECW System components and that the ECW pumps and chillers will start in the event of any accident or transient that generates an SIAS, TGIS, CRIS, or FHIS. The ECW System cannot be fully actuated as part of the SIAS, TGIS, CRIS, or FHIS CHANNEL FUNCTIONAL TESTS during normal operation. The actuation logic for each of these signals is part of their functional tests every 92 days, except for the subgroup relays that actuate the system that cannot be tested during normal unit operation. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on operating experience and design reliability of the equipment.

REFERENCES

1. UFSAR, Section 9.4.2.

2. Memorandum from V. Barone (NEDO) to T. Vogt (OPS), Revision 1, dated 12-22-94 (CDM document HVAC-352)

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Emergency Air Cleanup System (CREACUS)

BASES

BACKGROUND

The CREACUS provides a protected environment from which operators can control the plant following an uncontrolled release of radioactivity.

The CREACUS consists of two independent, redundant trains that recirculate and filter the control room air. Each CREACUS train consists of emergency air conditioning unit, emergency ventilation air supply unit, emergency isolation dampers, and cooling coils and two cabinet coolers per Unit. Each emergency air conditioning unit includes a prefilter, a high efficiency particulate air (HEPA) filter, an activated carbon adsorber section for removal of gaseous activity (principally iodine), and a fan. A second bank of HEPA filters follows the adsorber section to collect carbon fines. Each emergency ventilation air supply unit includes prefilter, HEPA filter, carbon adsorber and fan. Ductwork, motor-operated dampers, and instrumentation also form part of the system. Air and motor-operated dampers are provided for air volume control and system isolation purposes.

Upon receipt of the actuating signal, normal air supply to the control room is isolated, and the stream of ventilation air is recirculated through the system's filter trains. The prefilters remove any large particles in the air to prevent excessive loading of the HEPA filters and charcoal adsorbers. Continuous operation of each train for at least 15 minutes per month verifies proper system operability.

There are two CREACUS operational modes. Emergency mode is an operational mode when the control room is isolated to protect operational personnel from radioactive exposure through the duration of any one of the postulated limiting faults discussed in Chapter 15 UFSAR (Ref. 2). Isolation mode is an operational mode when the control room is isolated to protect operational personnel from toxic gasses and smoke.

Actuation of the CREACUS places the system into either of two separate states of operation, depending on the initiation signal. Actuation of the system to either the emergency mode or isolation mode of CREACUS operation

(continued)

BACKGROUND (continued)

closes the unfiltered-outside-air intake and unfiltered exhaust dampers, and aligns the system for recirculation of control room air through the redundant trains of HEPA and charcoal filters.

The emergency mode initiates pressurization of the control room. Outside air is added to the air being recirculated from the control room. Pressurization of the control room prevents infiltration of unfiltered air from the surrounding areas of the building.

The control room supply and the outside air supply of the normal control room HVAC are monitored by radiation and toxic-gas detectors respectively. One detector output above the setpoint will cause actuation of the emergency mode or isolation mode as required. The actions of the isolation mode are more restrictive, and will override the actions of the emergency mode of operation. However, toxic gas and radiation events are not considered to occur concurrently.

A single train will pressurize the control room to at least 0.125 inches water gauge, and provides an air exchange rate in excess of 45% per hour. The CREACUS operation in maintaining the control room habitable is discussed in Reference 1.

Redundant recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally-open isolation dampers are arranged in series pairs so that one damper's failure to shut will not result in a breach of isolation. The CREACUS is designed in accordance with Seismic Category I requirements.

The CREACUS is designed to maintain the control room environment for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5-rem whole-body dose.

APPLICABLE SAFETY ANALYSES

The CREACUS components are arranged in redundant safety related ventilation trains. The location of components and ducting within the control room envelope ensures an adequate supply of filtered air to all areas requiring access.

The CREACUS provides airborne radiological protection for the control room operators, as demonstrated by the control

(continued)

APPLICABLE SAFETY ANALYSES (continued)

room accident dose analyses for the most limiting design basis loss of coolant accident fission product release presented in the UFSAR, Chapter 15 (Ref. 2).

Dose calculations, as specified in Unit 2/3 UFSAR (Table 15B-5, Appendix 15B), only take credit for the HEPA filters and charcoal adsorbers of the emergency recirculation air conditioning unit. The emergency ventilation supply unit is credited only with contributing to the pressurization of the control room to 1/8 inch water gauge positive pressure (minimum) to prevent unfiltered inleakage as indicated in Unit 2/3 UFSAR.

The analysis of toxic gas releases demonstrates that the toxicity limits are not exceeded in the control room following a toxic chemical release, as presented in Reference 1.

The worst case single active failure of a component of the CREACUS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The CREACUS satisfies Criterion 3 of the NRC Policy Statement.

LCO

Two independent and redundant trains of the CREACUS are required to be OPERABLE to ensure that at least one is available, assuming that a single failure disables the other train. Total system failure could result in a control room operator receiving a dose in excess of 5 rem in the event of a large radioactive release.

The CREACUS is considered OPERABLE when the individual components necessary to control operator exposure are OPERABLE in both trains. A CREACUS train is considered OPERABLE when the associated:

a. Fan is OPERABLE;

b. HEPA filters and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions; and

c. Ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained. If an Emergency Isolation Damper is stuck open, the associated train of CREACUS may still be considered OPERABLE if the redundant damper in series with the inoperable damper is closed with power removed.

(continued)

BASES (continued)

LCO (continued)

In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

The LCO is modified by a Note allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CREACUS must be OPERABLE to limit operator exposure during and following a DBA.

In MODES 5 and 6, the CREACUS is required to cope with the release from a rupture of a waste gas tank.

During movement of irradiated fuel assemblies, the CREACUS must be OPERABLE to cope with the release from a fuel handling accident.

ACTIONS

ACTION statements are modified by two NOTES. NOTE 1 says: "The provisions of LCO 3.0.4 are not applicable when entering MODES 5, 6, or defueled configuration."

Specification 3.0.4 establishes that entry into an operational mode or other specified condition shall not be made unless the conditions of the LCO are met. Applicability statement "During movement of irradiated fuel assemblies" ensures the OPERABILITY of both CREACUS trains prior to the start of movement of irradiated fuel assemblies.

NOTE 2 says: "Each Unit shall enter applicable ACTIONS separately." CREACUS is a shared system between Unit 2 and Unit 3. LCO doesn't address the operational situation when the Units are in different operational MODES. Without this NOTE it may not be clear what ACTIONS should be taken.

(continued)

BASES (continued)

ACTIONS (continued)

A.1

With one CREACUS train inoperable, action must be taken to restore OPERABLE status within ~~7~~14 days. The 14 day AOT is based on a probabilistic risk assessment that does not require administrative controls to be implemented when a CREACUS train is taken out of service. In this Condition, the remaining OPERABLE CREACUS subsystem is adequate to perform control room radiation protection function.

However, the overall reliability is reduced because a single failure in the OPERABLE CREACUS train could result in loss of CREACUS function. The ~~7~~14 day Completion Time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

B.1

If the control room boundary is inoperable in MODES 1, 2, 3, or 4, the CREACUS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.

C.1 and C.2

If the inoperable CREACUS or control room boundary cannot be restored to OPERABLE status within the associated Completion Time in MODE 1, 2, 3, or 4, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

BASES (continued)

ACTIONS (continued)

D.1, D.2.1, and D.2.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies, if Required Action D.1 cannot be completed within the required Completion Time, the OPERABLE CREACUS train must be immediately placed in the emergency mode of operation. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies to a safe position.

E.1 and E.2

When in MODES 5 or 6, or during movement of irradiated fuel assemblies with two trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room.

This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

F.1

If both CREACUS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable control room boundary (i.e., Condition B), the CREACUS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

Cumulative operation of the system for at least 2 hours over a 31 day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filtes. The 2 hour time frame is based on a conservative engineering evaluation which calculated the time required to evaporate the moisture contained in the air trapped inside the CREACUS duct upstream of charcoal beds. The 31 day Frequency is based on the known reliability of the equipment, and the two train redundancy available.

SR 3.7.11.2

This SR verifies that the required CREACUS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CREACUS filter tests are based on Regulatory Guide 1.52 (Ref. 3). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

The filtration efficiency only apply to the emergency recirculation air conditioning units E418 and E419. Therefore, testing for filtration efficiency is not required for the emergency ventilation supply units A206 and A207.

However, the specified air flow from the emergency ventilation units is required during the filtration efficiency testing of the emergency recirculation air conditioning units. Also, the air flow requirements which are specified in the VFTP apply to the emergency ventilation and emergency air conditioning units.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.11.3

This SR verifies each CREACUS train starts and operates on an acutual or simulated actuation signal. The Frequency of 24 months is consistent with that specified in Reference 3.

SR 3.7.11.4

This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated atmosphere, is periodically tested to verify proper function of the CREACUS. During the emergency radiation state of the emergency mode of operation, the CREACUS is designed to pressurize the control room $\geq$ 0.125 inches water gauge positive pressure with respect to the atmosphere in order to prevent unfiltered inleakage. The CREACUS is designed to maintain this positive pressure with one train.

REFERENCES

1. UFSAR, Section 9.4.

2. UFSAR, Chapter 15.

3. Regulatory Guide 1.52 (Rev. 2).