Entergy

Entergy Operations, Inc.
17265 River Road
Killona, LA 70066
Tel 504 739 6660
Fax 504 739 6678

Charles M. Dugger
Vice President, Operations
Waterford 3

W3F1-2000-0057
A4.05
PR

April 27, 2000

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Request for Enforcement Discretion
Technical Specification 3.6.2.2, Containment Fan Coolers

Gentlemen:

This letter provides written documentation to follow-up on Entergy's verbal request on April 26, 2000, regarding enforcement discretion from Waterford 3 Technical Specification (TS) 3.6.2.2 Limiting Condition for Operation. TS 3.6.2.2 requires two trains of Containment Fan Coolers (CFCs) be OPERABLE with two fan coolers in each train in Modes 1 through 4. With one train inoperable, the inoperable train must be restored within 72 hours or the plant must be in HOT STANDBY within the next six hours. Enforcement discretion is requested to allow plant operation to continue with one operable fan cooler per train. This discretion is requested to remain in effect until Waterford 3 Technical Specification Change Request NPF-38-224 is approved or an outage of sufficient duration occurs to accommodate repair of the CFC. Entergy believes that the outage of sufficient duration to accommodate repair of the CFC will be RF10 in the fall of 2000. The TS Change Request was submitted to the NRC Staff on October 18, 1999. As documented in the attached justification, Entergy maintains that granting the requested enforcement discretion does not represent an adverse impact on the public health and safety. The justification for this request has been reviewed by the Plant Operations Review Committee and approved by the General Manager - Plant Operations on April 26, 2000.

A001

Approval of this request for enforcement discretion is requested on or before April 27, 2000, at 2216 hours, in order to preclude a plant shutdown.

This letter does not contain commitments.

Very truly yours,

C.M. Dugger
Vice President, Operations
Waterford 3

CMD/ELL/tmm
Attachments

cc: E.W. Merschoff, NRC Region IV
N. Kalyanam, NRC-NRR
J. Smith
N.S. Reynolds
NRC Resident Inspectors Office

ATTACHMENT 1
TO W3F1-2000-0057

NOTICE OF ENFORCEMENT DISCRETION REQUEST

Notice of Enforcement Discretion (NOED) Request

Entergy used Administrative Letter 95-05, Revision 2, to develop this request for enforcement discretion. Relevant information providing justification for this request is provided below.

Entergy requests the NRC grant discretion in enforcing TS 3.6.2.2, Containment Cooling System (CCS), which requires two trains of Containment Fan Coolers be OPERABLE with two fan coolers in each train in Modes 1 through 4. With one train inoperable, the inoperable train must be restored within 72 hours or the plant must be in HOT STANDBY within the next six hours. Enforcement discretion is requested to allow plant operation to continue with one operable fan cooler per train.

On April 24, 2000, at 2216 hours, Containment Fan Cooler (CFC) "C" tripped following vibration alarms. CFC "C" was declared inoperable and the Action Statement for TS 3.6.2.2 was entered. A containment entry was performed at 0237 hours on April 25, 2000, to visually inspect the fan cooler.

Entergy requests this enforcement discretion remain in effect until Waterford 3 Technical Specification Change Request NPF-38-224 is approved or an outage of sufficient duration occurs to accommodate repair of the CFC. On October 18, 1999, Entergy submitted Technical Specification Change Request NPF-38-224, "Containment Cooling System Reduction in Operable Containment Fan Coolers." The change proposes to revise TS 3.6.2.2 to allow Waterford 3 to operate with two independent trains of containment cooling consisting of one fan cooler per train operable.

1. The TS or other license conditions that will be violated.

The Limiting Condition for Operation (LCO) for Technical Specification (TS) 3.6.2.2, "Containment Cooling System" requires the following:

"*Two independent trains of containment cooling shall be OPERABLE with two fan coolers to each train.*"

On April 24, 2000, at 2216 hours, Waterford 3 entered the Action Statement for the Containment Cooling System LCO (3.6.2.2) due to one fan cooler being declared inoperable. The system allowed outage time (AOT) with one fan cooler inoperable is 72 hours.

Entergy requests enforcement discretion to allow plant operation to continue with one operable fan cooler per train until Waterford 3 Technical

Specification Change Request NPF-38-224 is approved or an outage of sufficient duration occurs to accommodate repair of the CFC.

2. The circumstances surrounding the situation, including root causes, the need for prompt action and identification of any relevant historical events.

The Containment Fan Cooler (CFC) system consists of four fan coolers which draw air from containment and discharge it to a ring header around the top of containment. The CFC coolers are divided into two trains - Train A, which contains CFCs "A" & "C," and Train B, which contains CFCs "B" & "D".

At 2216 hours on April 24, 2000, CFC "C" tripped on overcurrent following vibration alarms. The Action Statement for TS 3.6.2.2 was entered which requires restoration in 72 hours or to be in HOT STANDBY in the next 6 hours. CFC "C" was then entered into the Equipment Out Of Service (EOS) log and Maintenance Action Item (MAI) 416627 was initiated. Waterford 3 Condition Report CR-WF3-2000-0394 was issued to identify the adverse condition.

Following the trip, electricians meggered the motor and checked phase to phase resistances. These checks were all found to be satisfactory.

A containment entry was performed at 0237 hours on April 25, 2000 to visually inspect CFC "C". The following conditions were noted:

1. Hot spots (paint discoloration) were identified at the 2 o'clock and 4 o'clock to 7 o'clock positions where it appeared the fan blades had rubbed against the shroud.
2. The edges of the fan blades appeared to be worn or melted.
3. Lubricant was noted to have leaked out of the motor outboard bearing.
4. The motor/fan base plate bolts could be turned using a wrench.
5. The fan could not be turned by hand due to restrictions caused by the blades rubbing on the shroud.

A team was assembled to investigate the cause of the failure, actions necessary to repair CFC "C", and inspections and testing required on the other three CFCs to provide added assurance that a similar concern does not exist.

After a second containment entry to perform a more detailed inspection of CFC "C", it was determined that an on-line repair was not feasible within the 72 hour LCO Action Statement AOT. The inspection revealed that the fan blades had rubbed against the shroud from the 11 o'clock position to the 9 o'clock position. Four to five blade tips were deformed or worn from contact with the shroud. Lubricant was observed to have leaked out of the motor outboard bearing and collected in the bottom of the shroud. However, the motor/fan base plate bolt torque was determined to be satisfactory because the bolts secure the shroud to its foundation via a vibration and shock control mount (rubber pad).

Following the determination that an on-line repair was not feasible, the team provided recommendations to inspect and test the other three CFCs to provide added assurance that a similar concern did not exist. The following inspections and tests were performed as a result of the recommendations.

Task Description	CFC
1. Conduct EMAX Motor Diagnostic Testing	A, B, D
2. Conduct Vibration Diagnostics & External Inspection	A, B, D
3. Perform Internal Visual Inspection	A

EMAX Motor Diagnostic Testing of CFC "A", "B", & "D"

EMAX testing is used to diagnose the current and power analysis for motors that are energized. The current analysis utilizes three phase simultaneous current measurements to perform rotor bar and eccentricity analysis, in-rush/startup trending, and high frequency spectrum analysis. Eccentricity testing is used to indicate static or dynamic air gap problems.

The Containment Cooling Fan "A", "B", and "D" motors were tested on April 25, 2000 to determine the condition of the motor's air gaps. The results of the eccentricity spectrum for each motor showed no signs of eccentricity problems.

Vibration Diagnostics & External Inspection of CFC "A", "B", & "D"

The vibration readings were taken on the housing of the vane axial fan. This data is not as reliable in determining equipment condition as it would be if the readings were taken directly from the bearing casing. However,

because the bearing casing is inaccessible, the readings were taken on the fan housing. The overall vibration readings taken on CFC "A", "B", and "D" are all operating between 0.10 to 0.18 inches per second (ips). This is about average for the vibration history of the CFCs. The criteria for overall condition rating on vane axial fans designates readings between 0 to 0.150 ips as good, 0.150-0.250 ips as fair, 0.250-0.375 ips as alert, and >0.375 ips as alarm. Based on this it would be accurate to assess the CFCs as operating in the good range in regards to vibration. Another positive indication of the CFCs operating soundly is the fact that the experienced technicians that obtained the vibration data performed a thorough walkdown of the fans paying special attention to any unusual audible noises or other abnormalities. No unusual audible noises or abnormalities were observed.

Internal Visual Inspection of CFC "A"

The results of the internal inspection indicate that the fan is in good condition with no evidence of a bearing problem. The fan rotated freely with adequate clearance observed between the fan blades and shroud. All hardware appeared to be firmly in place with no free play (up/down) detected in the bearing. The following is a list of criteria used to perform the inspection.

A) Look for grease and oil drippings inside housing, under fan/motor, and outside housing. Is the grease dripped or appear to be blown back due to fan airflow?
B) Inspect fan blades and housing. Look for rubbing on housing or damaged blades. Does the damage look recent or old? Is the gap between the blades and housing consistent all the way around? Are there burn marks on the outside of the housing?
C) Inspect motor supports (All Thread Rod). Do the nuts appear to be loose? Are the studs/rods bent or damaged?
D) Inspect grease lines and drains. Are they bent, split, damaged, connected or have plugs installed (i.e. not connected)? Does the drain relief cap open freely, and is there fresh grease inside?
E) Does the fan rotate freely? Is the gap between the fan tip and housing consistent with the fan rotating? Is there any audible indication of bearing wear or damage? Does the rotor turn true or appear to be off center? Can any free play (up/down) in the bearing be felt? Note that the screen was removed from inside the fan housing to complete this task.

Previous Maintenance/Failures

In October of 1988 CFC "C" motor was reconditioned. Approximately 14 months after reconditioning CFC "C", the motor was found to be improperly connected and the fan rotating backwards in slow speed. Note that slow speed is not the normal mode of operation. While correcting the motor connections, the bearing grease drains were observed to have plugs installed. This was also repaired at the same time, by installing new drain lines. In November of 1989 the motor grease lines were cleaned and the grease was changed to use a vendor recommended grease. This work was also performed on CFC "A", "B", and "D". In September 1989 a motor bearing in CFC "A" was replaced due to high vibration.

Recent PM's performed on CFC "C" were as follows:

Description	Frequency	Last Performed
Perform Maintenance on Squirrel Cage	18 months	3/99
Lubricate motors	18 months	3/99
Perform Slow speed Jumper installation	18 months	8/99
Perform ESFAS test per OP-903-029	1 refuel	3/99
Perform Vibration Survey	18 months	3/99

The work history for these PM's has been reviewed on the Work Management System. During Refuel 9 the motor was lubricated, routine motor maintenance was performed, and the vibration survey was satisfactory.

Possible Cause of Failure

Bearing Failure

Bearings in the "C" motor have been in service since 1988 when they were replaced during the motor rebuild due to a motor winding fault (WA-01019107). The bearings in the "A", "B", and "D" motors have been in service since 1989. Bearing replacements for these motors were completed under CI-266031, -266032, -266033. The failure of the "C" motor bearings could have been caused by one of the following:

Misalignment of Motor/Fan Assembly with Housing – failed mounting rods

Misalignment or a shift of the fan blades would cause the blades to rub against the shroud, which could result in bearing failure. Mounting rods were inspected on fan "C" and appeared intact. However, fan blades obstruct the view; therefore, this is not eliminated as a possible fault. The

"A" fan was inspected for the same fault and the view was not obstructed because the motor/fan assembly could be easily rotated by hand. The mounting rods were intact and the motor was rigidly held in place.

Lubrication Fault

Under Lubricated – It is possible that the lubrication injection path is blocked or disconnected which would result in no lubrication being injected into the bearing. This is a viable failure mechanism that will be checked upon motor tear down.

Over Lubricated – This is a viable failure mechanism that will be checked upon motor tear down.

Root Cause Determination

Waterford will utilize its Corrective Action program to determine the root cause. This will include the use of industry data on bearing failures.

3. **The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action. This evaluation should include at least a qualitative risk assessment derived from the licensee's PRA.**

This request for enforcement discretion allows plant operation to continue with one operable fan cooler per train until Waterford 3 Technical Specification Change Request NPF-38-224 is approved or an outage of sufficient duration occurs to accommodate repair of the CFC. This request for enforcement discretion is not safety significant nor does it have any adverse consequences on the plant. This enforcement discretion is needed to prevent an unnecessary plant shutdown. A plant shutdown is a transient that places thermal stress on safety system components and increases the core damage risk by potentially challenging safety systems.

A safety evaluation for operating the plant with one CFC per train is provided below.

This evaluation is based on containment pressure and temperature response analyses performed for the limiting large break Loss of Coolant Accidents (LOCA) and limiting Main Steam Line Break (MSLB) events using the GOTHIC computer code. These analyses have been submitted to NRC for approval in Technical Specification Change Request NPF-38-224. Several LOCA and MSLB events are analyzed using GOTHIC and the Waterford 3 containment model to determine the limiting cases for:

- LOCA containment peak pressure,
- post-LOCA containment pressure at 24 hours,
- MSLB peak containment pressure, and
- MSLB peak containment temperature.

New LOCA and MSLB mass and energy release data are used in the above GOTHIC analyses. The revised mass and energy data are calculated by ABB Combustion Engineering - Nuclear Operations (ABB CE). All LOCA cases are analyzed with both maximum and minimum Safety Injection (SI) flow assumptions. Containment pressure and temperature response for LOCA cases are analyzed assuming a loss of offsite power and failure of one train of the containment heat removal system (CHRS) with one CFC per train operable, i.e., only one containment spray (CS) and one CFC assumed operable, for both minimum and maximum SI flow cases. This is a very conservative assumption for LOCA cases with maximum safety injection flow, since the maximum SI flow assumption precludes a single failure to the power bus that would cause failure of both a CS train and a CCS train, i.e. both emergency diesel generators are assumed operable and therefore a single failure will either be the failure of one CS train or failure of one CFC, but not both.

MSLB events are analyzed for 102%, 75% and 50% power level with the following single failure assumption for each power level:

- failure of one main feedwater isolation valve (MFIV) to isolate;
- failure of one main steam isolation valve (MSIV) to isolate; and
- failure of one containment heat removal system train to operate.

The following provides a description of the LOCA and MSLB containment analyses performed using the GOTHIC code and the new mass and energy release data.

Bases for Loss of Coolant Accident Analysis

Mass and energy release data used in the new Waterford 3 LOCA containment analyses are calculated by ABB/CE using NRC Staff approved methods and are based on the planned Waterford 3 power uprate application conditions. The Waterford 3 power uprate application conditions assume the core power to be 108% of the current rated core power plus 2% uncertainty (1.08 * 3390 * 1.02= 3734.42 Mwt = 3734.42/3390 = 110.16% of rated core power). A qualitative assessment

of the parameters and their values that have a potentially significant impact on the LOCA mass & energy releases and containment response at pre-uprate (102%) and uprate (110.16%) power conditions was performed to justify that the power uprate LOCA bounds the current pre-uprate plant analysis. The assessment compared the parameter values of reactor power, core inlet temperature, reactor coolant system (RCS) flow, steam generator (SG) inventory, pressure, and RCS liquid inventory. It was determined that the reactor power was the primary parameter that would have a significant impact on the post-LOCA mass and energy releases due to significantly more energy being released to the containment at the uprate power conditions. Additionally, Standard Review Plan (SRP) 6.2.1.3 requires the LOCA peak containment pressure analysis to be performed from 102% power, supporting that the results of the LOCA are maximized as the power increases. Therefore, use of the power uprate mass and energy release data for containment analyses was determined to be conservative with respect to the current power level and bounds a similar LOCA at the pre-uprate power conditions of 102%.

Mass and energy release data and containment pressure and temperature response are calculated for the following LOCA break locations:

- Double Ended Discharge Leg Slot Break (DEDLSB)
- Double Ended Suction Leg Slot Break (DESLSB)
- Double Ended Hot Leg Slot Break (DEHLSB)

The above LOCA break spectrum is similar to the current Waterford 3 LOCA spectrum used for LOCA peak containment pressure and temperature analysis.

The CFCs on train "B" are located at an elevation in the containment where a small portion of the bottom cooling coils may become partially flooded with the SI sump water. The limiting long term post-LOCA containment pressure case is analyzed with a reduced CFC heat removal rate to account for partial flooding of the CFC. This CFC flooding effect is only a concern for the long term post-LOCA containment pressure, i.e., pressure at 24 hours, since the CFC will not be flooded at the time of peak containment pressure for LOCA or MSLB.

LOCA Results

The limiting LOCA for containment peak pressure was determined to be the DEHLSB. The peak pressure for the hot leg break occurs near the end of the blowdown phase, which is prior to the start of safety injection flow; start of CFC operation; and start of containment spray flow into the

containment. The calculated peak containment pressure was 35.2 psig which is well below the containment design pressure of 44 psig. The current UFSAR Chapter 15 analysis determined that the DESLSB with minimum safety injection flow assumption was the limiting LOCA for containment peak pressure with pressure of 43.1 psig that occurs during reflood. The difference between the new and old results is due primarily to the new mass and energy data, which shows a lower mass and energy into containment during the reflood time period.

The limiting LOCA for containment pressure at 24 hours was determined to be the DEDLSB with minimum safety injection flow assumption. This case is analyzed assuming one CS train and one CFC is operable. The operable CFC is assumed to be the Train "B" CFC located at the lowest elevation and partially flooded. The current UFSAR Chapter 15 analysis determined that the DESLSB with assumptions of maximum safety injection flow and the operation of one train of CHRS consisting of one containment spray train and two CFCs was the limiting LOCA for containment pressure at 24 hours.

The peak containment pressure for this case was calculated to be 33.27 psig. Thus, the containment pressure at 24 hours must be reduced to less than half the containment peak pressure or 16.64 psig. The containment pressure at 24 hours was calculated to be 15.5 psig, which is, less than half the associated containment peak pressure.

Bases for Main Steam Line Break Analysis

Mass and energy release data used in the MSLB containment analyses are calculated by ABB/CE using NRC Staff approved methods and are based on a pre-power uprate power level. The new MSLB mass and energy release data are obtained by using a MSIV closure time of 8 seconds (7 second MSIV closure time plus 1 second for signal delay) versus the current mass and energy release data that are based on a 5 second (4 second MSIV closure time plus 1 second for signal delay) MSIV closure time. This change accounts for the slower MSIV movement during accident conditions due to differential pressure forces across the valve. Mass and energy release data and containment pressure response for MSLB events are calculated for an initial reactor power level of 102%, 75% and 50% of the current rated thermal power. MSLB events are calculated considering the same single failures as the current licensing analysis.

These analyses are similar to the current Waterford 3 MSLB spectrum analyses except the current spectrum includes MSLB from 25% and 0% power level. However, the experience and the results of the new analyses have demonstrated that the higher power level results in a more severe containment pressure and temperature response. Therefore, the MSLB event from 25% and 0% power were not included in the new analyses.

MSLB Results

The limiting MSLB event for containment peak pressure was determined to be a MSLB from 102% power with failure of one containment heat removal train consisting of one CS pump and one CFC operable. The calculated peak containment pressure was 42.68 psig, which is below the containment design pressure of 44 psig. The current UFSAR licensing analysis determined that the limiting MSLB event was MSLB from 75% power with the failure of one train of CHRS consisting of one CS train and two operable CFCs with a peak pressure of 42.9 psig.

The limiting event for containment peak temperature (EQ case) was determined to be MSLB from 102% power with the failure of one MSIV to close. Mass and energy release data for this case are generated considering steam superheating upon uncovering of the SG tubes to maximize containment temperature. The EQ case is allowed to credit 8% re-evaporation of the condensate from the passive heat sinks in the containment (NUREG 0588, Appendix B, Page IIB-1). The re-evaporation assumption results in cooldown of the containment vapor region and in turn results in a lower containment pressure and temperature. However, this case has been conservatively evaluated without including the 8% re-evaporation. The calculated peak containment temperature was 397.4 °F, which is less than the current maximum allowed temperature of 413.5 °F. The current UFSAR licensing analysis determined that the containment peak temperature analysis results from a MSLB from 102% with both CFCs per train operable and the failure of one train of CS.

The major differences between the new analyses and the UFSAR analyses (LOCA and MSLB) include: (1) the UFSAR analyses assume two CFCs per train are operable, but the new analyses assume only one CFC per train is operable; (2) the new analyses use the new mass and energy release data calculated by ABB/CE, and (3) the different values used for initial containment temperature, Component Cooling Water (CCW) temperature, CCW flow, and initial CS riser level.

The initial containment temperature, CCW flow, and initial CS riser level used in the new analyses are the values provided in the Waterford 3 Technical Specifications. The CCW design temperature is 115 °F. CCW is the cooling medium for CFCs and CS heat exchanger in the recirculation mode.

The values used in the UFSAR analyses include uncertainties associated with measurement of these parameters. However, the new analyses do not explicitly include the measurement uncertainties associated with the parameters specified above. This is reasonable because of the very large margin available between the design pressure and the actual failure pressure of containment. Containment performance studies used in Individual Plant Examinations show that the containment failure pressure is typically at least 2 to 3 times greater than the design pressure. The slight potential increase in calculated containment pressure that might occur if all parameter values were simultaneously at their worst case greatest uncertainty range is very small compared to this margin to failure.

The impact of these uncertainties on the calculated peak containment pressure was determined to be about 0.6 psia for the limiting steam line break analysis. The latest containment failure probability versus pressure curve from the Waterford 3 Probabilistic Risk Assessment (PRA) model was used to determine the change in failure probability for a 0.6 psi increase in pressure from 44 to 44.6 psig. This delta failure probability was then multiplied by the initiating event frequency of a large break LOCA or steam line break, the probability that the measured parameter was at its maximum worst case uncertainty (0.05; assuming that the entire 0.6 psia impact was due to a single parameter) and the probability of single failure of a CS train assumed in the limiting design basis analysis. This results in a change in containment failure probability of less than 1E-11. Thus, using nominal TS values without uncertainty for these parameters in the containment pressure analysis is clearly not risk significant.

Also note that the limiting events for LOCA and MSLB for the new analyses are different than the UFSAR limiting events. The change in the limiting events has been determined to be due to differences in the new and old mass and energy release data. The differences in new and old mass and energy data are due to improvements in the new NRC Staff approved analysis codes and assumptions.

PRA Considerations

In the Waterford 3 PRA model, containment fan coolers provide cooling for the containment to prevent a long term overpressurization failure.

Analyses were done to show that one fan cooler or one containment spray train was adequate to remove sufficient heat to prevent containment overpressure failure. The impact on containment failure probability due to one CFC being inoperable is negligible. The probability of failure for all containment cooling (both spray trains and all fan coolers) was calculated to be 1.9E-4. This is dominated by failures of common support systems, such as electrical power or component cooling water. These support system failures are not affected by the inoperability of one CFC. Cutsets with individual CFC failures that would be affected are below 1E-9 and therefore have only a negligible impact on containment failure probability.

The impact of CFC failures on the core damage frequency during a LOCA (containment overpressurization failure resulting in rapid depressurization of the containment and cavitation of the operating safety injection recirculation) is extremely low, about 1E-11, and is also negligible.

Startup Considerations

In the event that Waterford 3 were required to shutdown before the approval of the TS Change Request there would be no affect on either safety significance or risk consequences starting the plant with one cooler per train of CCS. The consequences of a transient occurring during startup would be bounded by those at 100% power operation.

4. The basis for the licensee's conclusion that the noncompliance will not be of potential detriment to the public health and safety and that neither an unreviewed safety question nor a significant hazard consideration is involved.

This request for enforcement discretion allows plant operation to continue with one operable fan cooler per train until Waterford 3 Technical Specification Change Request NPF-38-224 is approved or an outage of sufficient duration occurs to accommodate repair of the CFC.

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

a. Will the operation of the facility in accordance with these proposed changes involve a significant increase in the probability or consequence of an accident previously evaluated?

Response:

The proposed change reduces the number of Containment Fan Coolers (CFC) from two to one required to be operable in each train of the CCS for Modes 1, 2, 3, and 4. This change does not create any new system interactions and has no impact on operation or function of any system or equipment in a way that could cause an accident. The CFCs are not an initiator of any events nor affect any accident initiators of any events analyzed in Chapter 15 of the UFSAR. Therefore this change will not impact the probability of occurrence of an accident.

The results of the reanalysis of the limiting LOCA and MSLB accidents show that the consequences of an accident previously evaluated are not increased by the change in the required number of operable CFCs. The limiting accidents affected by the proposed changes are identified below:

- The peak containment pressure following the limiting LOCA (DEHLSB with minimum safety injection flow) was determined to be 35.2 psig which is less than the containment design pressure of 44 psig.
- The peak containment pressure at 24 hours following the start of the limiting LOCA (DEDLSB with minimum safety injection flow) was determined to be 15.5 psig which is less than half of the peak pressure for this LOCA.
- The peak containment pressure following the limiting MSLB (102% power with failure of one containment heat removal train consisting of one containment spray pump and one CFC operable) was determined to be 42.68 psig which is less than the containment design pressure of 44 psig.
- The peak containment equipment qualification (EQ) temperature following the limiting MSLB (102% power with the failure of one MSIV to close) was determined to be 397.4°F which is less than the current EQ limit of 413.5 °F

The values above demonstrate that the containment design basis pressure and equipment qualification temperature of 44 psig and 413.5 °F, respectively, are not exceeded and the containment pressure at 24 hours after start of the limiting LOCA is less than 50% of the peak pressure.

The results of the containment response analysis discussed above satisfy the following NRC Staff SRP section 6.2.1.1 acceptance criteria for a PWR dry containment:

- The peak calculated containment pressure following a LOCA or MSLB should be less than the containment design pressure.

- To satisfy the requirements of General Design Criteria (GDC) 38 to rapidly reduce the containment pressure, the containment pressure should be reduced to less than 50% of the peak calculated pressure for the design basis LOCA within 24 hours after the postulated accident.

Thus, allowance to require only one operable CFC per train results in acceptable containment response and therefore, will not adversely impact the consequences of accidents previously evaluated.

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

b. Will the operation of the facility in accordance with these proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response:

The proposed change to reduce the number of required operable CFCs from two to one in each train of the CCS for Modes 1, 2, 3, and 4 does not alter the operation of the CFCs. Although only one of the two CFCs per train is required to be operable, the manner in which the CFCs perform their safety function is not changed. All four CFCs (two per train) will be maintained operable to the extent possible to provide the greatest defense in depth and operating flexibility. This proposed change does not involve a change in plant design, nor does it involve any potential initiating events that would create any new or different kind of accident. This proposed change does not alter the way in which the plant is operated. Therefore, since no hardware modifications will be made, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

c. Will the operation of the facility in accordance with these proposed changes involve a significant reduction in a margin of safety?

Response:

This change revises the required number of operable fan coolers from two fan coolers per train to one fan cooler per train. As described in the

containment depressurization and cooling system TS Bases, the containment cooling system is designed to maintain the post accident containment peak pressure below its design value of 44 psig. The system is also designed to reduce the containment pressure by a factor of 2 from its post-accident peak within 24 hours.

- The analyses that have been performed to support this Technical Specification change have shown that the peak containment pressure remains below 44 psig, the 24-hour containment pressure is less than half the peak pressure, and the containment peak temperature remains below the maximum temperature of 413.5°F provided in the Bases for Technical Specifications 3.6.2.1 and 3.6.2.2.

This proposed change does not adversely impact a margin of safety, involve a change in plant design, or have any affect on the plant protective barriers. Therefore, the proposed change will not involve a significant reduction in the margin of safety.

Safety and No Significant Hazards Consideration Determination

Based on the above review, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10 CFR 50.92; and (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

- This condition was determined to require a change to the Technical Specifications. As a result, evaluation under 10 CFR 50.59 is not appropriate.

5. The basis for the licensee's conclusion that the noncompliance will not involve adverse consequences to the environment.

The requested enforcement discretion does not adversely affect normal operation of the unit and does not adversely affect any accident analysis results. Operation within the enforcement discretion will not involve any change in the types or amounts of effluents that may be released offsite and no increase in the individual or cumulative occupational radiation exposure. Therefore, this request for enforcement discretion does not involve any adverse environmental consequences.

6. Any proposed compensatory measure(s).

No long term compensatory actions are required. In response to the unexpected failure of CFC "C", Entergy has determined that the failure is an isolated event. Continued operation with one fan cooler per train is acceptable from a safety standpoint. Investigation has determined that CFCs "A", "B", and "D" are currently operable and capable of fulfilling their intended safety function.

Additionally, Technical Specification Surveillance 4.6.1.5 states three temperature inputs from the four containment fan coolers shall be used to calculate the arithmetical average of containment temperature. The TS does not require operation of the associated fan. Procedure OP-903-001 requires that the inlet temperatures to the three running containment cooling fans be used to calculate the arithmetical average of containment temperature for Technical Specification Surveillance 4.6.1.5. Therefore, there are no compensatory actions required due to one fan being inoperable based on the procedural requirement to use the input from the three running fans. Changes to the plant procedure will be addressed.

7. The justification for the duration of the noncompliance.

The duration for this NOED is until Waterford 3 Technical Specification Change Request NPF-38-224 is approved or an outage of sufficient duration occurs to accommodate repair of the CFC, which should be RF10 in the fall of 2000.

By letter W3F1-99-0156, dated October 18, 1999, Entergy submitted Technical Specification Change Request NPF-38-224 for NRC review and approval. The proposed change modifies TS 3.6.2.2 to allow Waterford 3 to operate with two independent trains of containment cooling, consisting of one fan cooler per train, operable during Modes 1, 2, 3, and 4. With the approval of that TS Change Request, Waterford 3 will no longer be in the Action Statement for TS 3.6.2.2 as both trains of CFC will be operable. The justification for the duration is the negligible risk significance of operating with only one fan cooler operable per CCS train as compared with the risk associated with potential undesirable transients as a result of complying with the current TS requirement to shutdown the plant.

8. A statement that the request has been approved by the facility organization that normally reviews safety issues (Plant Onsite Review Committee, or its equivalent).

This request for enforcement discretion was reviewed by the Plant Operations Review Committee and approved by the General Manager Plant Operations on April 26, 2000.

9. **The request must specifically address how one of the NOED criteria for appropriate plant conditions specified in Section B is satisfied.**

This NOED is intended to avoid an undesirable transient as a result of forcing compliance with the TS as currently written and, thus, minimize potential safety consequences and operational risks.

Without approval of this enforcement discretion, a plant shutdown will be required. A plant shutdown is a transient that places thermal stress on RCS components and increases the potential for plant upset that challenges safety systems.

10. **If a follow-up license amendment is required, the NOED request must include marked-up TS pages showing the proposed TS changes. The actual license amendment request must follow within 48 hours.**

Entergy submitted a TS change request on October 18, 1999. This proposed TS change requested modification of TS 3.6.2.2 Limiting Condition for Operation (LCO) to allow Waterford 3 to operate with two independent trains of containment cooling consisting of one fan cooler per train, operable during Modes 1, 2, 3, and 4. A copy of the marked-up TS pages are attached to this request for enforcement discretion.

11. **For NOEDs involving severe weather or other natural events... acceptability of any increased radiological risk to the public and the overall public benefit.**

There are no severe weather or other natural events associated with this NOED request.

ATTACHMENT 2
TO W3F1-2000-0057

MARKED-UP TS PAGES

CONTAINMENT SYSTEMS

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent trains of containment cooling shall be OPERABLE with ~~two~~ one fan ~~coolers~~ cooler to each train.

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

ACTION:

With one train of containment cooling inoperable, restore the inoperable train to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable containment cooling train to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each train of containment cooling shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Starting each operational fan not already running from the control room and verifying that each operational fan operates for at least 15 minutes.

2. Verifying a cooling water flow rate of greater than or equal to 625 gpm to each cooler.

b. At least once per 18 months by:

1. Verifying that each fan starts automatically on an SIAS test signal.

2. Verifying a cooling water flow rate of greater than or equal to 1200 gpm to each cooler.

3. Verifying that each cooling water control valve actuates to its full open position on a SIAS test signal.

3/4.6.1.7 CONTAINMENT VENTILATION SYSTEM (Continued)

Leakage integrity tests with a maximum allowable leakage rate for purge supply and exhaust isolation valves will provide early indication of resilient material seal degradation and will allow the opportunity for repair before gross leakage failure develops. The 0.60 La leakage limit shall not be exceeded when the leakage rates determined by the leakage integrity tests of these valves are added to the previously determined total for all valves and penetrations subject to Type B and C tests.

Operability concerns for purge supply and exhaust isolation valves other than those addressed in Actions "a" and "b" of Specification 3.6.1.7 are addressed under Specification 3.6.3, "Containment Isolation Valves."

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 and 3/4.6.2.2 CONTAINMENT SPRAY SYSTEM and CONTAINMENT COOLING SYSTEM

The OPERABILITY of the Containment Spray System and the Containment Cooling System ensures that containment depressurization and cooling capability will be available in the event of a LOCA or MSLB for any double-ended break of the largest reactor coolant pipe or main steam line. Under post-accident conditions these systems will maintain the containment pressure below 44 psig and temperatures below 269.3°F during LOCA conditions or 413.5°F during MSLB conditions. The systems also reduce the containment pressure by a factor of 2 from its post-accident peak within 24 hours, resulting in lower containment leakage rates and lower offsite dose rates.

The Containment Spray System also provides a mechanism for removing iodine from the containment atmosphere under post-LOCA conditions to maintain doses in accordance with 10 CFR Part 100 limits as described in Section 6.5.2 of the FSAR.

In MODE 4 when shutdown cooling is placed in operation, the Containment Spray System is realigned in order to allow isolation of the spray headers. This is necessary to avoid a single failure of the spray header isolation valve causing Reactor Coolant System depressurization and inadvertent spraying of the containment. To allow for this realignment, the Containment Spray System may be taken out-of-service when RCS pressure is ≤ 400 psia. At this reduced RCS pressure and the reduced temperature associated with entry into MODE 4, the probability and consequences of a LOCA or MSLB are greatly reduced. The Containment Cooling System is required OPERABLE in MODE 4 and is available to provide depressurization and cooling capability.

INSERT 1

~~A train of Containment Cooling consists of two fans (powered from the same safety bus) and their associated coolers (supplied from the same cooling water loop). One Containment Cooling train and Containment Spray train has sufficient capacity to meet post accident heat removal requirements.~~

Operating each containment cooling train fan unit for 15 minutes and verifying a cooling water flow rate of 625 gpm ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected and corrective action taken.

~~Revised by NRC Letter dated March 17, 1999~~

INSERT 1

The Containment Cooling System consists of two redundant trains and is designed such that a single failure does not degrade the systems' ability to provide the required heat removal capability. A train of Containment Cooling consists of two fans (powered from the same safety bus) and their associated coolers (supplied from the same cooling water loop). An operable train of containment cooling consists of one of the two fans and its associated cooler. One Containment Cooling train, consisting of one fan and its associated cooler, and a Containment Spray train has sufficient capacity to meet post accident heat removal requirements and maintain containment temperatures and pressures below the design values.