NRC FORM 366 (4-95)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 2	05000237	

TITLE (4)
Update to Post-LOCA Temperature in the Secondary Containment higher than values used for the Environmental Qualification of Electrical Equipment Due to Original Design Error

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									Dresden Unit 3	05000249
01	07	98	98	001	01	06	29	98	FACILITY NAME: N/A	DOCKET NUMBER: 05000

OPERATING MODE (9)	1 (1)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)							
			20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
POWER LEVEL (10)	100 (100)		20.2203(a)(2)(i)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.405(a)(1)(ii)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Joseph Reda, Design Engineer	(815) 942-2920 ext 3081

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i. e., approximately 15 single-spaced typewritten lines) **(16)**

The design basis calculation for the development of the post-Loss of Coolant Accident (LOCA) temperatures for the Dresden Unit 2 and 3 Reactor Building (RB - secondary containment) Environmental Qualification (EQ) zones could not be located and new calculations were performed to validate the post-LOCA EQ zone temperatures. The calculated post-LOCA temperatures in the reactor building were higher than the values listed in the Dresden Updated Safety Analysis Report (UFSAR) Section 3.11, "Environmental Qualification of Electrical Equipment". Those higher temperatures impacted the environmental qualification of equipment located in the general areas of the reactor building that need to perform safety functions during DBA/LOCA, the ability of the electrical protective devices located in the general areas of both the LOCA and the non-LOCA units to perform their intended function as designed, and the setpoints of instruments located in the general areas of both the LOCA and the non-LOCA units. An operability determination based on 125 degrees F post-LOCA temperature found all affected components to be operable on a short term basis until April 20, 1998. Prior to April 20, the temperature calculation was revised based on building and outside ambient design conditions and the compensatory actions then in place. That revised calculation resulted in a maximum general floor area temperature of 139 degrees F. Engineering analyses and testing of components required for safe shutdown found that equipment would operate satisfactorily in the higher temperature environment, except for certain thermal overload (TOL) heaters in key relays. Those TOL heaters were replaced.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Dresden Nuclear Power Station, Unit 2	05000237	98	001	01	2 OF 10

TEXT *(If more space is required, use additional copies of NRC Form 366A) (17)*

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power

Energy Industry Identification System (EIIS) Codes are identified in the text as [XX] and are obtained from IEEE Standard 805-1984, IEEE Recommended Practice for System Identification in Nuclear Power Plants and Related Facilities.

EVENT IDENTIFICATION:

The calculated post-LOCA environmental temperatures in the Reactor Building (Secondary Containment) in both LOCA and non-LOCA unit are higher than the values in the Updated Safety Analysis Report (UFSAR) Section 3.11, "Environmental Qualification of Electrical Equipment." This occurred due to an original design error in the development of the post-LOCA temperatures for the EQ zones in 1980.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2(3) Event Date: 1-7-98 Event Time: 1245 CST

Reactor Mode: 1(1) Mode Name: Run(Run) Power Level: 100(100)

Reactor Coolant System Pressure: 999(996) psig

No systems or components were inoperable at the start of this event which contributed to the event.

B. DESCRIPTION OF EVENT:

This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(ii)(A) which requires the reporting of any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly compromised plant safety.

The post-LOCA temperatures for the general areas of the reactor building listed in the UFSAR Section 3.11 is 104 degrees F. During a recent review, a Design Engineer became concerned that the 104 degrees F temperature may be too low. Dresden documentation was searched to locate the original design basis calculation and none was found. A calculation to determine the reactor building post-LOCA temperature was prepared and an independent review of this calculation was completed. The calculated maximum post-LOCA temperatures in the general areas of the reactor building varied from 121 degrees F to 152 degrees F for both the LOCA and the non-LOCA units. The Reactor Building Temperature calculations conservatively considered a LOCA without LOOP. A LOCA concurrent with LOOP should result in lower temperatures in the general areas of the reactor building, provided fuel pool cooling is restored.

Various components located in the reactor building that are required to perform post-LOCA safety function and to allow the non-LOCA unit to achieve and maintain cold shutdown are affected by the higher temperatures in the general areas of the reactor building. These include ECCS equipment, reactor protection instrumentation, MOV's, motor control centers, reactor instrumentation, and similar equipment. The higher temperatures in the general areas of the reactor building may affect the environmental qualification of equipment that need to perform safety functions during DBA/LOCA, the ability of the electrical protective devices in both the LOCA and the non-LOCA units to perform their intended functions as designed, and setpoints of instruments in both the LOCA and the non-LOCA units. In summary, mitigating the consequences of a LOCA and bringing the LOCA unit to safe shutdown, meeting the GDC criteria 19 requirements limiting the control room operator dose, meeting the off site dose requirement per 10 CFR 100, and achieving and maintaining cold shutdown of the non-LOCA unit may be affected by the higher post-LOCA temperatures in the reactor building of both LOCA and non-LOCA units.

A sensitivity analysis was performed to identify compensatory measures that could lower the post accident temperatures in the reactor building. Based on the sensitivity analysis, compensatory actions were taken to minimize the post accident temperatures in the reactor building. As a result of the compensatory actions and the low outside ambient temperatures at that time, the calculated maximum post-LOCA temperatures in the general areas of the reactor building were determined to be 125 degrees F for both the LOCA and the non-LOCA units. Based on historical environmental conditions and the compensatory actions, an operability evaluation found all affected components were operable on a short term basis until April 20,1998.

Since those initial steady state analyses were performed, and prior to April 20, additional evaluations have been made to determine reactor building temperatures during warmer weather (plant design conditions). Using station design temperature data and conservative input parameters, an analysis concluded the maximum general floor area temperature would be 139 degrees F. All engineering calculations and analyses prepared to support continued dual unit operation used this temperature or floor-specific values generated by the same analysis. It was determined that necessary equipment will also operate at those higher temperatures, provided certain components (thermal overload heaters) were replaced. Those replacements in relays required for safe shutdown were completed.

C. CAUSE OF EVENT:

The cause of this event is original design error in the development of the post-LOCA temperatures for the EQ zones in 1980. The post-LOCA temperatures in the EQ zones with LOCA heat sources were based on normal EQ zone temperatures and the LOCA heat load. The post-LOCA temperatures in EQ zones without LOCA heat sources were assumed to be the same as the normal EQ zone temperatures. The main cause of the event is ignoring the slow build up of temperatures in the reactor building due to the combined effect of loss of ventilation due to the post-LOCA isolation of the secondary containment and heat load generated in the reactor building due to operating equipment and lighting. The significance of the above heat build up was not understood when the post-LOCA temperatures for the EQ Zones were determined. Ignoring the heat load from one EQ zone to the other due to conduction through walls was a contributing factor. (NRC Cause Code: A)

D. SAFETY ANALYSIS

During post-LOCA, the Reactor Building (RB) HVAC is isolated, the RB isolation dampers are closed, the ventilation fans are shut down, and the Standby Gas Treatment System (SBGTS) is activated. The SBGTS is designed to maintain negative pressure in the secondary containment. The heat removed by the SBGTS and the heat loss through the building walls are less than the heat generated by the equipment and lighting. The net addition of heat into the secondary containment due to the loss of reactor building ventilation results in long term heat build-up in the reactor building.

The post-LOCA temperature in the general areas of the reactor building listed in the UFSAR Section 3.11 is 104 degrees F. The maximum temperatures in the general areas of the reactor building from the initial calculation varied from 121 degrees F to 152 degrees F for both the LOCA and the non-LOCA units. That calculation was based on maximum 30-day average outside ambient temperatures. If the outside temperatures are lower, the maximum post-LOCA temperature in the reactor building will be lower. The reactor building temperature calculations conservatively considered a LOCA without LOOP. If LOCA concurrent with LOOP is used in the calculation, the resulting post-LOCA temperatures in the reactor building will be lower, as long as fuel pool cooling is restored.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Dresden Nuclear Power Station, Unit 2	05000237	98	001	01	4 OF 10

TEXT *(If more space is required, use additional copies of NRC Form 366A) (17)*

A sensitivity analysis was performed to identify factors that could lower the post accident temperatures and the following were found to lower the post-LOCA temperature in the general area of the reactor building:

Using lower outside temperature will result in lower temperature build up in the reactor building. Based on historical data, the maximum average dry bulb temperature of 68 degrees F for 30 days is representative for the month of May and average dry bulb temperature of 44 degrees F for 30 days is representative for the month of March. The average outside dry bulb temperature for 30 days of 44 degrees F was used to demonstrate short-term operability until Feb. 21, 1998 and average outside dry bulb temperature for 30 days of 68 degrees F was used to demonstrate short-term operability until April 20, 1998.

The tarpaulin used to close equipment hatches at 613 level of the reactor building must be removed to increase natural convective air flow in the reactor building and increase the heat loss through the reactor building roof (the tarpaulin can only be installed during a refueling outage for the unit which is in refueling only).

The non-LOCA unit should commence shutdown within 12 hours after the LOCA and be in cold shut down within 20 hours post-LOCA and reduce heat load due to equipment in the non-LOCA unit.

The initial reactor building temperature should be maintained at less than or equal to 98 degrees F prior to the accident to increase the time required to reach maximum temperatures in the reactor building.

Only one shut down cooling pump should be used in the non-LOCA unit to reduce the heat load

Shut down the Reactor Water Clean-Up system in the non-LOCA unit within 2 hours after the LOCA.

Limit the number of fuel pool cooling pumps operated in the LOCA and non-LOCA units to one per unit within 2 hours after the LOCA and thus reduce the heat load into the non-LOCA unit Reactor Building.

The South Turbine Building roll up doors should be opened (if the turbine building ventilation is not operating) within 12 hours after the LOCA to increase the heat loss from the Reactor Building through the Reactor Building/Turbine Building wall.

With the outside average dry bulb temperature of 44 degrees F for 30 days and all of the above compensatory actions in place, the maximum post-LOCA temperature in the general area of the reactor building will be 125 degrees F in both the LOCA and the non-LOCA units. When the outside average dry bulb temperature for 30 days is greater than 44 degrees F and less than 68 degrees F, the lights in the reactor building must also be turned off within 48 hours of LOCA to limit the maximum post-LOCA temperature in the reactor building to 125 degrees F.

Subsequent to the initial operability evaluation, and prior to April 20, engineering analyses were performed without the restriction on initial reactor building temperature (design conditions of 105 degrees F were used) or outside ambient temperature. In addition, a new compensatory action was found to be required. This action involves ensuring fuel pool cooling is restored if it is lost following a LOOP. Although fuel pool cooling would be available on the opposite unit, it is still important to overall building temperatures to ensure fuel pool cooling is restored in the event of a LOCA/ LOOP on one unit. A new compensatory action has been added to station emergency procedures to restore fuel pool cooling within 12 hours of the LOCA/ LOOP. This analysis allows for continued dual unit operation without outside temperature restrictions.

Various components located in the Reactor Building that are required to perform post-LOCA safety functions and to allow the non-LOCA unit to achieve and maintain cold shutdown were evaluated for the higher temperatures in the general areas of the reactor building. All equipment needed to perform the following safety functions were included in the evaluation:

- To mitigate the consequences of LOCA and bring the LOCA unit to safe shutdown
- To meet the GDC criteria 19 requirements limiting the control room operator dose
- To meet the off-site dose requirement per 10 CFR 100
- To achieve and maintain cold shutdown of the non-LOCA unit

In summary, various components such as ECCS equipment, reactor protection instrumentation, MOV's, motor control centers (AC & 250 VDC), reactor instrumentation (vessel level, pressure, etc.) are affected. The UFSAR Sections 3.11 and 10 CFR 50.49 (EQ) licensing basis are affected by the higher temperatures in the reactor building and failure of equipment to operate at elevated temperatures could have resulted in unmonitored release in excess of 10 CFR 100 limits.

The higher temperatures in the reactor building affect the environmental qualification of equipment located on the general areas of the reactor building of both the LOCA and the non-LOCA units that need to perform safety functions during DBA/LOCA, the ability of the electrical protective devices that are located in the general areas of the reactor building of both the LOCA and the non-LOCA units to perform their intended function as designed and the instrument setpoints of instruments that are located on the general areas of the reactor building of both the LOCA and the non-LOCA units. The evaluation of the affected components in the LOCA and non-LOCA units for reactor building general area temperature of 139 degrees F is presented below:

Environmental qualification

A calculation was performed to evaluate the ability of equipment needed to safely shutdown the LOCA unit and to bring the non-LOCA units to cold shutdown in the higher temperature environment. This evaluation covers all Class 1E and Reg Guide 1.97 Category 1 and 2 equipment located in the Reactor Building that is required to safely shutdown both units. Additionally, this evaluation addresses electrical equipment located in the SDC and RWCU Heat Exchanger Rooms as well as non-safety related equipment in the fuel pool cooling and RBCCW systems and certain equipment that might be needed for use post-LOCA. The calculation provides documented evidence that the subject equipment will perform its safety functions at the postulated elevated temperatures.

Electrical Protective Devices

The electrical power protective devices and instrument setpoints temperature compensation factor may not be affected because sufficient margin may be available in the calculations and the vendor data. Assessment of the equipment's ability to perform its safety function at elevated temperatures demonstrated that equipment should perform its function, based on previous experience. However, no detailed calculations are available. Based on experience with Dresden's equipment, the thermal overloads have been noted to be oversized, so they will support operation at elevated temperatures.

Based upon the evaluated temperatures in the reactor buildings, especially on the 545' and the 570' elevations, a concern exists with the electrical protective devices such as molded case circuit breakers, fuses, and thermal overload (TOL) devices. These devices are inherently temperature sensitive. For molded case circuit breakers there are two types that need to be addressed. These are magnetic and thermal-magnetic only.

Circuit Breakers

The magnetic-only circuit breakers are usually used in a combination MCC starter along with thermal overload relays and thermal overloads. The magnetic circuit breaker is sized to allow for motor starting and acceleration and yet protect the field cable under fault conditions. These types of breakers are the least susceptible to elevated temperatures since they do not contain a thermal trip element.

Thermal-magnetic type circuit breakers are used for non-rotating loads such as transformers and heating elements. These circuit breakers protect the field cable and as well as supply the electrical load requirements. Although this specific circuit breaker does contain a thermal trip element and elevated temperature can affect its performance, it is anticipated based upon circuit breaker selection criteria, that sufficient margin exists to address the higher than expected temperature. Good engineering practices utilized the sizing criteria of the circuit breaker to protect the field cable and not the loads or service. This practice allows for larger sized circuit breakers than needed.

The Dresden EQ Binders contain the qualification of the motor control centers. The qualification included testing the MCC at 131 degrees F (55 degrees C) for 96 hours. The testing included size 1, 2, and 3 starters for continuous duty motors. This test utilized both types of circuit breakers with various amperage trip ratings. Based on the qualification report and the evaluation of the characteristics of the materials found in the MCCs, they were found to be acceptable for a post-LOCA temperature of 140 degrees F.

Thermal Overload Heaters

In selecting TOL heaters, a greater importance is placed on preventing spurious actuation of equipment than other selection criteria (i.e., overvoltage, undervoltage, etc.). In this regard, consideration is often given to selecting the next larger heater size. As a base criterion, the minimum TOL heater rating must be between 110 percent and 125 percent of motor full load current (FLI), depending on the motor service factor, and could be as high as 130 percent to 140 percent of FLI, again depending on motor service factor. From a historical perspective, there are no formally documented bases for original TOL sizes.

The Dresden EQ Binders contain the qualification of motor control centers. The qualification included testing the MCC at 131 degrees F (55 degrees C) for 96 hours. The testing included size 1, 2, and 3 starters for continuous duty motors. The heater elements and currents used are consistent with normal sizing methods listed in the sizing methods listed in the GE application catalog.

As part of the GL 89-10 program, the overloads for the MOVs were calculated using the assumptions of 50 degrees C ambient, twice full load current, and two strokes in determining acceptable thermal overload heater sizes. In addition, as modifications have been made to existing systems over the years and the associated TOL's were impacted by the change, calculations have been performed to document the heater selection. During the selection process of the new TOL heater, a general observation that the original heater selections were very conservative has been made. These heater sizes were usually one size larger than required by the current ComEd selection criteria.

For Dresden Station, many of the TOLs in use in 480 vac MCCs are original equipment which were manufactured by the General Electric Company (GE). The original TOLs are non-ambient compensated, meaning the TOLs were specified by GE to operate properly for a temperature range up to 40 degrees C (104 degrees F). As a result of the higher reactor building temperatures, it was questioned whether these non-ambient compensated TOLs would function properly to protect the motor against an overload and not trip prematurely due to the increased air temperatures.

To address this concern, calculations were prepared to determine whether the TOLs of safety-related, non-MOV services would function properly at the new post-accident temperature. The calculations looked at recommending revised settings or replacement TOLs for services that are at risk. Preliminary results of the calculations for the TOLs required for safe shutdown of the unit determined that only overload heaters would need to be replaced. The heaters for 16 services per unit were required to be replaced prior to April 20, 1998. At this time, these 32 services have had new overload heaters installed.

Based on the above, it is concluded the field changes made have restored sufficient margin in the TOL trip ratings to offset any premature tripping that could occur as a result of the increase in ambient temperature.

Testing of TOL relays

Design information for General Electric thermal overload relays in use at Dresden Station only exists up to 40 degrees C (104 degrees F). To further strengthen the engineering evaluations performed, an engineering test was developed through Nutherm International, Inc. to investigate the behavior of non-compensated and ambient compensated thermal overload relays and thermal overload heaters at elevated temperatures while under electrical load. This testing was covered under Nutherm Operability Test Procedure D-181P. The test indicated the initial operability assumption of 1 percent derating of the relay for every 1 degree C temperature rise was correct for equipment functionality up to 125 degrees F. The testing also showed that at temperatures greater than 125 degrees F, a larger derating factor would be required. For a 140 degrees F ambient temperature, it was determined that a derating factor of 1.35 (1.75 percent per 1 degree C temperature rise) was required. Overload heater replacements were sized based on the 1.35 derating factor.

Motors

The life of a motor is dependent on the temperature of its winding insulation. Continuous duty motors have insulation systems that are designed function at 105 degrees C (typically 65 degrees C rise over a 40 degrees C ambient). In addition the 10 degrees C rule states that the insulation life is reduced by 50 percent for each 10 degrees C above its rated maximum. However, the Dresden motors used to reach shutdown or mitigate an accident are not operated for years at a time and the brake horsepower required by most motors is somewhat less than the motor rating. Therefore, potentially operating at a higher ambient temperature may have an impact on insulation life, but would not impact the functionality of the motor and sizing a TOL for the higher current is acceptable.

Fuses

Fuses are used in the reactor building in the control circuits of MCCs and switchgear in both AC and DC applications. Control circuits are typically "non-dual element" type. Based on vendor data, a non-dual element type fuse would have a current rating of between 90-95 percent of its normal rating when used in a 140 degrees F ambient. Standard practice sizes fuses to at least 125 percent of the maximum load seen by the circuit. Therefore, a fuse meeting these criteria would not open on designed load current.

Instrumentation Setpoint Calculation Review

The I&C setpoint margin and loop accuracy calculations for safety related instruments in the reactor building were identified. An engineering review of the setpoint calculations was performed to determine the effect of elevated temperatures in the non-LOCA unit reactor building (most limiting case) within the first 24 hours after a LOCA in the other unit. This 24 hour screening period was used because these instruments would have performed their safe shutdown function by that time. This review was based on the time/temperature profiles identified in the base case reactor building temperature analysis.

Temperature effects are addressed within the setpoint calculation methodology. These temperature effects can be significant to the final setpoints, but are dependent upon the specific type of instrument, the process monitored, and the installation configuration. Using the maximum temperature differential between the calibration temperature and the maximum general floor area temperatures expected, positive margin in the setpoint calculation was maintained. The conclusion is that no instrument setpoint changes will be required due to the expected higher temperatures. This conclusion has been documented in NDITs (one for each I&C calculation). Future actions remain to incorporate the higher air temperature data into the I&C calculations and that action is being tracked by NTS 237-180-98-00104S1.

The I&C evaluation was extended to address the effects of the higher temperature environment on instrumentation located in the SDC pump rooms, the RWCU heat exchanger rooms, and the FPC pump area. The I&C equipment in these areas are not safety related and there are no specific calculations for these instruments. However, the equipment used in these areas are of the same manufacturers and model numbers as have been analyzed in other (safety related) applications. Vendor specifications indicate the maximum operating temperatures for these instruments can be as high as 180 degrees F, well beyond the temperatures expected in these areas.

In conclusion, Dresden Station has determined that equipment needed to safely shutdown both units in the higher temperature environment anticipated during the 30-day recovery period following a design basis accident will be able to perform as designed. There are no restrictions on this assessment. This conclusion is based on engineering judgement, analysis, and testing using conservative methodologies and assumptions. Necessary plant changes have been made (replacement of overload heaters required for safe shutdown) and compensatory actions to support operability have been taken as part of station operating procedures.

E. CORRECTIVE ACTIONS:

The following compensatory actions were taken to reduce the calculated maximum post-LOCA temperatures in the general areas of the reactor building:

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Dresden Nuclear Power Station, Unit 2	05000237	98	001	01	9 OF 10

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

The tarpaulin used to close the equipment hatches at 613 level of the reactor building was removed. The tarpaulin can only be installed during a refueling outage in the unit which is in refueling only. In addition, measures have been taken per Dresden procedure DMP 5700-05 to control the use and placement of tarps and plugs for the Reactor Building hatches. (complete)

Administrative measures were taken per Dresden procedure DGA 21 to require opening the South Turbine Building roll-up doors (if the Turbine Building ventilation is not operating) within 12 hours after the LOCA. (complete)

Administrative measures were taken per Dresden procedure DGA 21 to limit the number of shut down cooling pumps operated during the shutdown of the LOCA and non-LOCA unit to one per unit. (complete)

Administrative measures were taken per Dresden procedure DGA 21 to commence shut down of the non-LOCA unit within 12 hours after the LOCA and be in cold shut down within 20 hours post-LOCA. (complete)

Administrative measures were taken per Dresden procedure DGA 21 to shut down the Reactor Water Clean-Up system in the non-LOCA unit within 2 hours after the LOCA. (complete)

Administrative measures were taken per Dresden procedure DGA 21 to limit the number of fuel pool cooling pumps operated in the LOCA and non-LOCA units to one per unit within 2 hours after the LOCA and thus reduce the heat load into the non-LOCA unit's Reactor Building. In addition, measures have been taken to restore fuel pool cooling on the non-accident unit within 12 hours of the LOCA/ LOOP on the opposite unit, per DGA-12 and DOA 1900-01. (complete)

Administrative measures were taken per Dresden procedure DGA 21 to shut off the non-emergency lights of the reactor building within 48 hours. (complete)

Based on the revised operability evaluation, Dresden Units 2 and 3 are operable without restriction. The following corrective actions will be taken to restore the station to full qualification.

Perform an independent review of the reactor building post-LOCA temperature calculations. (complete)

Review the basis of the post-LOCA temperatures for the other EQ zones in Section 3.11 of the UFSAR and update Section 3.11 of the UFSAR. (NTS 237-180-98-00101)

Revise electrical voltage drop calculations. (NTS 237-180-98-00103S1)

Finalize I&C calculations. (NTS 237-180-98-00104S1)

Revise EQ program documentation. (NTS 237-180-98-00105S1)

The following corrective actions will prevent reoccurrence.

A design basis calculation for post-LOCA reactor building temperatures has been developed (Complete).

Currently design inputs and engineering calculations are controlled by ComEd NEP 12-01 and 12-02. Engineering input similar to the EQ zone temperatures are required to be documented in engineering calculations that are prepared, reviewed and approved per NEP 12-02 (Complete).

The Design Basis Initiative (DBI) is a formal program to review the UFSAR to ensure design basis

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Dresden Nuclear Power Station, Unit 2	05000237	98	001	01	10 OF 10

TEXT *(If more space is required, use additional copies of NRC Form 366A) (17)*

documentation exists for UFSAR commitments (In progress).

The corrective action identified above to revise the UFSAR to reflect the higher post-LOCA temperatures includes a review of the validity of environmental data throughout the UFSAR (In progress).

F. PREVIOUS OCCURRENCES:

None.

G. COMPONENT FAILURE DATA:

Not applicable. No component failed.